



Yukon Energy Corporation Southern Lakes Enhanced Storage Concept

What We Heard Report

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YEC SOUTHERN LAKES ENHANCED STORAGE CONCEPT ENGAGEMENT REPORT

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Design with
community in mind

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EXECUTIVE SUMMARY

OVERVIEW

This report documents the input received on the Southern Lakes Enhanced Storage project proposed by the Yukon Energy Corporation (YEC). The input was gathered during a series of community engagement events held from August 2019 to January 2020. This report provides both a summary of the broad direction provided by the input and includes all the specific comments and recommendations that respondents contributed.

YEC has been working on the Southern Lakes Enhanced Storage concept since 2009. If implemented, this project would mean storing more water in Marsh, Tagish and Bennett lakes in the fall and early winter to be used during the winter at the Whitehorse hydro plant. This would generate more electricity using water each winter and reduce the amount of liquefied natural gas and diesel needed to generate Yukon's power. To do this, a revision to the water license would be needed to increase the Full Supply Level (the controlled maximum lake level stipulated in YEC's water use license) by 30 centimeters for a limited period in the late fall, and a decrease of 10 centimeters to the Low Supply Level during the spring. Much planning, research, and consultation has been completed on this project since 2009 including engaging with Southern Lakes property owners, First Nations, Federal and Territorial government departments, non-governmental organizations, and the general public.

ENGAGEMENT METHODOLOGY

It was important to YEC that this engagement process be inclusive and transparent. To achieve this, a variety of methods were offered for gathering comments. Input was received through five community meetings, three Local Advisory Council meetings, four pop-up booths, an online form, email submissions, and both a Southern Lakes census and Yukon-wide web and phone survey. Information was available on the YEC website, a brochure sent to Yukon residents, a specific letter sent to all Southern Lakes residents, social media and print ads. The following sections describe each of the events and its purpose and provides an overview of what we heard.

Local Advisory Council Meetings

YEC met with the Marsh Lake, Southern Klondike, and Tagish Local Advisory Councils in September 2019, to introduce the upcoming engagement process, answer questions and get initial feedback.

Community Meetings

Community meetings were hosted throughout October 2019 in Tagish, Carcross, Whitehorse and Marsh Lake. At their request, a special community meeting was held for Kwanlin Dün First Nation citizens only. The purpose of the community meetings was to meet with the public, provide information about the proposed concept, answer questions and gather input. Key messages presented during the meetings



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included that YEC will be making a final decision on the future of this project in 2020, input is needed from Southern Lakes residents, and there are several opportunities to get involved. An open house was held both before and after the presentation.

Table 1 Number of Community Meeting Participants

Date	Location	Number of Participants
October 2, 2019	Tagish - Tagish Community Center	~39
October 7, 2019	Carcross - Learning Center	~19
October 8, 2019	Kwanlin Dün First Nation Citizens Nàkwät'à Kų Potlatch House	~1
October 15, 2019	Whitehorse - Coast High Country Inn	~44
October 16, 2019	Marsh Lake - Marsh Lake Community Center	~64

Pop-Up Booths

Pop-up booths were held at Marsh Lake Community Center (November 22, 2019), Tagish Community Center (October 23, 2019), and the Canada Games Center (November 12th & 16th, 2019). The purpose of the pop-up booths was to have an informal setting for residents interested in the project have one-on-one discussions.

Online Forms and Emails

Participants were able to submit questions or comments through an online form on YEC's website. Input was also received through direct emails to either YEC or Stantec staff.

Stakeholder & Other Letters

During the engagement process three letters were received from stakeholder groups; East Six Mile River Community Association of Tagish, Ducks Unlimited Canada (DUC) and Yukon Conservation Society (YCS). One letter was also received from a Southern Lakes resident.

Facebook Comments

During the engagement process there were several Facebook discussions about this proposed project. These comments made as part of this discussion were not part of the formal engagement on this project but are relevant to the project and have been considered in this report.

Online Survey

Between October and December of 2019, the Yukon Bureau of Statistics (YBS) conducted two surveys; one of people who live in or own property in Tagish, Marsh Lake or Carcross and one for residents and property owners in the rest of the Yukon. Respondents were contacted by email, mail and provided with unique codes to complete the online survey. For those who didn't respond, a follow-up was done by phone.



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The Yukon-wide survey was statistically relevant; and the YBS ensured that responses were received from people living in different communities and of different ages, genders, and income levels. This means that we can consider these results provided a clear picture of how Yukoners feel about this project. For the sample YBS reached out to all Southern Lakes households and to a representative sample of people from the rest of the Yukon. The responses to the survey were then weighted so that the results can be generalized to represent the adult Yukon population.

COMMENTS RECEIVED

Throughout the engagement process, 351 separate comments were recorded. This includes verbal comments made at the LAC meetings, community meetings, and pop-up planning booth, and written comments from emails, the online form, and both surveys.

Table 2 Number of Comments Received

Engagement Method	Number of Comments Received
Local Advisory Council	34
Community Meetings	119
Pop-up Planning Booth	2
Online Form	111
Facebook	62
Email Submission	22
YBS Survey	101
Total	452

WHAT WE HEARD

This section provides a summary of what was heard during the engagement period by identifying common values, key themes, and discussions surrounding support and opposition to the project. Responses from all methods have been included and wherever possible, qualitative and quantitative information are considered together.

Common Values

By reviewing all the input, the following generalized values have been identified and can be used to guide decision-making about this project.

Yukoners engaged for this project...

- Value the **environment**. They are concerned about climate change and **value using renewable energy sources**. They understand that demand for energy is increasing and want YEC to focus on increasing their renewable energy production to meet those needs.
- Value **financial responsibility** and efficiency. Many respondents provided comments about the importance of making good financial decisions when it comes to energy projects. Many respondents



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think that public funds should not be spent on projects that increase water storage; many think that this project makes financial sense; and many focus on a desire to see public dollars being spent on the 'right' project which will benefit everyone and be a long-term solution.

- Value **property rights** and want to see any negative impacts to private properties or First Nation lands being prevented entirely or mitigated to the satisfaction of those impacted.

Themes

Input received from Yukoners can be organized into the themes listed below.

Theme 1: Support for renewable energy

Many participants, regardless of their support for this project, expressed wanting YEC to increase the amount of renewable energy it produces. According to the survey, 82% of respondents (Yukon and Southern Lakes residents combined) think it is important for YEC to increase the amount of renewable energy it generates. This statistic is supported by many written and verbal comments received. In addition, many comments expressed support for further energy conservation and demand side management. Respondents also encouraged YEC to engage in renewable energy planning and begin working on new renewable projects to get ahead of the demand and reduce greenhouse gas emissions.

Respondents who expressed their support for the Southern Lakes Enhanced Storage project described their belief that the project would be a good method of increasing renewable energy production; whereas, respondents who did not support this project described their belief that YEC should focus on other types of renewable projects (for example wind, solar, geothermal, biomass, micro-hydro, large hydro projects located in other watersheds, and demand management).

Theme 2: Impacts to the environment

From the input received, it is clear that Yukoners are concerned about the environment in general and the Southern Lakes area in particular, which is an important area in the Yukon River watershed. From the survey, 87% of respondents (Yukon and Southern Lakes residents combined) agreed that YEC should place high importance on impacts to fish, wildlife, waterfowl, and wetlands when planning projects like this one.

According to survey, 80% of Southern Lakes residents believe this project will have negative impacts on the fish, wildlife and habitat. Two stakeholder groups, YCS and DUC submitted letters that outline environmental concerns and provide specific recommendations.

Respondents cited the following environmental concerns related to this project:

- Negative impacts to wetlands, streams, rivers, beaches, and all the resident and migratory species including fish, caribou, moose, swan and other wildfowl.
- Changing water levels will:
 - Impact the shoreline vegetation;
 - Lead to changes in water temperature and quality thereby contributing to decreasing fish populations; and



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- Have impacts on the wildlife habitat, wetlands, fish habitat, and the ability of fish to access spawning areas.
- Lowering the low supply level will have specific impacts on the environment in general, and aquatic plants and animals in particular.
- The project will lead to melting of permafrost and related increases in sedimentation which will impact fish, wildlife, and vegetation communities downstream.

Theme 3: Impacts to property

Respondents both in the Southern Lakes area and across Yukon expressed concern over impacts of the project on property. According to the survey, 26% of Southern Lakes property owners feel that their properties will be impacted by the project; of these:

- 28% think their properties will be impacted by erosion, and
- 45% think their properties will be impacted by changes to groundwater conditions

Most of the questions asked during the community meetings were from those who believe their properties will be impacted. The most common impacts to property cited were:

- Erosion which could:
 - weaken banks and vegetation, destroy property owners' stairs/ docks/ outbuildings/ trails, limit access to the water, remove beaches, shrink properties thereby reducing usability and property value, and threaten homes.
- Elevated groundwater which could:
 - flood basements/ crawl spaces/ septic fields, damage services, threaten water quality, impact vegetation, and limit use and future development of personal property.
- Higher water levels which could lead to:
 - increased risk of flooding threatening homes and increased insurance premiums.

Proposed Mitigation

While YEC has developed mitigation plans to reduce the impact of this project on properties, there is a sense from some respondents that background studies were not completed properly, and that the complex impacts of changes to the Southern Lakes system have not been properly studied and understood. Some respondents feel that climate change has led to changes in wind and weather patterns since the studies were completed. Some respondents were concerned that analysis was done using wind and weather data from Whitehorse, that does not accurately reflect the Southern Lakes systems. Some respondents have a different understanding of the conditions at their properties based on observations of the shoreline and water level dynamics each year. There are also a small number of respondents who believe that YEC is being purposefully deceptive when it comes to impacts and planned mitigation.

Of all Southern Lakes residents, 26% oppose YEC's erosion mitigation plans and 28% oppose YEC's groundwater mitigation plans. Of those who feel that their properties will be impacted, only 15% are satisfied with the mitigation planned, whereas 67% are dissatisfied with the mitigation planned. Many of written and verbal questions received were about which properties will be impacted, how impacts were



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determined, and specifics of the mitigation plans. Residents also wanted to know what would happen if YEC did not identify their property as impacted, but impacts are experienced in the future.

Theme 4: Impacts to First Nations lands and activities

Like impacts to private properties, many respondents provided comments related to impacts on First Nations lands and activities. According to the survey, 73% of respondents (Yukon and Southern Lakes residents combined) agreed that YEC should place high importance on impacts to heritage resources and traditional land uses when planning projects like this one. Respondents cited the following specific concerns:

- Increased water levels, which would compromise habitat, making hunting and trapping more difficult.
- Increased erosion and higher ground water levels could impact current homes and buildings and limit future development of First Nations lands.
- Proposed lower water levels would make it more difficult to launch boats and access water and lands for hunting and other traditional activities.

Continued Engagement

Respondents wanted to ensure that YEC would work with First Nations to protect heritage site and gravesites. There were also comments related to impacts on Settlement Lands in the Southern Lakes area. Respondents stated that YEC should be responsible for providing appropriate compensation to First Nations for impacts on current properties and buildings, and to deal with potential limits on future development.

At the community meeting in Carcross, concerns were voiced that Carcross Tagish First Nation government, citizens and Elders do not support this project. Many respondents want to ensure that the affected First Nations are in favour of this project before it moves ahead, and that YEC takes all available opportunities to collaborate on future biological studies, ongoing monitoring and adaptive management related to this project. The public would like to be provided with information about how First Nations have been involved to date, and their stance on the future of this project.

Theme 5: Importance of information sharing

It is clear from the number of questions that were asked during the engagement process that people want more information about this project and its impacts. When asked if they are familiar with the details of this project, 78% of Southern Lakes residents said that they were, whereas only 39% of Whitehorse residents and 22% of other Yukon residents said they are familiar with this project. This shows that despite YEC's efforts to provide information to the public, there are still many who do not know about this project or understand the details.

If this project goes ahead, it will be important to continue to work with affected properties owners to ensure that the project, timelines, and plans are well understood. Specifically, it will be important to continue to work with impacted property owners so that they are as involved as possible in designing mitigation on their properties and have up to date information. Also, if the project goes ahead, involving



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residents in, and sharing information about, monitoring and adaptive management will be important. If this project does not go ahead, it will be equally important to inform the public about this decision and how it was made.

Support and Opposition - Polarized Input

This project is complex and technical, and the details are not easy for the general public to understand. Through the engagement process, we heard both support for, and opposition to, the project.

Many of those who support the project, see it as a sensible renewable energy project and feel YEC has done a thorough analysis of the impacts and has adequately planned for mitigation. Those who oppose the project believe the process and studies are flawed, the proposed mitigation would not be sufficient, and the impacts to the environment and properties would be worse than projected. As an alternative to this project, many of those who oppose the project encourage YEC to focus on developing other renewable energy projects.

Support for the Southern Lakes Enhanced Storage project

Throughout the engagement process, a many people expressed support for the proposed project. By reviewing all the survey information and comments provided during in-person engagements, it is understood that support for the project exists because most the respondents feel the project supports their values:

- respondents feel the project is a good way of increasing renewable energy produced in Yukon;
- by enhancing the capacity of existing infrastructure, respondents believe the project is financial responsible and efficient; and
- while most respondents will not have their property impacted by the project, they believe the mitigation methods proposed by YEC will be enough to address the impacts of the project.

According to the survey, 73% of Yukoners (Yukon and Southern Lakes residents combined) would support this project, if YEC can show that impacts would be minimal. Also, 63% of written comments were from people who support this project. That said, very few people spoke in favour of this project during the community meetings. This discrepancy may be due to a lack of attendance at meetings by those in support of the project, or those supporting the project feeling uncomfortable voicing their opinions in a venue where there is so much vocal opposition.

As expressed in written comments, many respondents were frustrated about the ongoing opposition to this project as they felt the opposition is based on a misunderstanding of the project's details and misinformation about YEC's perceived role in previous floods. They also expressed concern that the vocal minority would potentially stop this project.

Opposition to the Southern Lakes Enhanced Storage project

Through all engagement methods, many respondents expressed their opposition to this project, specifically during the community meetings in Tagish, Carcross, Marsh Lake, and Whitehorse. Community members outlined serious concerns about the project's environmental impacts and the



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planned mitigation methods. Previous engagement on this project, summarized in Section 5, also revealed high levels of opposition.

By reviewing all the survey information and comments provided during in-person engagements, the following generalized statements are understood to be reasons why opposition to the project exists.

- Environmental impacts, as described in Section 6.2.2
 - According to the online survey, 25% of Yukoners do not support the idea of storing more water in lakes in general; 22% of Southern Lakes residents and 9% of all Yukoners expressed opposition to this project, even if YEC could show there would be minimal impacts on the environment.
- Impacts to private property and First Nations lands, as described in Section 6.2.3 and 6.2.4
- Financial efficiency
 - Many respondents did not support the use of public dollars to fund this project due to the impacts to properties and the environment.
- Lack of trust in the mitigation methods and the overall process
 - In addition to the concerns many respondents shared regarding proposed mitigation studies, many respondents expressed distrust in the overall process citing that YEC is not listening to the previous input provided, which they believe to have been ongoing opposition to the project by many Southern Lakes residents and property owners.

KEY FINDINGS AND CONCLUSIONS

The Southern Lakes Enhanced Storage Concept engagement process ran from September 2019 to January 2020 and was successful in gathering feedback from many Yukoners including Southern Lakes residents. This engagement process has been thorough, and the input received provides a good cross-section of Yukoner's opinions about this project.

Overall there is more support for the Southern Lakes Enhanced Storage Concept now than there was during previous engagement processes, with 63% of the written comments coming from those in support of the project. This enhanced support may be attributed to the following factors:

- Unlike in the past where primarily Southern Lakes residents were engaged, this engagement process involved reaching out to a broader audience of Yukoners. According to the survey, 73% of Yukoners (Yukon and Southern Lakes residents combined) would support this project, if YEC could show that impacts would be minimal. By engaging this larger group of respondents, there is likely a higher level of support for the project by those who will not be directly affected by any potential negative impacts.
- Also, since the last time engagement was undertaken, energy demand in the Yukon has continued to grow and many of those engaged believe we are now in a climate emergency. For these reasons, Yukoner's may now feel that finding additional renewable energy sources is more important than it was ten years ago.

While support for the project has increased since previous engagements, there continues to be significant opposition to this project, particularly from Southern Lakes property owners and residents. People in this area are concerned that erosion, groundwater, and changes to water levels will negatively impact the use of their properties/ docks/ stairs/ septic systems and damage shorelines/ beaches. Properties owners are



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worried that this in turn will lead to increased insurance premiums, increased flooding, decreased property values, and limits on the future development or resale of their properties. According to the survey, 26% of Southern Lakes property owners felt that their properties would be negatively impacted by the project. Of those who feel their properties would be impacted, only 15% were satisfied with the mitigation that YEC has planned. Many Yukoners were concerned that the project would have negative impacts on the populations and habitat of wildlife, fish, and birds in the Southern Lakes area. In addition, there was concern about impacts on First Nations lands, homes, buildings, and access to traditional lands and activities.

Considering everything that was heard during the engagement period, it is difficult to determine whether respondents were supportive of, or in opposition to the project as feedback was very polarized. When respondents were asked about their support for a similar type of project, that would not have any negative impacts or would have impacts that were mitigated to their satisfaction; they were in support of that hypothetical project. This tells us that Yukoners are generally in support of the idea of the Southern Lakes Enhanced Storage Concept and that it is the negative impact mitigation details that are of concern.

NEXT STEPS

Decision making

Using the information gathered to date, YEC will need to decide whether the Southern Lakes Enhanced Storage Concept will go ahead, be further reviewed, or abandoned in favour of different options.

When making this decision, YEC should consider if this project is in alignment with the values of Yukoners, as identified in this report, and if the potential impacts of the project can be mitigated to the satisfaction of those impacted.

Enhance education surrounding mitigation measures

There are no renewable or non-renewable energy projects that can be developed without impacts; however, the details surrounding mitigation measures were identified as key elements in the opposition to the project. Should YEC wish to increase the level of support for the project, it will be necessary to continue to communicate with affected property owners and the public with the goal of enhancing understanding of the project and the proposed mitigation measures. There are a variety of technical reports and engineering studies which support the mitigation plans and provide context for how mitigation would be done. These reports are not easily understood by average readers. Continuing to provide clear, digestible, and potentially visual information for the public may allow Yukoners to more accurately evaluate their support for the project. This could also help to reduce misinformation about this project and YEC operations in general.



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Strengthen relationships

Should this project go ahead, YEC should continue ongoing engagement with stakeholders to maintain relationships and minimize potential conflict during construction. This could involve:

- Undertaking clear and timely communication with property owners about the project generally, specific construction plans, design of mitigation projects, construction timelines, and information regarding anticipated impacts to their properties during construction.
- Developing a plan for dealing with how future impacts to properties that have not been predicted by current studies will be addressed and share this plan with the public.
- Collaborating with local First Nations and Southern Lakes residents to develop and carry out the ongoing monitoring and adaptive management programs.



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Abbreviations

Abbreviations

CEO	Chief Executive Officer
CTFN	Carcross Tagish First Nation
DSM	Demand Side Management
GHG	Greenhouse Gas
GY	Government of Yukon
KDFN	Kwanlin Dün First Nation
LAC	Local Advisory Committee
NIMBY	Not In My Back Yard
OHWM	Ordinary High-water Mark
SLES	Southern Lakes Enhanced Storage
SLWLC	Southern Lakes Water Level Committee
TKC	Ta'an Kwäch'än Council
UFA	Umbrella Final Agreement
YBS	Yukon Bureau of Statistics
YEB	Yukon Energy Board
YEC	Yukon Energy Corporation
YESAB	Yukon Environmental Socio-Economic Board

1.0 INTRODUCTION

1.1 OVERVIEW

This report documents the input received on the Southern Lakes Enhanced Storage (SLES) project proposed by the Yukon Energy Corporation (YEC). The input was gathered during a series of community engagement events held from August 2019 to January 2020. The engagement events consisted of community meetings, local advisory council meetings, and pop-up booths. There were also two different surveys, one for Southern Lakes property owners and one for Yukon residents. In addition, the public could provide written comments either by email or using an online form. This report provides both a summary of the broad direction provided by the input and includes all the specific comments and recommendations that respondents contributed.

1.2 WHY ARE WE HERE?

YEC has been working on the Southern Lakes Enhanced Storage (SLES) concept since 2009. This project would mean storing more water in Marsh, Tagish and Bennett lakes in the fall and early winter to be used during the winter at the Whitehorse hydro plant. This would generate more electricity using water each winter and reduce the amount of liquefied natural gas and diesel we need to use. To do this, a revision would be needed to the water license to increase the Full Supply Level (the controlled maximum lake level stipulated in YEC's water use license) by 30 centimeters for a limited period in the late fall, and a decrease of 10 centimeters to the Low Supply Level during the spring. In many years the water level of the Southern Lakes naturally exceeds the current conceptual Full Supply Level.

Much planning, research, and consultation has been completed on this project to date including engaging with First Nation governments, Federal and Territorial government departments, non-governmental organizations, and the general public. YEC has also been working closely with the residents of the Southern Lakes area whose properties are predicted to be directly affected by the project.

Over the last 10 years, many property owners, stakeholders, and members of the public have weighed in, both for and against this project. If this project went ahead, it would be an important step towards meeting customer demand using renewable sources. Before deciding to move forward and submit this project to YESAB for assessment, the Yukon Energy Board wanted to engage the community one last time to understand how Southern Lakes property owners and Yukoners in general feel about this project now. Stantec was hired in July 2019, to assist with both facilitating the engagement events and gathering and summarizing the input received.



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Section 2.0 Engagement Techniques

2.0 ENGAGEMENT TECHNIQUES

It was important to YEC that this engagement process be inclusive and transparent. To achieve this, a variety of methods were offered to for gathering comments. Input was received through five community meetings, three local advisory committee meetings, four pop-up booths, an online form, email submissions, Southern Lakes specific survey and Yukon wide survey. YEC created a page on their website (<https://yukonenergy.ca/energy-in-yukon/projects-facilities/southern-lakes-enhancement/>) to present background information, provide information about the community meetings, and host the online form.

YEC also kicked-off the engagement process by sending an information brochure to all Yukon residents and a specific letter with project information and an introduction to the property owner survey to Southern Lakes residents. Print and social media ads were also used to provide the public with information about this project. also had print and social media ads.

The following sections describe each of the events and its purpose and provides an overview of what we heard. Each of the individual comments received from all sources is included and analyzed in Section 3.0.

2.1 LOCAL ADVISORY COUNCIL MEETINGS

YEC wanted to begin this engagement process by touching base with the affected Southern Lakes Local Advisory Councils (LACs). Meetings were held with the Marsh Lake, Southern Klondike, and Tagish LACs in September 2019, to introduce the upcoming engagement process and answer questions.

During these meetings, Stantec provided a brief presentation about the project and work done to date and explained the upcoming engagement process and how people can get involved. There was an opportunity for those in attendance to ask questions and provide feedback. Notes were recorded by Stantec team members.

Tagish LAC

September 5, 2019

Travis Ritchie from YEC and Jamie Davignon and Zoë Morrison from Stantec attended the Tagish LAC meeting on September 5, 2019 at the Tagish Community Hall. This meeting was attended by LAC members and the 5 members public.

At this meeting, attendees wanted to know about the proposed monitoring and adaptive management programs, who would be involved and how local First Nations would be engaged. There were also questions about the potential impacts of climate change on the Southern Lakes system and how this project fits in with other renewable energy projects that YEC is working on.

Southern Lakes LAC

September 11, 2019

Michael Brandt from YEC and Zoë Morrison from Stantec attended the Southern Lakes LAC meeting on September 11, 2019 at the Caribou Crossing Trading Post. This meeting was attended by LAC members, 6 members of the public, and others presenting to the group on different topics.



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Attendees at this meeting ask questions about how the surveys will work and how the survey questions were developed. People wanted to know how the water levels on Bennett Lake will be impacted and how and where these levels are measured. There were also questions about energy planning; how the new battery will be used; if YEC tracks new electric-only homes; and if this project will lead to lower energy costs.

Marsh Lake LAC

September 19, 2019

Travis Ritchie from YEC and Zoë Morrison from Stantec attended the Marsh Lake LAC meeting on September 19, 2019 at the Marsh Lake Community Centre. This meeting was attended by LAC members and the general public.

At this meeting people voiced concerns about the wind levels on Marsh Lake. Some residents feel that wind speeds and direction have been changing over time and request that this be monitored by adding a wind station near the middle of the lake. Several residents also voiced concerns about the impacts that waves and wind will have on their property. People wanted more information about the wave action studies and some believe that these studies are not valid. Residents of the Relic Road area prefer the groin options and would like to see more detailed plans for this design options. Attendees also wanted to see maps of impacted areas and information about previously gathered input.

2.2 COMMUNITY MEETINGS

Community meetings were hosted throughout October 2019 in Tagish, Carcross, Whitehorse and Marsh Lake. At the request of the First Nation, a special community meeting was held for Kwanlin Dün First Nation citizens only. The purpose of the community meetings was to meet with the public, provide information about the proposed concept, answer questions and gather input. All members of the public were welcome, including property owners and representatives of local stakeholder groups.

Key messages presented during the meetings included that YEC will be making a final decision on the future of this project in 2020, input is needed from Southern Lakes residents, and there are several opportunities to get involved. Each of the meeting started with a 20-minute PowerPoint presentation delivered by Stantec followed by a question and answer period. An open house was held both before and after the presentation.

Ten display panels were set up for participants to review during the open house. Zoë Morrison, Stantec, and Travis Ritchie, YEC, delivered the presentation while Jamie Davignon and Kordel Parkkari, Stantec, were responsible for note taking. Andrew Hall, President and CEO, Michael Brandt, Vice-President, and Stephanie Cunha, Communications Manager, from YEC were also in attendance at the community meetings. A summary of the meeting discussion is described below.

Table 3 Community Meetings Summary

Date	Location	Number of Participants
October 2, 2019	Tagish – Tagish Community Center	~39
October 7, 2019	Carcross - Learning Center	~19



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Date	Location	Number of Participants
October 8, 2019	Kwanlin Dün First Nation Citizens* Nàkwät'à Kų Potlatch House	~1
October 15, 2019	Whitehorse - Coast High Country Inn,	~44
October 16, 2019	Marsh Lake - Community Center	~64

**This meeting was completed at request by Kwanlin Dün First Nation*

Tagish

October 2, 2019

Attendees: ~39 people in total

On October 2nd, Stantec hosted a community meeting for residents of the Tagish area from 5:30 pm to 7:30 pm with a presentation at 6:00 pm. Andrew Hall, Michael Brandt, Travis Ritchie, and Stephanie Cunha were in attendance from Yukon Energy Corporation. Michael Muller was also in attendance, representing Hemmera.

The meeting started off with concerns about the lack of trust with YEC and existing issues with the design and operation of the Lewes control structure at the base of Marsh Lake. A resident noted that there are protected waterfowl areas in the 6 Mile River and M'Clintock area and that these need to be considered. It was noted that the impacts of climate change need to be considered, and that climate change modeling shows that the Yukon is predicated to get warmer and wetter, with more variation and extremes in weather events. Questions were posed about other renewable energy options during the winter and what other projects are being considered to contribute to the renewable energy shortage. Attendees also voiced concerns about the impacts of increased erosion on their properties; many residents feel that the mitigation measure are not sufficient or are not planned in all locations where they will be needed.



Figure 1 Zoë Morrison presenting at the Tagish Community Meeting



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Carcross

October 7, 2019

Attendees: ~19 people in total

On October 7th, Stantec hosted a community meeting for residents of the Carcross area from 5:30 pm to 7:30 pm with a presentation at 6:00 pm. Andrew Hall, Michael Brandt, Travis Ritchie, and Stephanie Cunha were in attendance from Yukon Energy Corporation. Michael Muller was also in attendance, representing Hemmera.

In Carcross, a local elder stated that, in his view, the elders and citizens of Carcross Tagish First Nation (CTFN) did not support the project. They have noticed that there are no more muskrat and beaver in the lakes with the lower water levels. People see that natural erosion is already occurring and the increase in lake levels will make it worse. It was noted that it is the responsibility of the citizens to take care of the land and practice environmental stewardship. A representative from Carcross Tagish First Nation Land & Heritage department expressed that they would like another meeting with YEC to review the status of all the studies completed. People also had questions about how First Nations Umbrella Final Agreements impact his project.

Many residents stated that they are unhappy with the impacts related local hydro projects. Concerns were raised about the potential impacts of this project on spring bird migration, ungulate habitat and movement, ground water wells and ice conditions. Residents were also concerned about how this project could impact habitat, wildlife and human activities downstream and the impacts that climate change might have on the Southern Lakes system. The importance of demand side management was also mentioned.



Figure 2 Attendees at the Carcross Community Meeting



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Kwanlin Dün First Nation

October 8, 2019

Attendees: 1 person in total

On October 8th, Stantec hosted a community meeting for Kwanlin Dün citizens from 5:30 pm to 7:30 pm with a presentation at 6:00 pm. Michael Brandt, Travis Ritchie, and Stephanie Cunha were in attendance from Yukon Energy Corporation. Michael Muller was also in attendance, representing Hemmera. This meeting was completed at the request of Kwanlin Dün First Nation (KDFN).

A productive conversation was held with the single attendee at the KDFN community meeting. The participant had questions about other energy opportunities such as a control structure on Atlin Lake or pump storage at Cantlie Lake. Questions were asked about studies on the glacier water melt and how recent the climate change studies are. The citizen noted that KDFN has Settlement Land at M'Clintock and Judas Creek that may be affected by groundwater. Questions were asked about impacts on drinking water wells, gravesites and culturally sensitive areas.

As settlement land boundaries are normally determined by the high-water mark, the citizen wondered how this project would affect the size of their settlement lands. The citizens asked if there will be benefits for KDFN contracts during project implementation. Concerns were also raised about the effectiveness of the fish ladder at the Whitehorse Rapids Station and about plans for upgrades.



Figure 3 Zoë Morrison presenting at the community meeting for Kwanlin Dün citizens



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Whitehorse

October 15, 2019

Attendees: ~44 people in total

On October 15th, Stantec hosted a community meeting for all Yukon residents from 5:30 pm to 7:30 pm with a presentation at 6:00 pm. Andrew Hall, Michael Brandt, Travis Ritchie, and Stephanie Cunha were in attendance from Yukon Energy Corporation. Michael Muller was also in attendance, representing Hemmera.

At the Whitehorse meeting, the participants noted that the lake level wouldn't meet the new water license levels 65% of the time and that it would take almost 5 months for the lake levels to start lowering. A comment was also made that the lake levels haven't reach the existing full supply level for the past three years. Some attendees voiced concerns about YEC providing information to the public that is mis-leading. Attendees felt that YEC should be focusing on demand side management rather than on increasing energy capacity.

A participant noted that a report was prepared by the Southern Lakes Water Level Committee, made up of Southern Lakes residents and First Nation citizens. This report is available through the YEC website and includes feedback gathered during a survey of residents in the affected communities.

Questions were asked about other projects that YEC is investigating that would develop different energy sources with a faster payback. Many of the people who attended this meeting do not want to see this project go ahead and a small group wore T-shirts that said "YEC Leave the Southern Lakes Alone!"



Figure 4 Attendees at the Whitehorse Community Meeting



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Marsh Lake

October 16, 2019

Attendees: ~64 people in total

On October 16th, Stantec hosted a community meeting for residents of the Tagish area from 5:30 pm to 7:30 pm with a presentation at 6:00 pm. Andrew Hall, Michael Brandt, Travis Ritchie, and Stephanie Cunha were in attendance from Yukon Energy Corporation. Michael Muller was also in attendance, representing Hemmera.

The Marsh Lake meeting started off with concerns about future development implications and loss of enjoyment and utility of the land, which may affect the property value. Participants believe that the negative impacts of the project aren't worth it in the long term. Residents of Marsh Lake were concerned about the increase in winds and the effects of erosion on the clay banks with the increase in water levels. A note was made that mitigation from the original structure control structures was never addressed.

Many participants voiced concerns related to impacts of this project on their properties. Participants noted that there were effects on their properties from the freeze thaw cycle of the ice on the lake. Some community members think that YEC is not being transparent about the project details and cost.

Concerns were raised about the implications the project will have on home insurance. Residents asked about how they will be compensated for the project; whether it would be through monetary compensation, lower electricity rates or help with insurance. Residents addressed concerns about the potential for the project to not operate as projected and have larger effects on groundwater and erosion.



Figure 5 Marsh Lake Community Meeting



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2.3 POP-UP BOOTHS

Pop-up booths were held at Marsh Lake Community Center, Tagish Community Center, and the Canada Games Center. A pop-up booth involves taking the engagement event to where people are already gathering. The purpose of the pop-up booths was to have an informal setting for residents interested in the project to ask questions and have one-on-one conversation. The pop-up booths were not advertised in order to make the setting more informal.

Table 4 Number of Participants at Pop-up Booths

Date	Location	Number of Participants
October 23, 2019	Tagish – Tagish Community Center	~6
November 12, 2019	Canada Games Center (5:00 – 7:00 pm)	~10
November 16, 2019	Canada Games Center (12:00 – 2:00 pm)	~3
November 22, 2019	Marsh Lake – Marsh Lake Community Center	~5

Tagish Community Center

October 23, 2019

On October 23rd, Jamie Davignon, Stantec, and Travis Ritchie, YEC, attended the Wednesday Coffee & Chat at the Tagish Community Center. Community members had questions about if they're renting, how their property owners can get engaged, how the PIN worked for the survey, and if Yukon Energy has looked into other sources of renewable energy.

Canada Games Center

November 12 & 16, 2019

On November 12th and 16th, Jamie Davignon, Stantec, and Travis Ritchie, YEC, were the Canada Games Center during peak hours. On Tuesday, November 12th, they were there from 5:00 – 7:00 pm and on Saturday, November 16th, they were at the Games Center from 12:00 – 2:00 pm. Community members asked questions about a recent newspaper article regarding the change in the high-water mark. Another community member asked if biomass energy was feasible for energy production.

Marsh Lake Community Center

November 22, 2019

On November 22nd, Zoë Morrison, Stantec, and Travis Ritchie, YEC were at the Jackelope Dinner at the Marsh Lake Community Center. Several residents were engaged in informal conversations about the project in general and potential impacts including groundwater and erosion.

2.4 ONLINE FORMS AND EMAILS

Participants were able to submit questions or comments through an online form on YEC's website. Input was also received through direct emails to either YEC or Stantec staff. We received 111 comments from the online form and 22 emails. All of the online form and emailed submissions are available for review in Appendix A and B. Most of the written comments were either clearly for or against the project, but a small number of them were requests for more information.



Section 2.0 Engagement Techniques

2.5 STAKEHOLDER & OTHER LETTERS

During the engagement process three letters were received from stakeholder groups; East Six Mile River Community Association of Tagish, Yukon Conservation Society (YCS) and Ducks Unlimited Canada (DUC). One letter was also received from a Southern Lakes resident. These letters are included as Appendix C.

2.6 FACEBOOK COMMENTS

During the engagement process there were several Facebook discussions about this proposed project. These comments made as part of this discussion are not part of the formal engagement on this project but are relevant to the project and have been considered in this report. The points that people made that are specifically about this project are included in Section 3 and the full set of comments from Facebook are included in Appendix F.

2.7 ONLINE SURVEY

Between October and December of 2019, the Yukon Bureau of Statistics (YBS) conducted a census of households in the Southern Lakes region (Carcross, Marsh Lake and Tagish), as well as a sample survey of all other Yukon households. This survey was undertaken on behalf of the Yukon Energy Corporation. The purpose of the survey was to get Yukon residents' opinions on storing additional water in Marsh, Tagish and Bennett Lakes in the fall and early winter so that it can be used to generate more renewable power during the winter. The methodology and the results of the survey can be found in Section 5.0.



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Section 3.0 Summary of Comments

3.0 SUMMARY OF COMMENTS

In this section of the report, we provide a summary of all the comments received from all engagement sources (verbal comments made at the LAC meetings, community meetings, and pop-up planning booth, and written comments from emails and the online form) are presented for reference and recordkeeping purposes. This section is not a quantitative record of comments (for example situations where multiple persons made the same or very similar comments, it was only recorded once); a quantitative analysis of feedback is provided in Section 4.0. In this section, comments are not necessarily repeated exactly as submitted.

Comments presented in section were gathered from all different sources and engagement methods. In total, 351 separate comments were recorded as outlined in Table 2 Number of Comments Received.

Table 5 Number of Comments Received

Engagement Source	Number of Comments Received
Local Advisory Council	34
Community Meetings	119
Pop-up Planning Booth	2
Online Form	111
Facebook	62
Email Submission	22
YBS Survey	101
Total	452

To assist in YEC's decision-making, comments are presented in using three headings and then organized by theme:

- Support for the Project,
- Conditional Support for the Project, and
- Opposition to the Project.

Note: A complete record of each comment received throughout the engagement process has been included in Appendix A and B.

A more concise summary of all comments included in this section is provided in Section 6.0.



Section 3.0 Summary of Comments

3.1 PUBLIC COMMENTS

3.1.1 Support for the Proposed Project

The following summarizes comments received which were in support of the proposed project. Comments are organized into several themes: cost savings and efficiency, climate change, renewable energy, impacts and mitigation, comments about opposition, and other.

3.1.1.1 Financial responsibility and efficiency

- YEC is doing a good job educating people about this project, however there will always be those who remain willfully ignorant and ruled by their misinformed belief, not facts. This storage enhancement project is much more efficient than any wind or solar and will provide far more energy in the winter when we need it. This project is long overdue, will cost very little to implement and should be done as soon as possible.
- This project will result in the savings on energy costs immediately as the project can go ahead with very little investment.
- Project makes sense economically and environmentally; not going ahead would be financially irresponsible and disrespectful to taxpayers.
- There is no source of energy that comes with zero cost - whether monetary, social or environmental.
- Although this project will have some impacts on the Southern Lakes residents, it is the most responsible way to meet power demand, especially compared to other options which will be more expensive and take a long time to develop.
- The assets (lakes, control structures) that we have are very valuable and should be used to maximum capacity.
- This will produce more energy through the winter when we need it most and where most of the territory's population lives.
- Based on the positive impacts, the amount of work already done, and the amount of money already spent, this project should go ahead.
- It makes sense to find renewable ways to put off large investments in new energy generation projects

3.1.1.2 Climate change

- The proposed project has the potential to mitigate climate change in Yukon, which hasn't been a focus to date.
- Many community members believe we're in a climate emergency, therefore the proposed project should be undertaken immediately.
- Yukon needs the additional electricity and carbon reductions, and Yukoners should accept the necessary downsides.
- The proposed project will increase our climate change preparedness; and the results should be documented, celebrated and re-created.
- Yukoners need to take a hard look in the mirror and consider what we are really doing in terms of energy, emissions and climate change adaptation.
- Lower water levels are now a reality due to less rain so we should support this project.



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3.1.1.3 Renewable energy

- The proposed project is the single most important renewable project in Yukon and has many potential long-term environmental benefits.
- Many Yukoners want to see an increase in the production of renewable energy and a decrease the use of fossil fuels for energy production and see this project as an important step in the right direction.
- The proposed project is a quick and easy way to reduce Yukon's greenhouse gas production and fossil fuel use.
- Every potential energy project has environment, social and economic impacts.
- Yukoners should be moving towards a position where we use renewable energy exclusively and where thermal generation is only used during emergencies.
- Moving ahead with the proposed project will show that YEC has heard Yukoner's preference for renewable energy.
- The Yukon should have been building more renewable electrical capacity for years. It's unfortunate the utility didn't keep up to the need as demand has been increasing for years.
- The proposed project provides renewable energy in winter, when we need it most and when other renewables may not be viable.
- YEC should be working with Yukon First Nations to develop next-generation hydro projects across the Yukon.
- My Tagish property has seen significant natural erosion over the past decade; In spite of this, I am in favor of the projects as it is a positive move toward generating power with reduced reliance on fossil fuels.
- Population growth and new housing is being added; we need to be ready to provide a growing amount of green energy.
- We need to look ahead to sources of new green energy; especially with the propaganda about electrical 'green' heat.

3.1.1.4 Potential impacts and mitigation

- YEC has done a thorough job of both identifying this project's impacts and the appropriate mitigation; and of involving residents and First Nations in the process.
- The proposed mitigation to project effects appear to be appropriate.
- As the water level will not be raised, but rather held at the full supply level for a longer period, the impacts of this project should be minimal.
- Potential environmental impacts of this project are likely to be low; much lower than the impacts of building a new hydro-electric project or wind farm.
- The benefits of this project clearly outweigh the impacts.
- Despite the potential increase of erosion along shoreline properties, the proposed project is a net positive for the Yukon.
- Marsh Lake property owners should be compensated for the erosion to their shorelines caused by the prevailing fall winds and higher water. Property owners who want to add erosion protection should be given a reduced rate negotiated by YEC and all those who need erosion protection should be encouraged to participate.



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- People have built on the flood plan and need to take responsibility for this decision; if people had developed more wisely, this would not be an issue.
- Federal and territorial governments are responsible for building and land approvals; buildings should be set back appropriately from the high mark to prevent further issues with flooding and erosion.
- It is very generous of YEC to pay for mitigation in areas where property owners built on a floodplain. I wish the money was being spent on new green energy projects instead.
- I'm pleased that YEC has committed to install and maintain adequate erosion protection if the project proceeds.

3.1.1.5 Process and engagement

- Enough time and resources have been spent consulting people and planning mitigation; it is time to move ahead.
- There is frustration with the ongoing opposition to this project and the misinformation that being shared by opponents and, in some cases, the media.
- People have chosen to build homes on the floodplain and should have understood the risks that involved.
- As Miles Canyon is a natural barrier that sets the high-water levels in the Southern Lakes system and people who build at the shoreline should be aware of the natural fluctuation of the lake levels.
- Please don't let entitled, self-righteous, NIMBYs stop this project; there are so many benefits that there is really no argument against going ahead.
- The water resources and crown land around the lake are a public resource and should be used for the greatest good of the planet. This will mean change for some residents, but it is for the greatest good.
- This project should have gone ahead when it was first proposed; some people will be prepared to protest in favour, if Southern Lakes residents try to block it again.
- If this project doesn't go ahead, I strongly oppose any public money being spent on assistance to homeowners whose properties are flooding in future by natural highwater events.
- Need to be clear with the public that YEC operations do not affect the flood risk.
- I fail to see how Yukon Government justifies its lack of support of this project over the last 10 years. This is such a no brainer project! I'm so proud that YEC is finally taking on this project. I will be disappointed if it does not go ahead.

3.1.1.6 Other

- It is time for a serious and frank discussion about nuclear power.
- YEC policies will also impact how much energy is available for the public as opposed to for industry/mining.
- We need this additional capacity. We have spent too long having proposals rejected and are now in line for a chronic energy deficit.
- It is getting ridiculous the difficult time that YEC gets, and it should start demanding recognition of its work, not being the whipping boy for all Yukon's problems. YEC should be congratulated on their work towards energy solutions.



Section 3.0 Summary of Comments

3.1.2 Conditional Support for the Proposed Project

There were several people who provided written comments that voiced conditional support for the project. This means that they stated that they would support this project, provided that certain conditions were met. These conditions stated are summarized below.

Participants would support this project provided that:

- The mitigation is understood and properly communicated.
- The long-term impacts on properties and the environment can be effectively mitigated.
- The project is cleared by YESAB.
- The costs of this project are reasonable, affordable and defrayed over a long period of time and proper coordinated long-term erosion protection was in place.
- We put more effort into understanding how this project could increase the risk of flooding; especially as heavy rains may be more frequent with climate change. These risks need to be understood and communicated to the public.
- The proposed changes to low supply level are not implemented as this these low water levels will affect some residents ability to pump water for personal use.
- We have a clear understanding of the impacts of this project and the changing water levels on the Yukon river downstream. This is important as recreational paddlers and tourism business owners rely on predictable water levels.
- The project does not involve the drawdown beyond the range of natural variability as this will negatively impact a specific set of organisms as they become exposed to the air. This includes organisms ranging from numerous aquatic invertebrates and plants (whose life stages in the benthic zone will be lost to more frost exposure) to beavers (whose underwater entrances to lodges will be more likely to be exposed to air).
- There is a clear strategy to monitor the impacts of this project, undertake mitigation, and potentially stop the project if impacts cannot be mitigated.
- Residents who are expected to suffer the burden of this project should also derive benefit - in the form of reduced electrical rates for affected properties.
- Sufficient erosion measures are undertaken including:
 - Protection uses gabions or appropriate rock structures at all required locations.
 - Protection above the proposed water level increase to at least 1 meter above 2007 flood levels (to account for high water levels and wind-surge events).
 - Does not use a membrane such as that used at Swan Haven which is unnecessary and unsightly.
 - Shoreline protection would include removal of existing non-natural materials (plastics, tires, etc. - including those installed by YG and its agencies) prior to installation of rip-rap or similar material.



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- Shoreline protection should include an obligation to provide ongoing monitoring and repairs throughout the term of the water license, as wave action, ice plucking and other factors will surely require monitoring and ongoing maintenance.

3.1.3 Opposition to the proposed project

This section includes both comments from people who oppose this project and concerns voiced by people who did not specifically state whether they are for or against the proposed project. Comments have been organized by theme.

- The positives outcomes of this proposed project will not outweigh the potential risks.
- This project is not worth the amount of additional power that it will produce.
- This project will ruin people's lives and properties.
- The people in Southern Lakes already deal with impacts of high water and will not benefit from this project.
- Flooding wetlands and Army Beach should not be called an "Enhancement".
- The negative environmental impact of this project (shoreline erosion, beaver/wetlands/fish habitat), economically (winter travel hazards for tourism operators and trappers) and socially (altering First Nations land, impact on shoreline property owners, winter travel hazards for recreational and residential users of the lake) are not balanced with the 3% to 5% increase in power generation the project would create.
- The Southern Lakes need to be protected in the long term before any additional damage is done by holding more water.
- This project is not worth doing because the costs of stabilizing the shoreline, ongoing consultation, environmental assessment and compensation to be paid to the First Nations are too high.
- This project should not be considered clean energy.
- Damaging a few hundred properties and shorelines for a quick fix by raising water to support a few hundred homes with energy is not a long-term solution.

3.1.3.1 General impacts to private property and mitigation

- The details provided for this project are insufficient and there is limited understanding of unintended consequences.
- YEC will need to commit to paying for mitigation if there are unintended impacts now and in the future.
- Need to consider the loss of recreational enjoyment of the shores and beaches in the Southern Lakes area and changes to access that come along with this.
- Low water levels could mean that you cannot launch boats at Tagish Lake until much later in the season.
- This project will threaten stairs, access, docks, floats, and buildings on private property and on areas under a license of occupation.
- Trails and heritage areas will be impacted.
- Army Beach and the adjacent sandy point will be unusable; people will not be able to walk along the area's beaches.



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- There will be flooding along the Southern Lakes banks no question; this project will change how waters flow which in turn will lead to other changes that are not well understood.
- Studies of impacted properties and mitigation plans are not technically sufficient, and the thinking needs to be broader and longer-term. Climate change is happening and now there is open water later in the fall; this means a longer time when shorelines will be exposed to erosion.
- Residents affected by the project should be eligible to receive energy rebates.
- While I support increased use of renewable energy, I feel adequate, appropriate compensation for resident homeowners needs to be in place beforehand.
- Higher water will mean more insects.
- YEC must bear the costs of all relocated and above ground septic fields, buying out residents where impossible to remediate and repairing and maintaining all damage to shoreline. This is especially important as the power is needed for mines and not for citizens.
- Need to offer compensation for land area that will be lost to mitigation.
- Need to consider impacts on people who are planning to develop their properties further; but now have restrictions.
- Residents of Marsh Lake want to see the shoreline protected and support investments in renewable energy - this could be a win-win situation if the project is done right. This means proper shoreline and septic field protection is not for the whole lake.
- There is concern about the property owners who believe that their properties will be impacted, but YEC does not agree. YEC needs to outline a plan and process for dealing with these situations.
- There are many new properties owners in the Taku Subdivision in Tagish who were not involved in the earlier rounds of mitigation discussion and need to be provided with up to date information about potential impacts.
- Engineers do not understand the Southern Lakes system the way residents do.
- During the flood of 2008 some properties had higher than usual water but was not officially deemed as impacted by the flood. The flood weakened tree roots and years later, some of these have fallen on structures.
- YEC has not provided property owners with sufficiently detailed information about how their properties will be impacted.
- Holding the water levels at the proposed level will result in the flooding of a third to half of one respondent's property.

3.1.3.2 Insurance and Liability

- Including flood coverage means that our insurance premiums have doubled; and YEC has not offered to pay for these additional costs.
- Some residents who live a bit farther from the shoreline have declined enhanced water coverage protection and this means they now only have very basic water coverage, for example a broken line within the house. Erosion could change this situation quickly and mean that some property owners will need additional flood insurance.
- The cost to have enhanced water coverage is substantial (between \$1,000 and \$5,000 per year). Some residents feel that YEC should cover these costs for property owners, especially as shorelines move closer to homes.



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- Need to consider that some homes are already right by the shore; YEC will need to provide compensation if anything happens.
- Insurance premiums will go up as water levels go up.
- The erosion will eventually be threatening private residences and YEC will be responsible for their ongoing protection.
- Property owners want to be sure that YEC will be paying to rebuild if there is another flood.
- This project could also lead to reduced resale value of properties.
YEC must claim unrestricted ownership of all future liability related to this project; there may be many ongoing and unanticipated impacts that we will need to deal with in the future.

3.1.3.3 Impacts to First Nations lands and activities

- The proposed changes have the potential to impact the local First Nations' lifestyle and activities.
- Local First Nations people use Tagish Lake for traditional activities and the proposed low supply level will make it harder to launch boats and access areas for recreation, hunting and other activities.
- Raising the water level in the fall will also affect First Nations hunting as there will be limited shoreline for the moose to walk on.
- There is concern that Taku River Tlingit have not been properly consulted through this process.
- There is concern that Carcross Tagish First Nation government, citizens and Elders do not support this project.
- YEC infrastructure has had a negative impact on the local First Nations; for example there are no muskrats or beavers near residences anymore.
- When there is water on the ice it affects traditional ways of life; animals cannot be tracked and trapping is more difficult.
- YEC has provided the public with an impressive amount of information from research and studies; but there is still not enough information about discussions with affected First Nations.
- More of this type of work needs to be done in coordination with the First Nations and more information must be shared.
- Opportunities have been lost because the First Nation has had to deal with so many different subconsultants.
- Kwanlin Dün First Nation has land around Marsh Lake and they should be compensated for the extended duration of ground water that may impact future developments.
- A full list of all future biological studies should be provided, and these should all be done in collaboration with local First Nations. First Nations have already done work to protect existing shorelines adjacent to their lands. How will YEC be working to further protect these areas.
- Kwanlin Dün First Nation has gravesites along the shores, there must be a plan put in place to protect these sites.
- It is very important to me that full consultation with the affected First Nations has taken place. Impact on the ordinary high-water mark boundary (OHWM) of the settlement lands has been overlooked. A 30 cm rise in the storage level probably will not cause much of a visible change to most of the OHWM, but the rise will flood the low-lying areas (e.g. marshy areas) causing a change to the OHWM boundary in these areas. The elevation of the OHWM in these low-lying areas and other areas protected by the wind and wave action matches that of the current storage level. It may not be possible to define the OHWM boundary after a storage level change as the lakes lose some of their



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natural characteristics. Its complex, made even more so with such a small change to the regulated levels. Regardless, the flooded areas probably will need to be identified and dealt with under agreements with the First Nations. It will be difficult to identify the potential flooded areas prior to a storage level change; one option is to identify and survey the areas after 10 to 20 years when the flooding has caused a visible change to the vegetation and soil. There may also need to be some analysis and resurveys done to either update the OHWM locations or replace the OHWM with some other boundary definition.

3.1.3.4 Impacts on the environment

- There are concerns about the complex dynamics of the ground as it freezes along the shore and related changes to vegetation that stabilizes the shore and provides shelter and food for foxes, muskrats and beavers.
- Any modification to a water system is detrimental to the ecosystems involved.
- The permafrost shoreline on the northwest side of the lake (adjoining First Nations Settlement Land) is oozing melting clay into the lake. This leads to sedimentation which impacts fish, wildlife, and vegetation communities downstream. This happens because water levels have been kept artificially high for decades and this project would only make this worse.
- There are concerns about impact that lowering water levels will have on the wildlife habitat, wetlands and on fish populations (specifically Norther Pike), fish habitat, and the ability of fish to access spawning areas.
- This project will lead to significant impacts to one of Yukon's large and important watersheds.
- This project could lead to increased water temperatures and impacts to salmon.
- Migration of waterfowl and other birds will be impacted.
- Need to consider the impacts of the low water levels on wetlands.
- Wetlands, streams rivers, beaches and all their resident and migratory species will be impacted.
- Changing the water levels will impact the shoreline vegetation.
- There are concerns about impacts of this project on swans and the swan habitat.
- From South M'Clintock downstream to the control structure is a protected waterfowl habitat. This means there will be restrictions to the types of mitigation that can be done.
- There are concerns that the water levels are already contributing to decreasing fish populations and that this project will only make it worse.

The Southern Lakes area should not be seen as a piece of energy infrastructure, but rather a living system with unique shorelines, wetlands and inflowing rivers and streams.

3.1.3.5 Impacts on Ice Conditions

- Increasing water levels will affect ice dynamics, ice bridges and safe travel on ice.
- Ice has a direct impact on erosion; changes to water level will change ice conditions and work to increase erosion.
- Increasing the water flow out of Tagish Lake in the winter is bound to have a negative effect on ice conditions (causing extra stress fractures in the ice and thereby creating additional unsafe weak spots and overflow).
- Expanding ice when the water is high causes more damage than high water.



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Tagish Lake is used in the winter not only recreationally by Yukon and Atlin snowmobilers, skiers and mushers, and several tourism businesses depend on the ice conditions for part of their livelihood. Additionally, trappers and people who live without road access depend on the ice conditions. YEC should have a plan for handling potential accidents and the loss of business revenue related to deteriorated ice due to changes in water levels.

3.1.3.6 Impacts on water levels

- Water levels could be better controlled within the current high and low supply water levels. Participants feel that water is not managed as efficiently as possible.
- Increased water storage could have impacts on the water temperature, fish, and ice conditions and these are not well understood.
- Increasing the water level may impact the permafrost in the area.
- If this project goes ahead, instead of the four weeks that water is at a higher level, it will now be four to six months, which will have a huge impact.
- Lower water levels will have huge impacts on the Southern Lakes and on downstream areas.
- High water levels in the summer will make it difficult to access and enjoy the area's beaches and the Southern Lakes properties.
- Flood risks will go up as water levels go up. This project will lead to floods like we saw in 2007 and should not go ahead.
- Please stop misleading the public by implying the natural levels in the lake exceed that of the proposed Full Supply Level in every year. The proposed Full Supply Level is shown as lower than that of the natural annual fluctuation, but this only occurs every third or fourth year and the actual average highwater level matches your current Full Supply Level.
- YEC graphs on water levels are vague. YEC should publish a graphic that shows how high the Marsh Lake level the two years your organization flooded us. I lost my garden twice, there was not even comments from your organization except for the unbelievable audacity to ask permission to do it again. This could impact far more than wells or septic fields.
- Wind and waves from storms in October and November will damage properties when water levels are high.
- Aishihik Lake should provide an example of why this project won't work as planned.
- Drawing water levels down even lower in the spring could have significant impacts. For example, this could shorten the already limited window when recreational boating and swimming is possible.
- Feel that changing the water levels is irresponsible given the unpredictability related to climate change.
- Consider raising only Tagish and Bennett Lakes, but not Marsh Lake. This would hold more water than the proposed project.

3.1.3.7 Impacts related to erosion

- Ten meters from a lake's high water mark is deemed public land in Canada. Erosion from this project will mean that privately owned land will revert to being public land. YEC should have a plan for this.
- Having the banks erode at a faster rate will also put properties at a much higher risk for flooding during high water years.



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- Significant erosion is taking place in the Southern Lakes now and has been ongoing since the initial control structure was built. Some properties have lost two or three feet of shoreline during high waters, with some losing as much as ten feet over the last fifteen years.
- There has been no government support to deal with the current erosion and residents do not trust that YEC will assist after this project is completed.
- There is concern that this project will lead to increased erosion along shorelines where winds and boats can cause high waves.
- The erosion studies are flawed and must be redone; some were based on Whitehorse weather information which cannot be used as a proxy for the Southern Lakes. Higher water levels and high winds will lead to increased erosion.
- Some properties are very impacted by winds; high winds combined with high water will increase erosion. Winds are predominately from the south and this is the main cause of erosion.
- Some property owners believe their properties will be affected by erosions, but this is not shown in YEC studies. Erosion in some areas can change the complex dynamics and lead to unintended consequences.
- Future erosion may make it impossible for property owners to develop their properties.
- While it is agreed that erosion does happen naturally, this project will lead to a substantial increase in the rate of erosion.
- Higher water levels at freeze up will lead to more damage and erosion related to ice.
- There are concerns about shoreline erosion and changes to the riparian zone due to high water in late summer/fall, before freeze-up.
- The ground is made of silt, clay, sand and various sized gravels. Add water, frost and thaw, and you have a dynamic and unstable substrate to place riprap on. The riprap moves due to water, waves, soil dynamics, and the effects of frost. Water and frost breaks rock and riprap has washed downstream. Riprap needs to be added every year and is not a permanent erosion control. Many residents have been attempting to control erosion since the 1970's.
- This project will result in the destruction of existing retaining walls.
- Erosion has already threatened property lines on unprotected shorelines.
- The soils on the exposed eroded shoreline are very dynamic and there are sinkholes every spring.
- Erosion is going on all the time, because the lake system is now a reservoir. Every year, more and more trees and bushes are leaning over the ever-changing shoreline.
- YEC should be permanently protecting not just a few impacted properties, but the entire shoreline.
- The M'Clintock River is about 20 meters wide until late summer and during high water the river becomes part of the bay and is 10 times that width. This enlarged fetch creates more wave energy and the longer high water will mean more destructive the wave action.
- Relic Road area residents preferred the groin option, but residents have not seen a detailed concept plan for what this would look like.
- Some property owners have been paying for their own erosion control and would like to be compensated for this.
- The focus on erosion has been too narrow in Tagish; people believe that the impacts of erosion will be more widespread than originally thought. If water goes up another six feet the clay cliffs at M'Clintock Place will erode and the erosion rates will be even higher during high winds in the fall.



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3.1.3.8 Impacts related to groundwater

- Groundwater impacts will lead to further implications (tree root systems, septic beds, erosion) that go beyond the obvious assessed properties.
- The longer the water stays at high water level the greater the impact on the property.
- YEC needs to be prepared to deal with all impacts and fluctuations when existing septic fields are swamped, fail to work and cannot be rebuild.
- There is concern that this project will affect the drinking water quality in area wells.
- Ongoing erosion of the banks will mean that groundwater will seep closer to underground infrastructure and begin to impact heating and water lines.
- Information provided to property owners about mitigation work on septic fields and holding tanks has been minimal and the current level of information about groundwater mitigation does not give property owner the comfort they need to support this project.
- The dam is back feeding the river, which is impacting nearby properties.
- Current highwater levels stress the septic systems. YEC should be taking full responsibility for this.
- Following the flood in 2007, piezometers were installed and only measure for three years; this type of monitoring should have been ongoing.

3.1.3.9 Renewable energy and energy planning

- We need to rethink energy planning; there are other renewable options for producing power that have not been fully considered, such as wind, solar, geothermal, micro-hydro and biomass.
- Consider refurbishing or replacing the 40+ year old Whitehorse hydro turbines with more efficient ones, that would be hydro enhancement.
- YEC should focus on a long-term hydro project that will supply all the power needed now and to meet future projected demand.
- YEC needs to be using actual data to help avoid diesel generators or other supposed 'solutions' that are adding to the climate change problem.
- According to YEC's 20-year plan, it would only take one windmill to produce this much energy; we should build a windmill and then add on as our need grows.
- What to ensure that the mining industry pays their fair share of development costs for energy they will be using.
- Consider investing in energy storage in everyone's homes instead of flooding our wilderness.
- The ratepayer should not be on the hook for future flooding liability when YEC has not invested in other renewable energy sources to meet the winter demand.
- Natural gas is capped not too far from town; add a scrubbing plant and we could have cheaper heating and electricity.
- Wind and solar will never be able to power an industrialized society and they require huge amounts of resources and produce huge amounts of toxic pollution for every kWh generated. Most importantly they only last about a decade before they need to be replaced.
- Some residents are in favour of renewable energy but against mega-projects like this one that will have huge impacts on local residents.
- Pick another valley to dam.
- Poor long-term planning by YG and YEC does not mean that this project is the only solution.



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- Consider small local projects on some of Yukon's many rivers.
- YEC needs to demonstrate that they are considering a range of other projects.
- Consider nuclear power.
- YEC and ratepayers should not be subsidizing the mining industry by increasing power capacity (paid for by individuals. Mining development should pay the TRUE costs (internalize the externalities) and this should be reflected in consumer prices, as this has been shown to be a strong motivator towards sustainability.
- YEC should be taking a leadership role and be a climate change leader; this would help to retain social license.
- YEC needs to focus on real long-term planning and not a band-aid solution. To get off homes off oil, gas and propane, then the only other option is electric.
- YEC should focus on keeping the power on consistently.
Lewis Locks were built with lack of communication and not built according to approved plans. This structure is a restriction on the river and reduces YEC's ability to control water level. This should be checked, and repairs should be made.

3.1.3.10 Demand side management

- Some participants were concerned that there is a misconception that this project will meet demand; this is not the case as demand is increasing all the time.
- YEC can and should do more to manage demand; this is a key element of energy planning and it should be a focus.
- Power is cheap in Yukon and neither residents nor government are focused on reducing use. Higher energy costs will raise awareness and have made a big difference to energy demand in Europe.
- YG needs to focus on reducing energy use; consider less and/or more efficient streetlights.
- Not enough is being done to educate consumers about energy use. For example, what about promoting a rolling schedule to avoid peak-use problems, and training people to do their laundry during the day, or turn off unused breakers, unplug idle technology, and even cook at certain times.
- Yukoners could do more to reduce energy consumption. All citizens and companies and governments need to show northern leadership.
People should stop (or potentially not be allowed to) heat their homes with only electricity.

3.1.3.11 Comments about information and background studies

- Not clear when the studies were completed, or who did them, but instead of bringing consultants up from "down south" try talking to people who live here and know what they are talking about.
- More information is needed before this project can go ahead.
- Concern that wind speeds and directions have been changing in Marsh Lake over the course of this project. Wind information needs to be collected continuously and in the right locations.
- YEC should add weather stations; at least four on Tagish and four on Marsh Lake because the wind in the Southern Lakes area is completely different than in Whitehorse.
- Wave, erosion, ice and other hydrology studies on these lakes are needed because these lakes are not like other lakes each have unique wave action just like all water.
- Research and information provided has been slow in coming and extremely generic.



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3.1.3.12 Comments about process and engagement

- YEC should provide a summary sheet of all the studies completed to date.
- The maps online and the letter received did not match; some found the online maps difficult to read.
- YEC lacks transparency regarding this project and may be trying to deceive the public. Some property owners have not heard anything from YEC about potential risks to their properties. Some feel that YEC has not responded in a timely way to questions and requests for more information. There is concern that YEC isn't releasing all the information.
- Should not consider the opinions of Whitehorse residents as more important than Southern Lakes residents.
- Engagement material is deliberately misleading.
- The fact that YEC thinks it is alright to flood people's basements is disrespectful.
- There has been no information from YEC over the last three years; the public should be updated on what has happened and informed in order to make a decision.
- There are concerns about the timing of the survey. The survey opened in early October, yet some residents had not yet received letters by October 15; this should have been better organized.
- Ratepayers are once again paying outside contractors to carry out public engagement aimed at finding social license that was lost when YEC invested in LNG.
- Southern Lakes residents are against the project; please stop engaging residents and move on. Further engagement on this project is a waste of time.
- The survey should have provided space for comments and had the opportunity for respondents to suggest other options.
- The survey did not appear to provide or assure confidentiality, as is common with these types of surveys.
- The Southern Lakes Water Level Committee was originally supported by YEC. This committee surveyed members of community and found lots of misunderstandings about the project, and concerns about mitigation and climate change. The committee hired consultants to analyze these topics and hold meetings. All of this is summarized in a report, which YEC refused to put on their website.
- Need to ensure that all the properties co-owners are informed about impacts and mitigation.
- Very few Southern Lakes residents are being reached with the current YEC methods. Some have tried to do the survey online without success, some have never received the information email.
- Survey questions are leading; this is the worst YG survey that I have ever seen.
- There is a disconnect between YEC and local residents.
- It is misleading to say 500 homes will get new power when this will result in a reduction in the amount of diesel/LNG used.
- The CBC north website had an article this project and I believe that they have misquoted the president of YEC. "Hall said Yukon Energy has spent approximately \$7 million on studies and consultations so far. He said it would cost approximately \$9 million more to complete." $7 + 9 = 16$ million. I think Yukon Energy should contact CBC and get them to correct their story.
This is one of a number of projects and adding a bit of context would make it easier to understand how this project fits in with other renewable options being pursued.



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3.2 STAKEHOLDER COMMENTS

During the engagement process, three letters from stakeholders were received and one letter from a resident was received. These are included as Appendix C and are summarized below.

3.2.1 Ducks Unlimited Canada

Ducks Unlimited Canada (DUC) is interested in the Southern Lakes area due to its value to waterfowl and the presence of protected areas that ensures the conservation of their habitats. Lewes Marsh and Tagish Narrows were both identified as Habitat Protection Areas (HPA) through final land claim negotiations with First Nation governments. Although no management plan yet exists for either of these protected areas it is very likely that conservation of waterfowl use of these HPAs will be a significant focus. After having examined the information provided by YEC, they do not believe that impacts to waterfowl and wetlands would be minimal.

DUC has concerns about the impacts of the proposed water level changes on waterfowl habitat, specifically the vegetation that waterfowl depend on. Another concern is changes to the mudflats on M'Clintock Bay. Lastly, it is unclear how the change in water levels will impact ice cover of the lake outlets.

DUC recommends:

- An adaptive management approach whereby sufficient baseline data is collected, and robust monitoring protocols are enacted to determine if there are impacts to waterfowl and their wetland habitats due to changes in water level.
- A delay in implementing changes to the water regime until more baseline data is collected and that any changes to the water level regime are done in a reversible manner as knowledge of the impacts to the system are gained to allow for adaptive management to occur.
- Ongoing long-term monitoring of the waterfowl populations. Also, they believe that a phased approach with an incremental increase in water levels would work best.
- An updated bathymetric survey of M'Clintock Bay to address concerns related to sediment deposit.
- Ice extent and thickness monitoring would be required.

3.2.2 Yukon Conservation Society

The Yukon Conservation Society (YCS) also provided a written submission. YCS has some concerns about adding environmental stressors to those already experienced due to the Whitehorse hydro plant. They recognize the appeal of getting more energy from existing infrastructure, and they caution that environmental effects are not linear, and as water level ranges increase, we may reach thresholds and tipping points. They point to additional drawdown at the Aishihik facility as an example of negative impacts that can be expected. Their key concerns are:

- Additional springtime drawdown will be detrimental to wetlands on the lakes as well as those connected to the Yukon River downstream. YCS recommends that Yukon Energy remove the



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additional 10cm of drawdown from their proposed plan to mitigate adverse effects on springtime wetland habitat.

- Abrupt changes to the water level regime pose a risk to wildlife and ecosystems that need time to adapt. Any water level/timing changes should be gradual and potential effects monitored closely.
- Impact Significance methodology is not consistent among the preliminary impact assessments. Wind projects in the Yukon could provide winter energy which could mitigate Marsh Aishihik, and Mayo lake level fluctuations caused by overfilling and overdrawing water to meet winter demand.

3.2.3 East Six Mile River Community Association

The East Six Mile River Community Association of Tagish wrote to express their concerns regarding this project. They expressed difficulty in understanding the specific proposal and asked if the increased water level would be on top of the normal high-water mark or is it the historical high-water mark. They would like to understand how new water levels would relate to the height of docks.

For this group, it is important to note that most damage to the shore occurs in September and October with the fall winds. If the water level is higher this will increase erosion that is currently happening upstream of their properties. They do agree that there could be improvements in the controlling of the water level in the fall period so that they don't drop three to four feet by the end of November as they have been doing the last couple of years. They would like more information about the plans to deal with damage to shoreline if the water levels are raised.

3.2.4 Southern Lake Resident Letter Summary

A Southern Lakes resident wrote a letter addressed to representatives from Yukon Government, Yukon Energy, and the Yukon Water Board. The letter reviews the resident's concerns about the proposed project, relevant history, discussions on YEC's energy strategy, and potential energy options. The resident is concerned about increased flooding and inadequate infrastructure to relieve the flooding. The resident is also not confident that the proposed mitigation techniques will not be suitable for the increased erosion and groundwater elevations. The resident does not agree that a basket of projects will provide enough energy for the Yukon. The resident does not support the project.

3.3 QUESTIONS AND REQUESTS FOR MORE INFORMATION

Throughout the engagement period, many questions were asked through online submissions, public information sessions, popups, and emails. When questions were asked during public meetings, YEC provided verbal response, and a summary of these can be found in meeting notes in Appendix E.

The sections below provide an overview of the types of questions that were received. A full list is provided in Appendix D. YEC has attempted to respond to each question in a timely way, but is still working through some requests for information about impacts and mitigation on specific properties.

3.3.1 Mitigation and Compensation

- Who will be receiving mitigation? How will it be done for neighboring properties?



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- Where do property owners find information about the assessments completed on their properties?
- What does “not affected, not surveyed” mean in the letters?
- What mitigation devices will be used?
- Will YEC mitigate the damage that is already occurring due to current water levels?
- Will YEC be liable for damages if there are unforeseen damages.

3.3.2 Impacts to the environment

- What is the definition of “minimal impacts”?
- What can be done to mitigation erosion?
- Is global warming being considered? Is there a long-term plan with glacial melt?
- Is shelf-ice affected by this project?
- How will the new water levels impact nesting seagulls?
- What are in the impacts to Bennett Beach?
- Will slowing velocity mean that more sediment will be deposited, and lake depths will change?
- Will there be an increase in mercury poisoning?
- Has YEC taken into account that properties may have a license of occupation?

3.3.3 Water levels

- Have there been studies on glacial water?
- What is the definition of late fall / early winter?
- How will lake levels be monitored?
- How will lowering water levels affect wildlife and private wells?
- How will this project impact flooding?
- Why is YEC planning on raising water levels, if the water levels did not reach the max in 2018 and 2019? What caused 2019s low-water levels?
- Why is there flow all winter if YEC supposedly needs more water?
- Will the change in water levels affect docks?
Will this affect the ice coverage on the Yukon River during the winter?
- The proposed increase of 10cm at the bottom end is outside "natural lake levels". Is that because the baseline is post-dam, because of how the water management is currently licensed?
- Will the public be able to see the water level benchmark and observe compliance?
- How often does the lake level reach the proposed +30 cm level increase?
- In the mail-out it says that "We want to revise our water use license to CONTROL this much" Control 40 cm? How will Yukon Energy CONTROL these levels?

3.3.4 Financial responsibility and efficiency

- Will financial savings from the project be passed on to the consumer?
- Will the land and nature encroachment enhancements effect the price the consumer pays?
- Who is paying for the mitigation?
- How much will this project cost? What is the payback period?
- What is the annual budget for adaptive management and monitoring?



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- Will the control device need to be modified or rebuilt? If so, what will this cost?

3.3.5 Background reports

- Who completed the baseline studies? Where are the results? When were the studies completed?
- Was erosion measured during west winds?
- What future studies are planned?
- What is the methodology for the wave run-up analysis?
- Was the installed of a weir at Tagish studied?
- Have the First Nation done studies? Where are the results?
- Where is the information about impacts of low water levels on habitat, fish and wildlife?

3.3.6 Engagement

- Has the Renewable Resource Council been contacted?
- How will YBS reach those without a land line? Who developed the survey questions?
- What were the general comments at the meetings? What is the timeline to submit comments?
- What material is being presented at the meetings? Is there any new information?
- Will the Southern Lakes Water Level Committee report be distributed to decision-makers?
- Can meetings be set up with YEC staff to discuss the project in more detail?
- Which forms of communication takes precedence, the website or the mailing?
- Where are we at with the consultation with the First Nations?

3.3.7 Monitoring and adaptive management

- Who will be on the monitoring and adaptive management review committee? Will locals be involved?
- What is included in adaptive management? Will it be dynamic?
- What will be outlined in the water license to monitor? What thresholds will there be?
- Are adaptive management and mitigation clause incorporated into this projected?

3.3.8 Other

- What are other renewable energy options? Is this one of the highest priority projects?
- Has a dam at 6 Mile been considered?
- Has YEC looked at pump storage?
- How will the new battery be used?
- How much LNG will be replaced by this project?
- Where is the Order In Council for YEC to implement demand side management?
- Wind is viable on a larger scale; why hasn't YEC considered wind?
- What is likelihood of a transmission line to BC or Skagway?
- What are the incentives for reduction of use, there is a waste of electricity so should we cap that?
Can disincentives for use be implemented?
- Why is nuclear outlawed in Yukon?
- So many new homes are being developed with only electricity. Is this something that YEC tracks?
- Can YG choose to shut down this project?



Section 4.0 Quantitative Analysis

4.0 QUANTITATIVE ANALYSIS

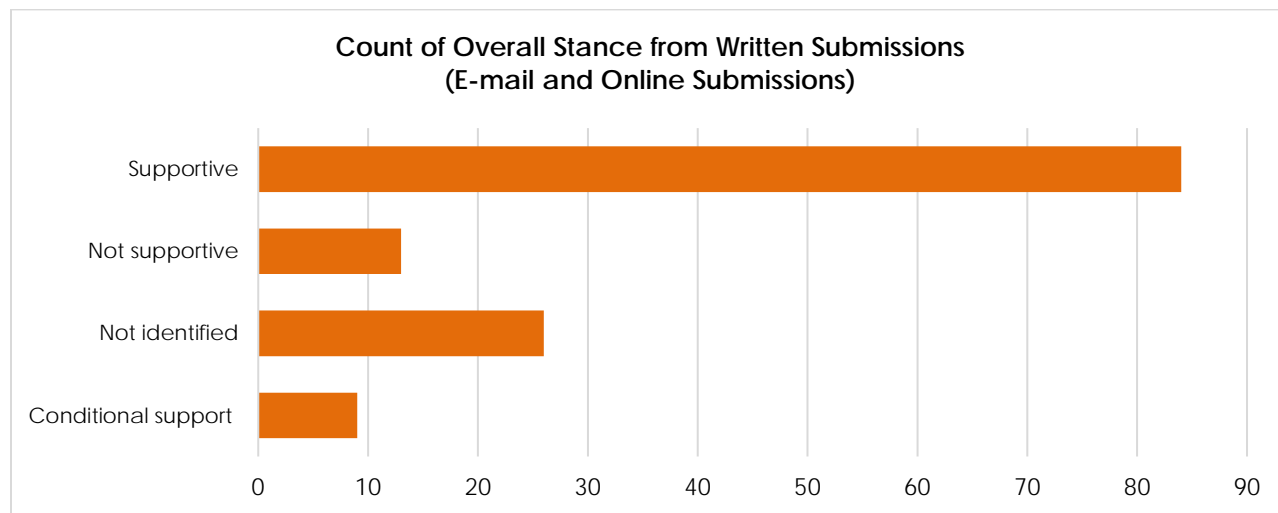
This section provides a quantitative analysis of both the responses received by email and online form (Section 4.1) and the results of online survey (Section 4.2). It is recognized that through this engagement process, there was potential for input duplication. People were able to attend multiple meetings and provide their input through the question period at the meetings, the survey, the online form and by email. It was also possible for people to submit both multiple copies of the online form, email submissions from several different email addresses. Given this information, we know that there is the potential to have some people's responses double counted.

Stantec recognizes that people who attended the community meetings tended to be residents and property owners who felt they would be impacted directly by this project and most did not support the project. It is not possible, however, to gauge exactly how many meeting participants were for or against the project. People who support the project tended not to speak up during the meeting, as is it difficult to speak up with a view that is different from that of your neighbours.

4.1 ANALYSIS OF THE EMAIL AND ONLINE FORM RESPONSES

From the 132 written submissions that were received, 84 voiced support for the project, 26 did not identify if they are for or against the project, 14 were against the project and 9 provided conditional support for the project. It is important to note that given that people who support the project tended not to want to speak up at community meetings, the online form was the main way to voice their opinions. Also, all Southern Lakes residents were given a specific opportunity to provide input through the survey, and so did not feel the need to use the online form.

Figure 6 Written Response Support for the Project



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Those who support the project stated that this is a cost-effective renewable energy project that should go ahead. Those who are against the project cited concerns about impacts to the environment, impacts to their properties, concerns related to the engagement process and background studies and general opposition to the project. The detailed responses have been included in Section 3.

4.2 ANALYSIS OF THE ONLINE SURVEYS

This section provides information from two surveys; one of people who live in or own property in Tagish, Marsh Lake or Carcross and one for Yukon residents in general. The survey was conducted between October and December 2019 by the Yukon Bureau of Statistics (YBS). Respondents were contacted by email, mail and provided with unique codes to complete the online survey. For those who didn't respond, a follow-up was done by phone.

For the Yukon-wide survey, YBS reached out to a sample and ensured that adequate responses were received from people living in different communities and of different ages, genders, and income levels. Responses received were weighted to provide a picture of what all adult Yukoners think about this project.

For the sample YBS reached out to all Southern Lakes households. The responses were then weighted to provide a picture of how all adult residents of the Southern Lakes feel about this project. Sections 4.2.1 through 4.2.5 summarize the quantitative results of the surveys. Any written responses to the survey can be reviewed in the complete report. A complete report of the survey's results is provided in Appendix H.

4.2.1 Methodology

The YBS used its household survey frame to identify households in the Southern Lakes area. In addition, a stratified random sample was drawn from all Yukon households outside the census area. One adult was randomly selected from each household for both the census and the survey. From the total sample drawn, the Bureau identified 701 eligible respondents from the census area and 862 eligible respondents from other parts of the territory. Those with invalid or incorrect contact information who could not be traced were removed from the samples. Respondents were contacted via emails or mails and provided with unique codes to complete the survey online. This was followed by a non-response follow-up by phone.

Analytical weights were applied to the responses to correct for non-response. The unweighted response rate was 76.3% for households in the census area, and 60.3% for the sampled households outside the census area. The refusal rate was 6.6% for the census area, and 10.2% for the remaining sample. The responses to completed surveys have been weighted so that the overall results can be generalized to represent the adult Yukon population.

4.2.2 Renewable Energy

Overall, the majority of respondents (82%) agreed that it is very important that YEC find ways to increase the amount of renewable electricity it generates. The support for renewable energy ranged from 75% in the Southern Lakes to 83% in Whitehorse.

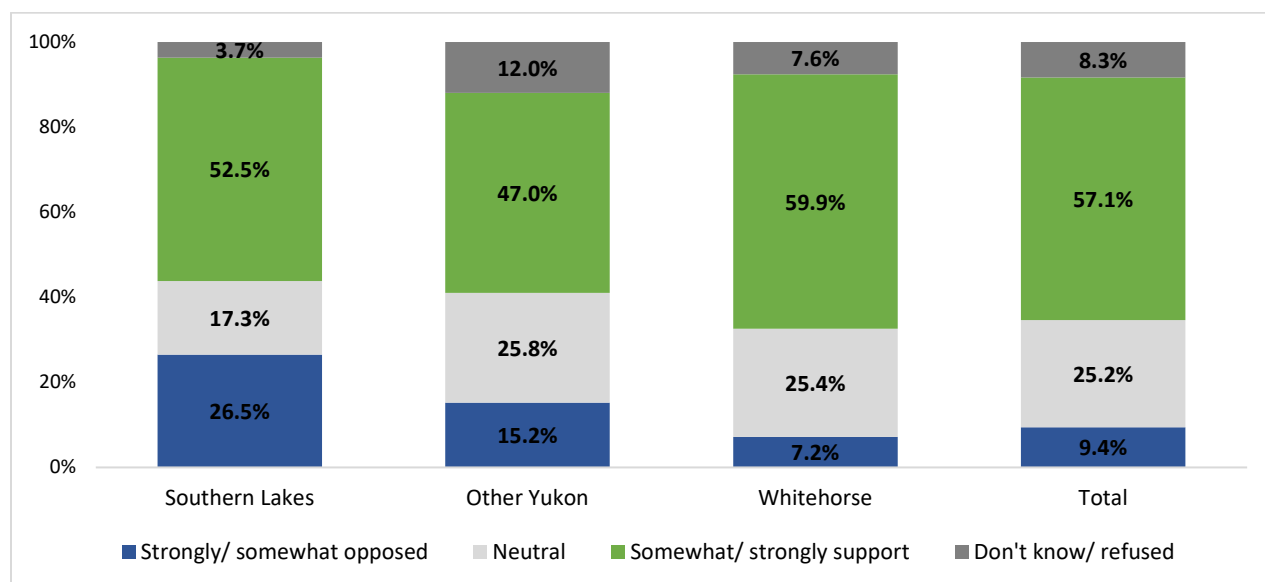


Section 4.0 Quantitative Analysis

4.2.3 Increasing Water Storage for Power Generation

The next question in the survey explored the option of YEC increasing the amount of water it stores in lakes during the fall and early winter to increase the amount of winter power generated. Overall, 57% of people expressed some level of support for increased water storage, 9% expressed some level of opposition, and 25% were neutral. As shown in Figure 6 below, there was more opposition to the idea by those in the Southern Lakes than elsewhere in the territory. This question is a general question about increasing water storage and is not specifically about the Southern Lakes Enhances Storage project.

Figure 7 Do you support YEC exploring options of increasing the amount of water it stores in lakes during fall and early winter so that more water can be used to generate power during the winter?



Those who opposed the idea of exploring options to increase the amount of water it stores in lakes during fall and early winter where asked about their concerns. The most common concern cited was that they don't support spending tax dollars on this type of infrastructure, followed by concerns about the impact on land usage or heritage lands, impact to private property and impacts on shoreline/erosion.

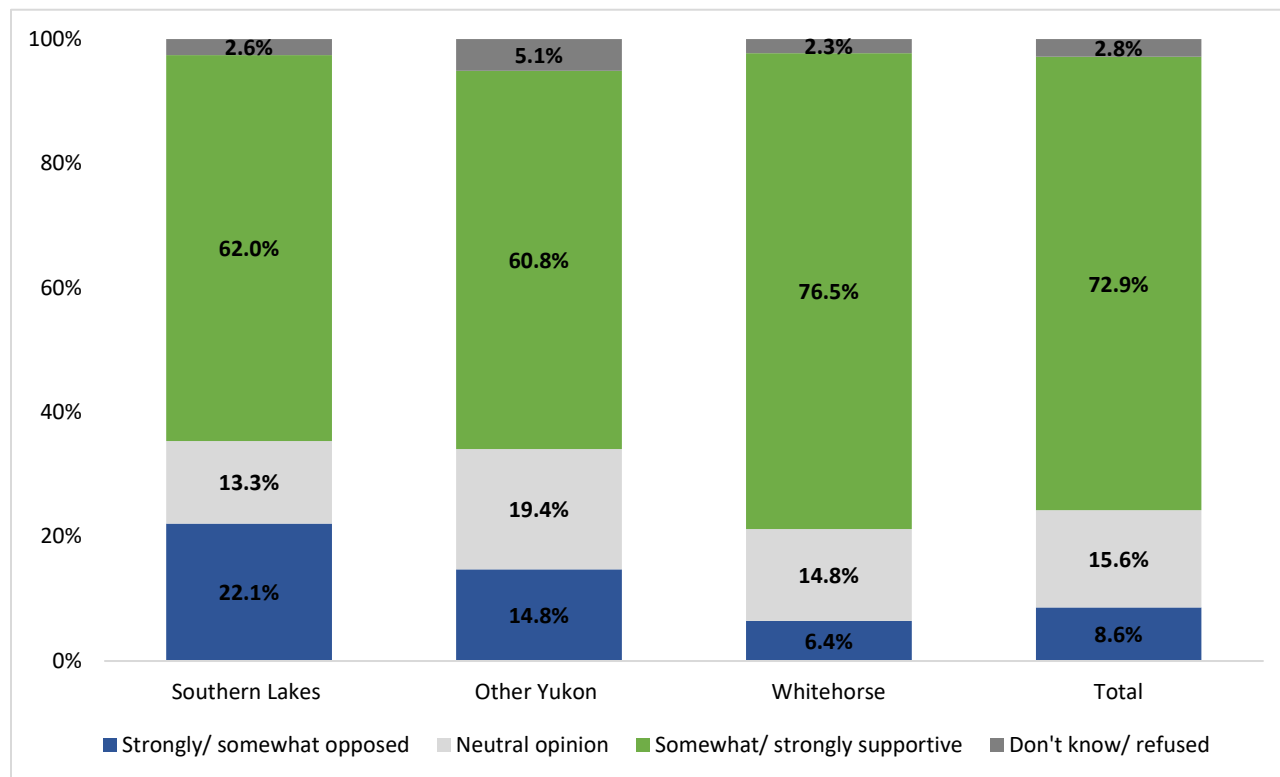
4.2.4 Southern Lakes Enhanced Storage

It is clear from the survey results, that Southern Lakes residents have a better understanding of this project than Yukoners in general. When asked, 79% of Southern Lakes residents are familiar with the details of this project, whereas this number drops 40% for Whitehorse residents and 23% for other Yukon areas.

When asked if YEC could demonstrate this project would have minimal effects on the environment, 62% of Southern Lakes residents said they would support the project, as compared with 77% of Whitehorse residents and 61% of residents of other Yukon communities.



Figure 7 If YEC could demonstrate this project would have minimal effects on environment, how likely would you be to either oppose or support increasing the amount of water stored in the Southern Lakes?



4.2.5 Importance of Different Impacts

Respondents were asked about the importance of various potential impacts that YEC should consider when planning hydro projects. Respondents could choose more than one option and residents from the Southern Lakes and the rest of Yukon gave similar responses.

- 87% of Yukoners think impacts on fish, wildlife, waterfowl and wetlands are extremely important.
- 73% of Yukoners think impacts on heritage resources and traditional land use are extremely important.
- 69% of Yukoners think that shoreline erosion is extremely important.
- 69% of Yukoners think that septic tanks and sumps below ground and basements and crawl spaces near the shoreline are extremely important.

4.2.6 Southern Lakes Opinions about Impacts and Mitigation

The survey contained several questions specifically for Southern Lakes residents. When asked, 26% percent of Southern Lakes residents said they feel their property will be negatively affected by this project. Residents who believe their properties will be impacted were asked how this project will affect



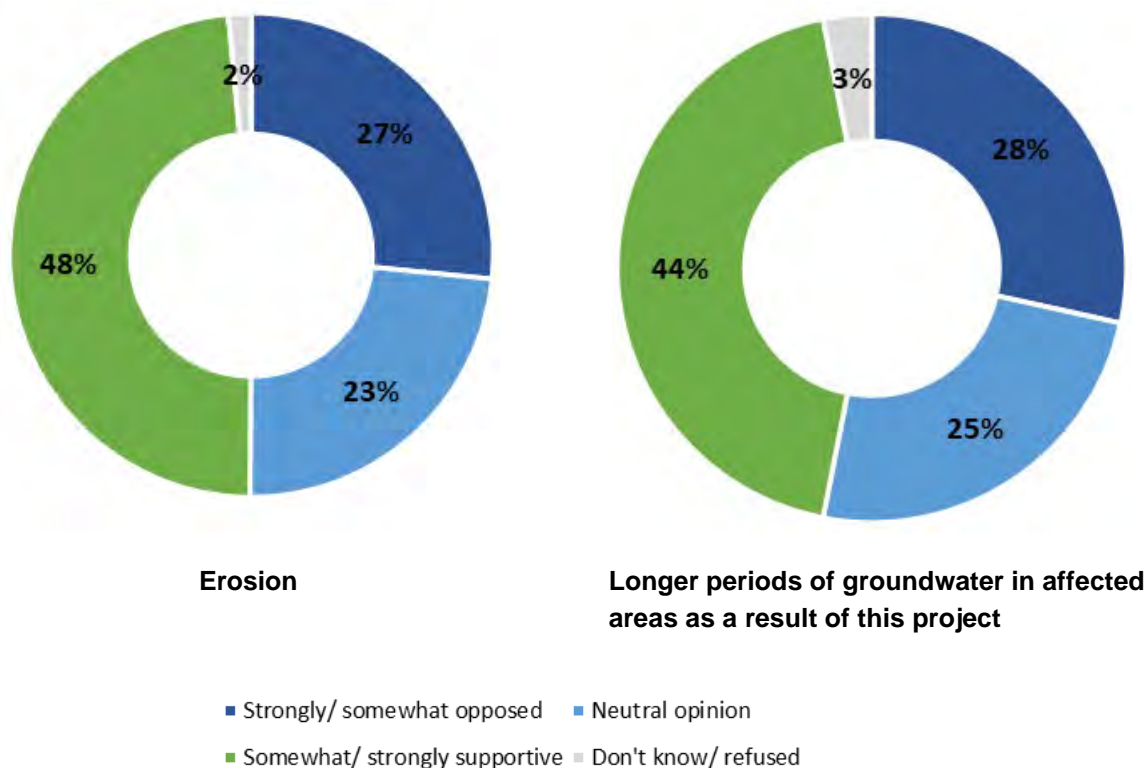
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Section 4.0 Quantitative Analysis

their properties; 28% of respondents say there will be shoreline/erosion impacts, 45% of respondents say there will be groundwater issues, 81% say there will be issues related to fish, wildlife or habitat, and 81% say there will be other impacts. Common themes of other reasons cited were flooding, property loss, property or servicing systems' damage, and financial or insurance coverage concerns.

All Southern Lakes residents were asked questions about the extent to which they support or opposed YEC's plans to mitigate impacts related to erosion and groundwater; 27% of Southern Lakes respondents somewhat or strongly oppose the plan for erosion mitigation and 28% somewhat or strongly oppose the plans for groundwater mitigation.

Figure 8 To what extent do you oppose or support Yukon Energy's plan to address erosion and ground.



A small portion of Southern Lakes residents (8%) stated that they have been contacted by YEC to discuss potential solutions to their concerns; however, only 15% of those contacted were satisfied with YEC's proposed solutions and 67% were dissatisfied with the solutions.



5.0 PREVIOUS ENGAGEMENT PROCESSES

YEC began planning and engaging Yukon residents on the Southern Lakes Enhanced Storage (SLES) Concept in 2009. Kwanlin Dün First Nation (KDFN), Ta'an Kwäch'än Council (TKC), and Carcross/Tagish First Nation (CTFN), along with the Federal and Territorial government have been engaged in studying the concept. Affected stakeholders, the general public and Southern Lakes residents have also been engaged and consulted with about the proposed project.

The following table highlights the engagement and consultation conducted throughout the project timeline:

Table 6 Previous Engagement Timeline

Timeline	Proposed Project Stage	Description	Who Was Consulted
2009 – 2010	Project Initiation	<ul style="list-style-type: none"> • Concept introduction & rationale • Description of proposed studies • Direct engagement with affected landowners 	<ul style="list-style-type: none"> • Communities – Carcross, Tagish, Marsh Lake • First Nations – KDFN, CTFN, TKC • Federal & Territorial Governments
2010 – 2013	Baseline Study Design, Execution & Results Reporting	<ul style="list-style-type: none"> • Baseline information collected about key interest & affected values • Baseline data made publicly available • Local public and community dialogue was supported & financed through the Southern Lakes Water Level Committee 	<ul style="list-style-type: none"> • Communities – Carcross, Tagish, Marsh Lake • First Nations – KDFN, CTFN, TKC • Federal & Territorial Governments • Stakeholders
2013 – 2017	Preliminary Effects Assessment, Mitigation, Monitoring & Adaptive Management Planning, Technical Review	<ul style="list-style-type: none"> • YEC developed & discussed preliminary analyses on the potential effects • Additional studies completed to support & increase understanding of analysis & conclusions • Drafting of an early mitigation, monitoring and adaptive management framework 	<ul style="list-style-type: none"> • Erosion affected property owners • Groundwater affected property owners • First Nations – KDFN, CTFN, TKC • Property owners NOT proposed for mitigation

5.1 MARSH LAKE ENGAGEMENT PLAN

In 2010, AECOM developed an engagement plan for Yukon Energy to facilitate community, First Nation and stakeholder engagement needed to move the proposed project through the regulatory process. The plan identified a strategy to engage with the First Nations, communities, and affected stakeholders. It identified key project issues and considerations along with an outline for initial engagement steps.



Section 5.0 Previous Engagement Processes

5.2 SOUTHERN LAKES WATER LEVEL COMMITTEE REPORT

In 2012, community meetings were held in Tagish, Carcross, and Marsh Lake and a decision was made to form a committee specific to helping inform the community members of the proposed project. This committee was called Southern Lakes Water Level Committee (SLWLC) and was supported by YEC. The original purpose of this committee was to provide another assessment of this proposed project and attempt to fill information gaps.

The committee identified the following interests and concerns:

1. Understanding the Concept
2. Water Ethics, Hydrology / Flooding
3. Erosion
4. Groundwater
5. Wildlife / Vegetation
6. Mitigation
7. Climate Change

The committee then hired independent consultants to review the studies and reports completed by YEC, summarize the results, identify data gaps and present their findings at a public meeting in a format that the general public and community members would understand.

To understand how Southern Lakes residents and the public in general felt about this project, the SLWLC contracted Market North Promotion Systems to develop a poll. This poll was open to anyone to complete online. The SLWLC also conducted door-to-door meetings with residents to get responses to the poll. The data produced includes all completed polls, and separates them into the open poll that anyone could complete and polls completed during the door-to-door meetings. These results do not reflect a representative or random sample but rather provides a report on input received from the public and Southern Lakes residents. The findings of the SLWLC are included in Appendix I.

The committee found that the community was not in support of the proposed project. The poll asked if respondents oppose or support Yukon Energy's proposal to "hold the water high" in Marsh Lake.

Table 7 Responses to the question "Do you oppose or support YEC's proposal to "hold the water high" in Marsh Lake?"

	Total Input	Survey Type	
	Non-Random Sample	Open to Everyone	Southern Lake Residents Only
I strongly oppose it	46 (51%)	8 (36%)	38 (56%)
I somewhat oppose it	21 (23%)	4 (18%)	17 (25%)
Neither support or oppose	5 (6%)	3 (14%)	2 (3%)
I somewhat support it	13 (14%)	4 (18%)	9 (13%)
I strongly support it	5 (6%)	3 (14%)	2 (3%)
Total	90 (100%)	22 (100%)	68 (100%)



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Section 5.0 Previous Engagement Processes

Southern Lakes residents are concerned about their properties and want the area and beaches to remain as they are today. They are also concerned about the overall effects this project would have on wildlife and ecosystems. Residents believe there are data gaps that have not been addressed. They want to deal with existing impacts related to water levels before changes are made that may make issues worse.

5.3 COMMUNITY AND HOME-OWNER ENGAGEMENT

As described in the 2017 Planning Overview, YEC completed engagement with Southern Lakes residents and homeowners including public meetings, workshops, and an outreach and public education program.

5.3.1 Erosion Mitigation

A survey was completed for the overall support for the proposed project by participants whose properties would be potentially be impacted by erosion. In most cases, the mitigation would be installed on Crown Land, below the ordinary high-water mark.

Table 8 Support for the Proposed Project by Potential Erosion Impacted Property Owners

Response Type	Number of Responses	Percentage
Support the Proposed Project	18	55%
Do Not Support the Proposed Project	3	9%
Undecided	8	24%
No Response	4	12%
Total	33	100%

5.3.2 Groundwater Mitigation

A survey was completed for the overall support for the project by participants whose properties would potentially be impacted by groundwater. The groundwater program identified 153 properties that were within the zone of influence and 53 of those properties would likely need mitigation. 71 of the properties were surveyed to confirm infrastructure elevations and 12 of the properties were evaluation by an engineer. Table 9 below shows that 28% of groundwater-effect property owners supported the project, whereas 21% did not.

Table 9 Support for the Project by Potential Groundwater Impacted Property Owners

Response Type	Number of Responses	Percentage
Support the Proposed Project	15	28%
Do Not Support the Proposed Project	11	21%
Undecided	18	34%
No Response	9	17%
Total	53	100%

It was noted that some of the property owners in the “undecided” category stated that they would provide a response once a more detailed mitigation work was provided after the YESAB assessment is.



Section 6.0 Conclusions

6.0 CONCLUSIONS

This section provides a summary of what was heard during the Southern Lakes Enhanced Storage Concept engagement period by identifying common values, key themes, and summarizing the support for/ opposition to the project.

Multiple engagement methods were used throughout the process, responses from all methods have been consolidated in this conclusion and wherever possible, qualitative and quantitative information are considered together. This section is intended to present information, arguments, and conclusions for decision-makers to consider regarding this project's future.

6.1 COMMON VALUES

By reviewing all the survey information and comments provided during in-person engagements, the following statements can be made about respondents' values which can be used to guide decision-making regarding this project.

Yukoners engaged for this project...

- Value the **environment**. They are concerned about climate change and **value using renewable energy sources**. They understand that demand for energy is increasing and want YEC to focus on increasing their renewable energy production to meet those needs. They also see demand side management as a key piece to the energy puzzle.
- Value **financial responsibility** and efficiency. Many respondents provided comments about the importance of making good financial decisions when it comes to energy projects. Many respondents think that public funds should not be spent on projects that increase water storage; many think this project makes financial sense; and many focus on a desire to see public dollars being spent on the 'right' project which will benefit everyone and be a long-term solution.
- Value **property rights** and want to see any negative impacts to private properties and First Nation lands being prevented entirely or mitigated to the satisfaction of those impacted.

6.2 KEY THEMES

The following were key themes heard during engagement.

6.2.1 Theme 1: Support for renewable energy

Many participants, regardless of their support for this project, expressed wanting YEC to increase the amount of renewable energy it produces. According to the survey, 82% of respondents (Yukon and Southern Lakes residents combined) think it is important for YEC to increase the amount of renewable energy it generates. This statistic is supported by many written and verbal comments received. In addition, many comments expressed support for further energy conservation and demand side management. Respondents also encouraged YEC to engage in renewable energy planning and begin working on new renewable projects to get ahead of the demand and reduce greenhouse gas emissions.



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Respondents who expressed their support for the Southern Lakes Enhanced Storage project described their belief that the project would be a good method of increasing renewable energy production; whereas, respondents who did not support this project described their belief that YEC should focus on other types of renewable projects (for example wind, solar, geothermal, biomass, micro-hydro, large hydro projects located in other watersheds, and demand management).

6.2.2 Theme 2: Impacts to the environment

From the input received, it is clear that Yukoners are concerned about the environment in general and the Southern Lakes area in particular, which is an important area in the Yukon River watershed. From the survey, 87% of respondents (Yukon and Southern Lakes residents combined) agreed that YEC should place high importance on impacts to fish, wildlife, waterfowl, and wetlands when planning projects like this one.

According to survey, 80% of Southern Lakes residents believe this project will have negative impacts on the fish, wildlife and habitat. Two stakeholder groups, YCS and DUC submitted letters that outline environmental concerns and provide specific recommendations.

Respondents cited the following environmental concerns related to this project:

- Negative impacts to wetlands, streams, rivers, beaches, and all the resident and migratory species including fish, caribou, moose, swan and other wildfowl.
- Changing water levels will:
 - Impact the shoreline vegetation;
 - Lead to changes in water temperature and quality thereby contributing to decreasing fish populations; and
 - Have impacts on the wildlife habitat, wetlands, fish habitat, and the ability of fish to access spawning areas.
- Lowering the low supply level will have specific impacts on the environment in general, and aquatic plants and animals in particular.
- The project will lead to melting of permafrost and related increases in sedimentation which will impact fish, wildlife, and vegetation communities downstream.

6.2.3 Theme 3: Impacts to property

Respondents both in the Southern Lakes area and across Yukon expressed concern over impacts of the project on property. According to the survey, 26% of Southern Lakes property owners feel that their properties will be impacted by the project; of these:

- 28% think their properties will be impacted by erosion, and
- 45% think their properties will be impacted by changes to groundwater conditions

Most of the questions asked during the community meetings were from those who believe their properties will be impacted. The most common impacts to property cited were:



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Section 6.0 Conclusions

- Erosion which could:
 - weaken banks and vegetation, destroy property owners' stairs/ docks/ outbuildings/ trails, limit access to the water, remove beaches, shrink properties thereby reducing usability and property value, and threaten homes.
- Elevated groundwater which could:
 - flood basements/ crawl spaces/ septic fields, damage services, threaten water quality, impact vegetation, and limit use and future development of personal property.
- Higher water levels which could lead to:
 - increased risk of flooding threatening homes, decreased property values and increased insurance premiums.

Proposed Mitigation

While YEC has developed mitigation plans to reduce the impact of this project on properties, there is a sense from some respondents that background studies were not completed properly, and that the complex impacts of changes to the Southern Lakes system have not been properly studied and understood. Some respondents feel that climate change has led to changes in wind and weather patterns since the studies were completed. Some respondents were concerned that analysis was done using wind and weather data from Whitehorse, that does not accurately reflect the Southern Lakes systems. Some respondents have a different understanding of the conditions at their properties based on observations of the shoreline and water level dynamics each year. There are also a small number of respondents who believe that YEC is being purposefully deceptive when it comes to impacts and planned mitigation.

Of all Southern Lakes residents, 26% oppose YEC's erosion mitigation plans and 28% oppose YEC's groundwater mitigation plans. Of those who feel that their properties will be impacted, only 15% are satisfied with the mitigation planned, whereas 67% are dissatisfied with the mitigation planned. Many of written and verbal questions received were about which properties will be impacted, how impacts were determined, and specifics of the mitigation plans. Residents also wanted to know what would happen if YEC did not identify their property as impacted, but impacts are experienced in the future.

6.2.4 Theme 4: Impacts to First Nations lands and activities

Like impacts to private properties, many respondents provided comments related to impacts on First Nations lands and activities. According to the survey, 73% of respondents (Yukon and Southern Lakes residents combined) agreed that YEC should place high importance on impacts to heritage resources and traditional land uses when planning projects like this one. Respondents cited the following specific concerns:

- Increased water levels, which would compromise habitat, making hunting and trapping more difficult.
- Increased erosion and higher ground water levels could impact current homes and buildings and limit future development of First Nations lands.
- Proposed lower water levels would make it more difficult to launch boats and access water and lands for hunting and other traditional activities.



Section 6.0 Conclusions

Continued Engagement

Respondents wanted to ensure that YEC would work with First Nations to protect heritage site and gravesites. There were also comments related to impacts on Settlement Lands in the Southern Lakes area. Respondents stated that YEC should be responsible for providing appropriate compensation to First Nations for impacts on current properties and buildings, and to deal with potential limits on future development.

At the community meeting in Carcross, concerns were voiced that Carcross Tagish First Nation government, citizens and Elders do not support this project. Many respondents want to ensure that the affected First Nations are in favour of this project before it moves ahead, and that YEC takes all available opportunities to collaborate on future biological studies, ongoing monitoring and adaptive management related to this project. The public would like to be provided with information about how First Nations have been involved to date, and their stance on the future of this project.

6.2.5 Theme 5: Importance of information sharing

It is clear from the number of questions that were asked during the engagement process that people want more information about this project and its impacts. When asked if they are familiar with the details of this project, 78% of Southern Lakes residents said that they were, whereas only 39% of Whitehorse residents and 22% of other Yukon residents said they are familiar with this project. This shows that despite YEC's efforts to provide information to the public, there are still many who do not know about this project or understand the details.

If this project goes ahead, it will be important to continue to work with affected properties owners to ensure that the project, timelines, and plans are well understood. Specifically, it will be important to continue to work with impacted property owners so that they are as involved as possible in designing mitigation on their properties and have up to date information. Also, if the project goes ahead, involving residents in, and sharing information about, monitoring and adaptive management will be important. If this project does not go ahead, it will be equally important to inform the public about this decision and how it was made.

6.3 SUPPORT FOR/ OPPOSITION TO THE PROJECT

This project is complex and technical; as such, the details are not easy for the general public to understand. Throughout the engagement process, we heard polarized input: both support for, and opposition to, the project.

Many of those who support the project, see it as a sensible renewable energy project and feel YEC has done a thorough analysis of the impacts and has adequately planned for mitigation. Those who oppose the project believe the process and studies are flawed, the proposed mitigation would not be sufficient, and the impacts to the environment and properties would be worse than projected. As an alternative to



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Section 6.0 Conclusions

this project, many of those who oppose the project encourage YEC to focus on developing other renewable energy projects.

6.3.1 Support for the Southern Lakes Enhanced Storage project

Throughout the engagement process, a many people expressed support for the proposed project. By reviewing all the survey information and comments provided during in-person engagements, it is understood that support for the project exists because most the respondents feel the project supports their values:

- respondents feel the project is a good way of increasing renewable energy produced in Yukon;
- by enhancing the capacity of existing infrastructure, respondents believe the project is financial responsible and efficient; and
- while most respondents will not have their property impacted by the project, they believe the mitigation methods proposed by YEC will be enough to address the impacts of the project.

According to the survey, 73% of Yukoners (Yukon and Southern Lakes residents combined) would support this project, if YEC can show that impacts would be minimal. Also, 63% of written comments were from people who support this project. That said, very few people spoke in favour of this project during the community meetings. This discrepancy may be due to a lack of attendance at meetings by those in support of the project, or those supporting the project feeling uncomfortable voicing their opinions in a venue where there is so much vocal opposition.

As expressed in written comments, many respondents were frustrated about the ongoing opposition to this project as they felt the opposition is based on a misunderstanding of the project's details and misinformation about YEC's perceived role in previous floods. They also expressed concern that the vocal minority would potentially stop this project.

6.3.2 Opposition to the Southern Lakes Enhanced Storage project

Through all engagement methods, many respondents expressed their opposition to this project, specifically during the community meetings in Tagish, Carcross, Marsh Lake, and Whitehorse. Community members outlined serious concerns about the project's environmental impacts and the planned mitigation methods. Previous engagement on this project, summarized in Section 5, also revealed high levels of opposition.

By reviewing all the survey information and comments provided during in-person engagements, the following generalized statements are understood to be reasons why opposition to the project exists.

- Environmental impacts, as described in Section 6.2.2
 - According to the online survey, 25% of Yukoners do not support the idea of storing more water in lakes in general; 22% of Southern Lakes residents and 9% of all Yukoners expressed opposition to this project, even if YEC could show there would be minimal impacts on the environment.
- Impacts to private property and First Nations lands, as described in Section 6.2.3 and 6.2.4
- Financial efficiency



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- Many respondents did not support the use of public dollars to fund this project due to the impacts to properties and the environment.
- Lack of trust in the mitigation methods and the overall process
 - In addition to the concerns many respondents shared regarding proposed mitigation studies, many respondents expressed distrust in the overall process citing that YEC is not listening to the previous input provided, which they believe to have been ongoing opposition to the project by many Southern Lakes residents and property owners.

6.4 FINAL THOUGHTS

The Southern Lakes Enhanced Storage Concept engagement process ran from September 2019 to January 2020 and was successful in gathering feedback from many Yukoners including Southern Lakes residents. During the engagement period, over 160 people attended community meetings and more than 450 written comments were received. By partnering with the Yukon Bureau of Statistics, an online and telephone survey reached over 1,000 respondents and results were then weighted to represent the adult population of the Yukon. This engagement process has been thorough, and the input received provides a good cross-section of Yukoner's opinions about this project.

Overall there is more support for the Southern Lakes Enhanced Storage Concept now than there was during previous engagement processes, with 63% of the written comments coming from those in support of the project. This enhanced support may be attributed to the following factors:

- Unlike in the past where primarily Southern Lakes residents were engaged, this engagement process involved reaching out to a broader audience of Yukoners. According to the survey, 73% of Yukoners (Yukon and Southern Lakes residents combined) would support this project, if YEC could show that impacts would be minimal. By engaging this larger group of respondents, there is likely a higher level of support for the project by those who will not be directly affected by any potential negative impacts.
- Also, since the last time engagement was undertaken, energy demand in the Yukon has continued to grow and many of those engaged believe we are now in a climate emergency. For these reasons, Yukoner's may now feel that finding additional renewable energy sources is more important than it was ten years ago.

While support for the project has increased since previous engagements, there continues to be significant opposition to this project, particularly from Southern Lakes property owners and residents. People in this area are concerned that erosion, groundwater, and changes to water levels will negatively impact the use of their properties/ docks/ stairs/ septic systems and damage shorelines/ beaches. Properties owners are worried that this in turn will lead to increased insurance premiums, increased flooding, decreased property values, and limits on the future development or resale of their properties. According to the survey, 26% of Southern Lakes property owners felt that their properties would be negatively impacted by the project. Of those who feel their properties would be impacted, only 15% were satisfied with the mitigation that YEC has planned. Many Yukoners were concerned that the project would have negative impacts on the populations and habitat of wildlife, fish, and birds in the Southern Lakes area. In addition, there was concern about impacts on First Nations lands, homes, buildings, and access to traditional lands and activities.



Section 6.0 Conclusions

Considering everything that was heard during the engagement period, it is difficult to determine whether respondents were supportive of, or in opposition to the project as feedback was very polarized. When respondents were asked about their support for a similar type of project, that would not have any negative impacts or would have impacts that were mitigated to their satisfaction; they were in support of that hypothetical project. This tells us that Yukoners are generally in support of the idea of the Southern Lakes Enhanced Storage Concept and that it is the negative impact mitigation details that are of concern.

6.5 NEXT STEPS

Decision making

Using the information gathered to date, YEC will need to decide whether the Southern Lakes Enhanced Storage Concept will go ahead, be further reviewed, or abandoned in favour of different options.

When making this decision, YEC should consider if this project is in alignment with the values of Yukoners, as identified in this report, and if the potential impacts of the project can be mitigated to the satisfaction of those impacted.

Enhance education surrounding mitigation measures

There are no renewable or non-renewable energy projects that can be developed without impacts; however, the details surrounding mitigation measures were identified as key elements in the opposition to the project. Should YEC wish to increase the level of support for the project, it will be necessary to continue to communicate with affected property owners and the public with the goal of enhancing understanding of the project and the proposed mitigation measures. There are a variety of technical reports and engineering studies which support the mitigation plans and provide context for how mitigation would be done. These reports are not comprehensible to average readers. Continuing to provide clear, digestible, and potentially visual information for the public may allow Yukoners to more accurately evaluate their support for the project. This could also help to reduce misinformation about this project and YEC operations in general.

Strengthen relationships

Should the Southern Lakes Enhanced Storage Concept project go ahead, YEC should continue ongoing engagement with stakeholders to maintain relationships and minimize potential conflict during construction. This could involve:

- Undertaking clear and timely communication with property owners about the project generally, specific construction plans, design of mitigation projects, construction timelines, and information regarding anticipated impacts to their properties during construction.
- Developing a plan for dealing with how future impacts to properties that have not been predicted by current studies will be addressed and share this plan with the public.
- Collaborating with local First Nations and Southern Lakes residents to develop and carry out the ongoing monitoring and adaptive management programs.



APPENDIX A

Online Form Submissions



YEC SOUTHERN LAKES ENHANCED STORAGE CONCEPT ENGAGEMENT REPORT

Appendix A Online Form Submissions

Appendix A ONLINE FORM SUBMISSIONS

The following table lists all the online form submissions and the date they were submitted.

No.	Date	Submission
1	Sep 16, 19	I am fully supportive of this project. The concept is simple, cost-effective and as far as I could tell; a low risk to the environment and local residents. The needs of the many outweigh the unfounded fears of the few NIMBY's who oppose this project. Do not be persuaded by those politically connected individuals who are trying to stop this project from proceeding.
2	Sept 16, 19	I fully support this project. 6.5 GWh sounds like about 1.5% of annual grid consumption and my understanding is that a typical year requires about 95% hydro and 5% thermal generation to meet the demand. If that is the case, the SLE project could offset 10-50% of the thermal generation required (depending on the year) annually. If that is the case, I feel that this should be shared with the public since opposition to the use of diesel and LNG seems high... It does not seem right that what seem to be few opposing Marsh Lake and Tagish residents are preventing the optimization of existing infrastructure and the reduction of a substantial amount of emissions?
3	Sept 16, 19	I strongly support the Southern Lakes Enhanced Storage Project and consider it's implementation as long overdue. It's the "lowest hanging fruit" of our electrical conservation/efficiency options; move ahead with it ASAP.
4	Sept 16, 19	This is a great idea and should have been done years ago. We already have the infrastructure and it only makes sense.
5	Sept 17, 19	Provide your input: CBC NORTH website had an article on the Southern Lakes Storage project this morning. I believe that they have misquoted the president of Yukon Energy. "Hall said Yukon Energy has spent approximately \$7 million on studies and consultations so far. He said it would cost approximately \$9 million more to complete." 7 + 9 = 16 million. I think Yukon Energy should contact CBC and get them to correct their story.
6	Sept 17, 19	I am strongly in favor of this initiative and see no reason why it should be prevented from proceeding. In the context of climate change preparedness, this is an excellent example of a low-carbon resilience strategy - one that prepares us for the impacts of climate change by both increasing our resilience to climate change and by decreasing our use of fossil fuels. This is an excellent approach to climate change preparedness; one that should be documented, celebrated, and recreated. I will continue to voice my support for this project and will seek additional opportunities to do so through the assessment process.
7	Sept 17, 19	This project should go ahead. Reducing greenhouse gas emissions by using an available resource is a sound plan.
8	Sept 17, 19	Yes! This looks like good idea. Thank you
9	Sept 17, 19	This is an obvious energy storage solution. Not expensive. I am entirely in favor.
10	Sept 17, 19	I am in full support of this project. Along with the Taku River Tlingit hydropower project in Atlin, we should use our existing hydro power. Of course wind needs to be built to reduce natural gas and diesel consumption in the winter and used only in emergency situations.
11	Sept 18, 19	I'm in favor, we should be working to reduce our reliance on fossil fuels and this is in line with that goal.
12	Sept 18, 19	Having read all the information provided on the right I still feel the most environmentally friendly options are the most desirable while realizing that there might have to be combinations of options to be realistic. After the environment for me it is important to have full consultation with the First Nations people involved. Having said that I am in favor of the Southern Lakes Enhancement.



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Appendix A Online Form Submissions

No.	Date	Submission
13	Sept 18, 19	Yukon Energy has spent a lot of time and effort on this project to date and I strongly support it moving forward. I see from reviewing the information online that the risks to the environment are minimal and can be monitored to make sure this is the case. Get on with the project, we need the power !
14	Sept19, 19	I support the Southern Lakes Enhancement project. We must do everything we can to reduce our use of fossil fuels. In addition, the research has been done, the result tell us we should go ahead with this. The money spent, this project should absolutely go ahead. I would like to see more renewable project for Yukon -A LOT MORE.
15	Sept 19, 19	I'm ok with it. Not a problem if the water levels are within the natural seasonal variation -- excluding problem flood events. Federal and Territorial governments need to respond to the lot and building issues that arise as they are responsible for building and land approvals too close to OHWN and requiring setback.
16	Sept 19, 19	Fantastic project - needs to be done. We need to rely on more green energy instead of LNG.
17	Sept 19, 19	I am very much in favor of this project. Should have happened years ago. Very generous of you to compensate owners, given that your project does not make their decision to build in a flood plain any riskier. Wish that money was being spent on green energy projects instead
18	Sept20, 19	Provide your input: Please proceed with this project! Storing water in the southern lakes is long overdue and provides Yukoners with the most readily-available, cost-effective and environmentally-prudent means of reducing fossil fuel use when compared with other options.
19	Sept 21, 19	Provide your input: 1) Unfortunately, I will almost certainly be unable to attend the upcoming information sessions, so please consider my comments. 2) As a North McClintock Resident, adequate shoreline erosion is my primary concern. I would only support the project if mitigation measures include shoreline protection to a minimum level of 1 meter above maximum 2007 levels (to allow for high water levels and wind/storm surges) using natural materials (rip-rap, no plastics or artificial materials). My experience is that a membrane such as that used at Swan Haven is unnecessary and unsightly, and the level of protection at that site is much higher up the bank than necessary. Plain rocks and rip-rap should suffice if they are used to a sufficient level (1 meter above maximum 2007 level). 3) Residents affected by the project should be eligible to receive energy rebates - those forced to bear an additional burden should enjoy at least some additional benefit.
20	Sept 21, 19	We need to enhance our ability to generate renewable power as the territory's population and economic activity grows. This plan is very practical and reasonable and should be implemented immediately. It is both financially prudent and environmentally responsible to do so.
21	Sept 22, 19	This is a wonderful idea. Very little infrastructure investment required and reduces our need for non-renewables during peak demand periods. Seems like one simple solution to our issues. Of course we need to do more and move away from non-renewables completely but this is a step in the right direction.
22	Sept 22, 19	Total support for this project. Infrastructure already exists and can be utilized to reduce the use of fossil fuels during peak demands in winter.
23	Sept 22, 19	I'm very supportive of the southern lakes enhanced storage project. There is no source of energy that comes with zero cost - whether monetary, social or environmental. The southern lakes project has a low cost compared to other ways that we could generate the energy we need, and therefore I'd like to see it proceed. Thank you.
24	Sept 23, 19	This is a short note to say I appreciate YE "making the most of what we have". I would like to forestall any major new (hydro)electrical developments, and agree strongly with reducing fossil fuel consumption for our electricity. Of course, it's important to look ahead to the eventuality expansion, especially with the propaganda on electrical 'green' heat. And of course policy choices by YE strongly impact how much electricity is available for the public,



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		vs. for example, industry/mining. But I write this as a possible counterbalance to any opposition that might come from for this apparently minor policy change.
25	Sept 24, 19	I fully support the Southern Lakes Enhanced Storage Project. Raising water levels in the fall makes sense to maximize power generation and existing infrastructure.
26	Sept 24, 19	I am away during all the information sessions unfortunately. I am STRONGLY in favor of the enhanced storage project. This project is a total slam dunk with minimal environmental and economic interference. Especially compared to the lengthy and costly initiatives such as hydro, which as I understand the Yukon is nowhere near. Yukon has spent too much time allowing people to say "not in my backyard" but there was a substantial amount of LNG and diesel burnt last winter and our population and housing growth is not slowing down anytime soon.
27	Sept 25, 19	I am fully supportive of the project. As a rate payer, I am keen to maximize efficiency of existing infrastructure to meet the Yukon's energy requirement and strongly in favor of using existing renewable hydro electricity over diesel and natural gas generation.
28	Sept 25, 19	I really support renewable energy and think we should move away from diesel and LNG. I think this could be great and wish that you would pursue more renewable energy options rather than investing in more LNG or diesel.
29	Sept 25, 19	I fully support this plan. This is one of the easiest ways our Yukon community can reduce its carbon footprint. It's an absolute no-brainer! Particularly if there is support and compensation for those Southern Lake frontiers whose shorelines or septic systems may be affected. I'm adding my voice to the other voices of reason to make sure we do what's best for the entire local and global community, not just the vocal minority voices of dissent.
30	Sept 25, 19	I absolutely agree with this proposal to store more water in the southern lakes for greater ability to generate hydroelectric power. The swans will be fine.
31	Sept 25, 19	I would like you to move this project forward and undergo an assessment under YESAB
32	Sept 25, 19	Please use hydro. Please look into wind or solar if you run out of hydro options. Do not put any more resources into oil and gas powered generation. The southern lakes enhancement project looks perfect to me.
33	Sept 25, 19	I live in Whitehorse and have a lake front lot in Tagish. I support the proposed project. I support it because we need electricity and this proposal meets our needs with the least environmental effects and lowest cost. I prefer non-fossil fuel renewable energy sources. The proposed mitigation to project effects appear to be appropriate. I appreciate the efforts to communicate the project and it's effects and mitigation.
34	Sept 26, 19	This seems like a no-brainer to help us use renewable energy for more of the year to serve our most-populated area. It's important to me that we take advantage of the renewable resources we have (while mitigating impacts, of course) and keep our LNG plant or diesel backup off as much as possible. Given that the water levels won't exceed the natural fluctuations of the year, I think this should be an easy win for us as a territory to move towards greener energy.
35	Sept 26, 19	I'm 100% supporting this project
36	Sept 26, 19	This is a no brainer when it comes to the least planet-impactful way of meeting our increasing demand for power. I fail to understand how the Yukon Government justifies the lack of approval for it through attempts over the past many years to see this through.
37	Sept 26, 19	Lowest of the low hanging fruit. Let's do this!
38	Sept 27, 19	Yukoners must support these types of projects; we need to move away from our dependency on fossil fuels. In my opinion, this is a clear and obvious solution to moving toward cleaner, renewable energy. Really hope this project succeeds.
39	Sept 27, 19	I support the Southern Lakes Enhancement project



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40	Sept 27, 19	I support this initiative.
41	Sept 27, 19	Yes! Let's do this! It's well researched and identifies and addresses all the key issues which have been brought up in the past. This is such an easy win! Reducing green house gases, mitigation for Marsh Lake homeowners, minimal effects to wildlife and ecology, savings for Yukoners! - why wouldn't we do this! Let's make it happen
42	Sept 27, 19	I support the proposed amendment.
43	Sept 27, 19	I support this enhancement.
44	Sept 28, 19	The increased reservoir capacity should go ahead. Yukon needs the extra power generation and the marsh lake residents shouldn't be able to deny this.
45	Sept 28, 19	I totally support this initiative.
46	Sept 28, 19	We support this idea fully! From the reading here it seems like the benefits far outweigh any negative impacts
47	Sept 28, 19	<ol style="list-style-type: none"> 1. Your website does not show \pm water levels. Which takes precedence, the website, or the mailing? 2. Are these +30 cm and -10 cm fluctuation levels the actual submission numbers submitted in the YESAA proposal? 3. Where are the levels measured for assessment compliance? 4. May I go to a benchmark somewhere and observe the compliance? 5. Mailing: "We want to revise our water use license to CONTROL this much" ~ Control 40 cm? How will Yukon Energy CONTROL these levels? 6. What and where is this mystery CONTROL DEVICE, MECHANISM? 7. Will it need to be modified or rebuilt? Will it cost Yukon Energy nothing? \$500,000? \$58 million? 8. Yukon consumers will pay bills directly or indirectly through Yukon Electrical or ATCO contractor outlets. They certainly are impacted by the cost of the proposed project. Please provide a study that projects your Southern Lakes Enhancement Proposal costs in total dollars and the amount you intend to pass your distributors in \$/kwh. 9. Will the consumer pay more or less because of these land and nature encroachment enhancements? 10. For erosion and groundwater relief, is the restructuring for the homeowner restricted to the number or letter (#) on the mail-out map as it stipulates. These nebulous identifications require actual lot numbers if they are exclusive. 11. This Yukon Energy liability must also contain a clear, inclusive statement of longevity and future identification assessment. Who knows for sure how this will affect the geology of our ecosystem before it is implemented. Yukon Energy must claim unrestricted and full future liability ownership. 12. Has Fisheries assessed the greater draw-down for Northern Pike?
48	Sept 30, 19	<ul style="list-style-type: none"> • I have participated in the first rounds of informational meetings as well as group and private consultation sessions. • This project is of great interest to me as someone whose primary residence is a waterfront property on the shore of Tagish lake and someone who has seen significant natural erosion take place to this area over the past decade. • In spite of this, I am in favor of the extension to the existing water license as a positive move toward generating power with reduced reliance on fossil fuels. • Naturally, I am concerned about further erosion and I have been holding off on reconstructing the stair system that was once in front of my place allowing me access to the water until I heard more about this proposed project. • I have provided my input into the proposed erosion mitigation options offered and I know what I would like to see implemented as a solution in front of my own property. It is my hope that this project will move forward sooner rather than later and that work will begin next spring on the shoreline.



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49	Sept 30, 19	I just wanted to put forward my vote of confidence in this project. I am a practicing hydrologist in Yukon (Government) and resident of Whitehorse. Of the options available, this is a no brainer to optimize facilities already in place without increasing carbon emissions. It is a far lower impact than any other option on the table for producing some extra power. I really hope this project goes forward. I have been voicing my support for it for years to anyone who is interested.
50	Oct 3, 19	I fully support this initiative and think it should have happened years ago as it will significantly increase Yukon's renewable energy capacity and reduce fossil fuel use/GHG emissions.
51	Oct 3, 19	We are property owners in South McIntock and have been following this process closely. We definitely have concerns with the raising of the water levels, but personally, my biggest concern is the proposal to draw down the lake level over the winter. The water levels in McIntock bay take a long time to fill to a level where recreational boating and swimming is possible. It is my presumption that by drawing the water level down lower, we would likely lose at least another week of our already very short season for these types of activities. We have had discussions with several other shoreline residents and they also share this concern.
52	Oct 4, 19	Very supportive of this project. We need more initiatives like this to optimize the energy infrastructure we already have. This is very important in the context of climate change and the need to reduce our GHG emissions. YEC has reviewed the environmental and socio-economic implications of this project, and I feel confident that the changes will not have undue impacts.
53	Oct 6, 19	In general, I support the concept behind the Southern Lakes Enhanced Storage project, specifically that the huge reservoir created by the southern lakes can produce more hydropower. However, as an ecologist, I do not support that proposal to increase the drawdown beyond the range of natural variability. In the concept diagram (Sept '19 mailer), the reservoir's natural range of variability is shown as range A, but the proposal is to increase the drawdown as in ranges in the same diagram. A substantial set of organisms will have become behaviorally adapted to dealing with the range in A, but will have difficulty dealing with the increased drawdown in C because larger areas will become exposed to air. This will affect organisms ranging from numerous aquatic invertebrates and plants (whose life stages in the benthic zone will be lost to more frost exposure) to beavers (whose underwater entrances to lodges will be more likely to be exposed to air). It is in principle not advisable to push an ecological system beyond the bounds of natural variability when managing it for a sustainable future. So I encourage Yukon Energy to keep the range of water fluctuations within A, and not drop down to the extra lower level of C. Thanks.
54	Oct 7, 19	I agree with your proposal.
55	Oct 7, 19	where on this webpage do I find the 'detailed maps that show the specific properties that will be affected by the project'?
56	Oct 8, 19	Hello- AS a believer in renewables, I am not opposed to raising the water levels slightly (assuming proposed level B is slightly). However, I see no reason to lower the levels in the spring. There is enough water held back and released without having to go to an even lower level. I do not agree with this aspect and would ask that you not lower levels further. This affects my pumping of water and would force me to delivery. Please do not lower the levels anymore than they currently. are. Thank you for your consideration.
57	Oct 8, 19	I am in support of this project, however I am concerned that the information you provide on the potential effects of this project do not consider the potential effect that increasing water levels could have on the risk of flooding. If water levels are higher, it's more likely that an extreme precipitation event (which is more likely to occur in the future due to climate change) could quickly increase water levels and cause flooding in the southern lakes region. This risk should be communicated to the public, and the mitigations proposed should be shared as



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		well. Especially given the historical flooding (2009) that severely affected the southern lakes area.
58	Oct 9, 2019	I'm in support! I'm really glad you heard what Yukoners had to say about fossil fuels and you are trying other avenues. Lets have more renewables!
59	Oct 9, 19	This project should have gone ahead when it was first proposed. Thank you YE for the effort to bring it forward again. I stand ready and willing to protest in-favor of this project if Marsh Lake residents try to block it again. Please follow by engaging heavily with SFN, TTC, and others - a Yukon FN developing next-gen hydro is the best clean energy option we have, in my opinion.
60	Oct 9, 19	This seems like a straightforward solution to creating some more energy. I think the drawbacks are minimal, and it should go ahead. I fully support it.
61	Oct 10, 19	I feel very strongly that we should be transitioning our energy source to renewable, not allowing for more poor climate choices. I do not think you/we have done enough to educate consumers about energy use. Not to strongly encourage respect for our resources. For example, what about promoting a rolling schedule to avoid peak-use problems, and training people to do their laundry during the day, or turn off unused breakers, unplug idle technology, and even cook at certain times! I would be willing to limit my use and timing and I'm sure others would too. I do try to limit my use at what I perceive as peak times, but I'm not empowered with the actual data of HOW to avoid us getting a diesel generator or other supposed 'solutions' that are only adding to the climate change problem. I already do a lot, but I could do more and so could others. I really deeply want us (all citizens and companies and governments) to show northern leadership. Also, I have zero interest in subsidizing the mining industry by increasing power capacity (paid for by individuals, but externalities suffered by our environment and eventually, will be suffered by all of us). I would prefer mining development costs to be TRUE costs (internalize the externalities) and reflected in consumer prices, as this has been shown to be a strong motivator towards sustainability. We are extremely fortunate to live where we live, and if we have to make some compromises to our economy, our extreme level of convenience, or anything else, in order to shift to renewables, then I support those actions. Just be up front about it. Please, please, please, take a leadership role at this time. A choice to be a climate change leader (i.e. fewer emissions) would show corporate leadership and maintain your social license. Thank you for considering my perspective.
62	Oct 10, 19	Of course this must happen for renewable energy! It's a no-brainer. You have the mitigation so required for the residents. Ignore the NIMBYers.
63	Oct 10, 19	With the amount of research work that has been done to date on this project, the greenhouse gas mitigation potential, and the minimal new infrastructure that's required for the project, I think this is a great option for Yukon Energy to take to the next level. The main difficulty may be getting the southern lake residents on board, so as long as that's done in a respectful and fair manor I think this project should be a priority
64	Oct 11, 19	I fully support this optimization of existing infrastructure. Of course there will be impacts, but nothing like building a new dam or even the impacts (such as upstream carbon footprint) of delivering 6.5 GWh per year via wind or solar. And it's dispatchable! And it can be used to (at least a little) store wind and solar. Proceed!
65	Oct 12, 19	how will these new water levels impact the nesting seagulls in the area across from Walmart? as it is, when more water is released from the dam in the spring it is flooding out the seagulls' nests. there have been fewer young seagulls than in past years
66	Oct 15, 19	I am writing to express my view that this project makes sense economically and environmentally and YEC should proceed with this project. I did work on the environmental studies for this project over several years and what we learned is the potential environmental impacts from this project are likely to be low to negligible. However, not doing the project would be environmentally and financially irresponsible. We've recently declared a Climate Emergency and that means all hands on deck. The scale of our fossil fuel addiction in the



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		Yukon is so large that we need ALL of the tools in the toolbox—that means making more of what we have AND using what we have more efficiently AND new renewable generation. The water resources and associated crown land around the lake are a public resource and should be used for the greatest good of the planet. That means changing things a bit for a benefit to society. But change does not mean it is bad: change can be just change and due to a changing climate, change is coming anyway. So please, do the right thing and advance the Southern Lakes Enhanced Storage project as soon as possible.
67	Oct 16, 19	Your brochures tells us to consult your maps on this site to find out if our property is affected by your plan. Where are the maps????? I browse everything on this site but NO MAPS
68	Oct 16, 19	I am fully in favor of the southern lakes water storage plan. I appreciate the efforts of Yukon Energy to identify potential effects on and mitigations for the local population and First Nation governments, and to involve them in your planning. Although the enhancement may have some impact on the southern lakes community and area, I believe that this is an environmentally responsible way to meet peak power demands -- especially when compared to other alternatives with more and greater impacts (e.g., dams).
69	Oct 16, 19	Thank you for revisiting and proposing this idea. I feel it is a great and we'll need project to move forward on. It is such a great way to utilize what we already and reduce the dependence on fossil fuels. Thank you and hope this project goes forward.
70	Oct 17, 19	I am a resident of marsh lake. I DO NOT support this project, it is a terrible idea.
71	Oct 17, 19	You will ruin people's lives and property.
72	Oct 17, 19	I am in full support. This is needed. Let's move towards more sustainability here in the Yukon. Not just in principle but in action. Disregard the naysayers that speak - "Not in my Backyard".
73	Oct 18, 19	I support the southern lakes enhancement project, and YEC's efforts to reduce GHGs, use less fossil fuels, and reduce the costs of energy use to Yukoners. I know it's a tough project and there is a lot of vocal opposition, but want to add my voice to those in support. Thanks.
74	Oct 19, 19	We live at lot [REDACTED]. We do not object to the proposal provided we receive gabions or some rock structure to protect our shoreline. We are facing [REDACTED] area and the prevailing wind pushes waves right into our bank when the lake is at high levels. Holding the water at the higher level for an increased time will cause serious erosion of the bank. Come have a look at your leisure. I provided photos at one of the initial meetings that you should still have in your possession. Thank you.
75	Oct 20, 19	This project is the single most important renewable energy project in the Yukon. Period. It should have been implemented many many years ago. The net environmental impact is positive, not negative. If the project doesn't happen, I strongly oppose any public monies being spent on impacted home owners to mitigate future natural flooding events. These lots should be bought back by gym and the area restored to an uninhabited natural flood plain.
76	Oct 20, 19	This is a really important project that we need - I hope most Yukoners agree.
77	Oct 20, 19	Please don't let these entitled, self righteous, NIMBYs stop this project that clearly must happen. There is no real argument against doing this. Please get it done
78	Oct 21, 19	After attending the information session at Marsh Lake last Wednesday, I am writing to register my concerns about the SLES Project. I live on [REDACTED] on the M'Clintock River where [REDACTED]. The lot is identified as being affected by groundwater effects of the Project. There are 2 septic fields and one buried water holding tank on the property. I have been given some very generalized information about possible mitigative action that would be required but certainly am not satisfied with the level of detail provided thus far. Your most recent letter to the property's legal owner ([REDACTED]) states the these details won't be worked out until the Project permitting is completed. I cannot support the Project in any manner without receiving that level of detail. My second concern is about the effects of shoreline erosion and



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		changes to the riparian zone due to lengthier high water in late summer/fall, before freeze-up. Normally the M'Clintock River, in front of my property is about 20 meters wide until late summer. When water is high the river becomes part of the bay and is 10 times that width. This enlarged fetch creates more wave energy. The longer the water is high, the more destructive the wave action. A map showing classification of shoreline erosion already identifies an area to be 'monitored' in front of my property. Besides the erosive action of prolonged high water, I am afraid of changes to the rather complicated dynamics of the ground as it freezes along the shore and changes to vegetation that can stabilize the shore and provide shelter and forage for foxes, muskrats and beavers. Until my concerns are addressed I will remain strongly opposed to the SLES Project.
79	Oct 21, 19	As a waterfront property owner on Tagish Lake, I would be delighted to see this project go ahead. Despite potential increases in erosion to the lakeshore in front of my property, this project is a net positive for Yukon and for Yukoners. I value your commitment to clean renewable energy production, and encourage you to develop more capacity in the southern lakes hydro generation system in future.
80	Oct 22, 19	<p>My concerns regarding this proposed project are:</p> <ol style="list-style-type: none"> 1. While it is agreed that erosion does happen naturally, holding water for a longer period and 30cm higher will substantially increase the rate of erosion. Wind is increasing and the waves already do damage to the shoreline. This damage will only increase and will result in the water coming closer to our property line. One of the benefits we considered when we bought in 1994 was the fact that while we were close to the water we were not right on it, in fact we were at least 100 ft. back from the high water mark. Over the past 15 years we have already lost an estimated 10ft. of the bank. 2. Results of having the bank erode is having more groundwater seep closer to our underground infrastructure which is a well used for drinking water in the future and a utilidor from the heat house to the house for heating and water lines. As well, having the bank continue to erode at a faster rate will also put us at a much higher risk for flooding in a high water year. 3. Longer (and higher water level) storage in fall/early winter will also have an impact on the bank due to damage and erosion from ice. We have already experienced that a few years ago where our bank was pushed up substantially due to a pressure ridge occurring on the lake in November. 4. Increased insurance costs - earlier this year I declined enhanced water coverage and this means that I now only have the very basic water which is maybe a broken line within the house. This decision was made based on the fact that we are back a bit from the water and high water does not currently affect us substantially. That will change as the bank continues to erode and that will happen much faster than it currently is. The cost to have Enhanced Water Coverage is substantial (mine was \$1K per year and I have heard costs are as high as \$5K). Is Yukon Energy going to cover those costs for Marsh Lake residents, or the costs of remediation, in the future as the bank erodes and water creeps closer? 5. I also have concerns about the timing of the survey. I find it very surprising that the survey opened on October 15 yet letters to the residents will only be mailed out this week giving a PIN number. This means that no one will get their notification until well after a week has passed on a survey that opened earlier. Yes, I know that individuals will be contacted by Bureau of Stats if they have not responded by Nov 11 but that is a lot of extra work to put staff through. I think this could have been better organized. 6. My final concern - I tried to review the Marsh Lake erosion map to find out which properties were concerned to be at risk and I only see blank pages. This goes for Tagish as well. Please let me know when that information can be successfully accessed on line. <p>Thank you for the meeting last night and for taking the time to read about my concerns.</p>
81	Oct 22, 19	I fully support this proposal. To me, it seems like a "no brainer". There are immediate benefits to reducing fossil fuel consumption and water levels remain within natural levels (no new impoundments). If we (Yukon) can't proceed with a relatively simple and benign project



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		such as this, we are doomed to becoming more and more reliant on non-renewable fossil fuels. I am all for adding alternate energy sources to the mix, but we need this power now. Please! Make the most of what we have.
82	Oct 22, 19	Looking forward to seeing this in action! This is a perfect solution for taking load off of the LNG and diesel. Using the resources we have at hand is a great short term solution until a new hydro facility can be installed.
83	Oct 22, 19	I support the project. This project can help the whole world and will not even affect the people who live near the lake.
84	Oct 23, 19	I believe the enhanced storage project should proceed. It make no sense that I can see to let the water drain when it could be used for more generation.
85	Oct 24, 19	This is a "No-Brainer". We have the infrastructure to generate power, so we should use it to it's full potential. It's a HUGE resource, that is much more effective than adding fossil fuels. We are perched and ready- the lakes are there, and it could make a massive impact on energy production with minimal environmental impact. How often do we have an opportunity like this? It's invaluable. I want to build a new house in Whitehorse, and use an electric boiler and masonry/wood stove for in-floor heat. We will install solar panels, and hook up to the grid. I know generating power our own power in the summer is not that useful, as it is not when we need it most, but it is a cultural shift. If we ever want to own an electric car, we will need electricity in summer and winter. We can't do it alone off-grid, so I support making the grid stronger without burning more non-renewable fossil fuels. Yukon Energy can be a leader in green energy, so do it!
86	Oct 25, 19	Hi, I really can't see the positive effect outweighing the possible risks. With the lake levels up what effects will that have to the water temperature, fish, ice conditions etc.? All this would need to be addressed before there is a go a head
87	Oct 26, 19	I wasn't on board for thermal, but I am for this, especially given the mitigation you outline for home owners who may be affected.
88	Oct 26, 19	Hi, This looks like a good sustainable project. Go for it. The greater good of the whole Yukon population should not be stopped by a couple of residents who will say "Not in my backyard".
89	Oct 27, 19	Do whatever you need to, to reduce fossil fuel usage
90	Oct 28, 19	We on the Marsh lake waterfront [REDACTED]. We are wondering whether our property will Or has qualified for a little shoreline protection. We are not in danger of any catastrophic erosion that will affect our bldgs. etc. But during the last high water event we lost about 2 to 3 feet of the bank in front of our property.
91	Oct 29, 19	I am in support of increasing water storage within Southern Lakes as it appears to be a good plan. It is too bad that Atlin Lake can not also be included and I understand that has been looked at in the past. I do have some questions/concerns as to how increased water storage will impact the downstream water levels of the Yukon river below the Whitehorse hydro dam? I rely on the Yukon River downstream of the Whitehorse dam for my business Yukon Canoe and have developed my products based on somewhat predictable water levels. I also Recreate on this section of the Yukon River. Would you be letting less water through the marsh Lake control structure earlier in the fall- which than has a bigger impact on paddling in this section. If this is the plan than I would like to see some work done on mitigating the effect these changes would have on both my business and on Recreational Paddling in this area. I would be happy to speak with someone regarding what Yukon Canoe needs from the river. There could be river enhancements done to the below section to mitigate the impacts. This could be done by incorporating river bank design and recreational features for different water levels. There will always be more than enough water in this section for effective recreation IF the different water levels are considered. Such mitigations would not have to be expensive



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		<p>and if incorporated into the project from the beginning would be much easier to achieve than afterwards.</p> <p>Holding more water back for a long period of time WILL also impact downstream users of the Yukon River and must be considered within this project.</p> <p>I understand the need to increase Yukon's power consumption and I understand power demands will only increase in the future. I do see this proposal will increase our power production capacity with what I understand to be minimal impacts.</p> <p>PLEASE CONSIDER BUSINESS AND RECREATIONAL USEAGE OF THE YUKON RIVER BELOW THE WHITEHORSE DAM AND HOW DIFFERENT WATER LEVELS WILL IMPACT THESE USERS.</p>
92	Oct 29, 19	This is so necessary. Thank you.
93	Oct 30, 19	<p>This capacity and this project is required. We have spent too many years having proposals rejected and are now in line for a chronic energy deficit. New renewable projects need to be launched. A serious and frank consideration for nuclear needs to happen in the next two years. It is getting ridiculous the difficult time that Yukon Energy gets, and it should start demanding recognition of its work, not being the whipping boy for all Yukons problems. I congratulate and support you all. Southern lakes is the last resort in the short term. We are only back here on this old proposal because there is no other option, this must go ahead regardless of impacts on individuals property values, or whatever factor is 'du jour'. Be frank, be honest, Yukonners need to take a hard look in the mirror and see what we are really about in terms of energy, emissions and climate adaptation. Yukon Energy can lead that conversation. It won't be the most difficult thing you've done in the last 5 years. Good luck.</p>
94	Oct 31, 19	<p>I attended the information session in Whitehorse, and while much of the comments from attendees was negative, I think this project makes a lot of sense....as long as you have Clear procedures to monitor effects, undertake mitigation measures, and to potentially stop the project if the effects cannot be otherwise mitigated. We absolutely must find solutions for increasing our energy availability, and this is a sensible, relatively low cost option, which should have minimal environmental impacts,</p>
95	Nov 1, 19	Go big and go nuclear!
96	Nov 3, 19	<p>I think that the enhanced storage project is the most common-sense solution to meet our increased energy needs. Outreach and accessibility to impact-solving services for affected homeowners needs to be proactive and easy.</p>
97	Nov 3, 19	In favor of increased water storage
98	Nov 3, 19	<p>While I support sustainable energy production, I feel property owners along Marsh Lake should be compensated for the erosion to the shoreline caused by the prevailing fall winds and higher water. The damn when first built ignored the indigenous peoples who used the lake, please do not repeat past mistakes. My suggestion is that group rates be negotiated for those who wish to install shoreline protection. All property owners should be encouraged to participate. Property owners would contribute toward the cost but at a reduced, bulk-buy rate negotiated by Yukon Energy and a group of owners. Yukon Energy would be required to contribute to ensure the cost of shoreline protection is affordable for property owners. Thank you</p>
99	Nov 4, 19	<p>I have been a Tagish resident on the lake almost 30 years. This question gets brought up by you guys over and over again. It's like dealing with a 3 year old that keeps asking hoping they can 'wear us down'. I also worked at the community hall in Tagish and hosted many a meeting with YE and residents have always said NO. So fricking drop it, concentrate on keeping the power ON there for 48 consecutive hours! From what I see along the river by Walmart for the last month you are doing exactly what you want and holding the water back in the southern lakes, this has a huge impact, not only on southern lakes but north too with low water levels. NO means No there is no other answer no matter how many times you ask, meet, have info sessions. These pencil pusher engineers have 0 clue like the long term residents of the lake system!</p>



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Appendix A Online Form Submissions

No.	Date	Submission
100	Nov 7, 19	I am VERY MUCH in support of this project if it is cleared by YESAB!
101	Nov 7, 19	We have told you over and over no. Now our insurance providers have doubled our insurance if we want to include flood damage. Why because you will do what you want and asking input as we have seen is a waste of our time and you will not pay our premiums.
102	Nov 11, 19	I think it is OK to store more water but I feel very strongly that Yukon Energy should be investing a lot of money in renewable energy such as solar and wind and geo thermal. The focus should be on clean energy to get away from using LNG and so that we can use as little energy from the grid as possible. I have invested in solar panels and an electric car and I think Yukon Energy should take the lead on better solutions to energy needs with the help of government.
103	Nov 12, 19	I think it's a great idea and should happen. We need more energy and this is the most environmentally way of doing it at this point.
104	Nov 15, 19	Regarding the AECOM Marsh Lake Wave Run-up Analysis: I am seeking concepts and detailed on the methodology. It is not explained in the report itself or the document it references (Marsh Lake Storage Concept: 2011 Geomorphology Field and Associated Studies Report). Please, why are the wave run up levels in the AECOM Marsh Lake Run-up analysis exactly the same for 2 yr., 5 yr., and 10 yr. return periods? What is being referenced: 2, 5 an ten year flood levels, wind driven wave heights or storm surge height (combination of the two). Thanks
105	Nov 16, 19	please provide total cost to the Whitehorse Yukon River Watershed over the next 100 years.
106	Nov 16, 19	I think this is a no brainer. The natural barrier at Miles Canyon already set the condition for extreme high water marks. Anyone who is building at water's edge needs to realize that the water shed naturally fluctuates. Plus we all know, no one owns that first 30 m above high water mark anyway..
107	Nov 17, 19	after several local discussions, very few are being reached with the current YEC methods available. Locals have tried digitally without success, some have never received the mail. There is a serious disconnect with local stakeholders.
108	Nov 19, 19	I am in support of this project as long as effects to properties and the environment can be effectively mitigated.
109	Nov 27, 19	Hello. The details provided for this project are insufficient without looking to future unintended consequences. During the flood of 2008 our property had higher than usual water, (not deemed affected) however, it was years later that the weakened tree roots were impacted and that many of those trees fell (on structures). I feel that your study of the impacted properties with remediation offered is not technically sufficient without thinking broader and longer. What if impacts result in 5 years? Who will pay for assessment? In 2019 and Nov. 27 the lake is still not frozen. With climate change open water will impact longer. With groundwater affected, there are further implications (e.g. tree root systems, septic beds, erosion) that go beyond the obvious assessed properties. In addition, I am opposed to lowering water levels beyond current levels. I would much rather see Yukon focus on alternate energy development as should have been done years ago. Thank you. E.
110	Nov 27, 19	As a permanent full-time resident of the B.C. portion of Tagish Lake, I want to express my adamant opposition to this project. My key points are: 1. - increasing the water flow out of Tagish Lake in the winter time is bound to have a negative effect on ice conditions (causing extra stress fractures in the ice and thereby creating additional unsafe weak spots and overflow). As you are well aware, Tagish Lake is used in the winter time not only recreationally by Yukon and Atlin snowmobilers, skiers and mushers, but several tourism businesses depend on the ice conditions for part of their livelihood. Additionally, trappers and people like myself who live without road access depend on the ice conditions. How will Yukon Energy handle potential accidents and loss of business revenue caused by deteriorated ice due to increased water outflow? 2. - The negative impact this project is bound to have environmentally (shoreline erosion, beaver/wetlands/fish habitat), economically (winter travel hazards for tourism operators and trappers) and socially (altering



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		First Nations land, impact on shoreline property owners, winter travel hazards for recreational and residential users of the lake) stand in no relation to the 3% to 5% increase in power generation the project would create. It seems absurd to me that for such a puny energy gain you are willing to put so much at risk. [REDACTED] Property owner and full-time resident at [REDACTED], Tagish Lake
111	Dec 3, 19	I've been asking Travis Richie for the results of the erosion assessment at the shoreline abutting my residential property several times since June 27, 2017. And I never received it. Your deadline for comments is Dec. 13, 2019, in 10 days. When will Yukon Energy share the assessment with me? I'd like to make some informed comments in time - and there isn't much... Patiently and respectfully waiting, [REDACTED]



APPENDIX B

Email Submissions



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Appendix B Email Submissions

Appendix B EMAIL SUBMISSIONS

No.	Date	Submission
1	Oct 22, 19	<p>Just did the survey, thanks for the opportunity.</p> <p>I wanted to draw your attention to the fact that the recent Whitehorse Star article covering the public consultation said that the peak water level will be increased, which is a massive error in the context of this issue. A retraction would be appropriate if ineffective.</p> <p>I would like to urge you to be more impassioned in highlighting the climate change mitigation potential of this project, since as a territory we've managed very little. Yes, the property owners who chose to build in the flood planes (in full knowledge of the dam's existence in 99% of cases) will be somewhat impacted on the short term. The whole territory will realize savings on our electricity immediately. The benefits to the planet will last forever (or at least however long humans operate a hydroelectric dam at the Whitehorse rapids). I'm so frustrated to see the opposition to this project.</p>
2	Oct 23, 19	<p>Ironical just as I am filling out this survey the waves are hitting my window I am very much affected by high groundwater and winds</p>
3	Oct 23, 19	<p>I just finished the survey "Southern Lakes Enhanced Storage Project" and as there was no additional comment box, decided to add one this way:</p> <p>While I strongly support generating power via the lake system and find water power way superior to gas and oil that is trucked to the Yukon and not renewable, I would like to point out that saving power is as important as generating power.</p> <p>Power is extremely cheap in the Yukon. People (and the government itself in its government buildings, e.g. the Canada Games Center) don't concentrate their money and minds on insulation. When it is cheaper to turn up the thermostat than getting proper windows or roof insulation then more power will have to be generated - or so it seems. High energy costs will definitely raise awareness to this conundrum. It definitely worked in Europe.</p> <p>Thank you for all you do for our power needs.</p>
4	Dec 2, 19	<p>December 2nd, 2019</p> <p>Travis Ritchie, Manager, Environment, Assessment and Licensing Yukon Energy Corp.</p> <p>We, the [REDACTED] would like to express our concerns regarding the raising of the Southern Lakes.</p> <p>We are having trouble understanding exactly what is being proposed. Are we looking at an increase on top of the normal high water mark or is it the historical high water mark and if we are looking at the normal high water mark where would that be in relation to the height of our docks? We ask this because over the last couple of years the level never came up to the usual high water mark as we remember it. This is important to us as the most damage to the shore line that we see occurs in September and October with the fall winds and if the water level is higher this will increase erosion that is currently happening upstream of our properties.</p> <p>We do agree that there could be improvements in the controlling of the water level in the fall period so that they don't drop three to four feet by the end of November as they have been doing the last couple of years.</p> <p>The other concern we have is what mechanisms will be in place should damage occur to our shore line if the water levels are raised.</p> <p>We request a timely response so that we will have a more comprehensive knowledge so that we are able to respond to the questions in the survey.</p>
5	Oct 31, 19	<p>Hello Yukon Energy Folks,</p> <p>I just filled out the "Southern Lakes Energy Survey" using the PIN that was mailed to me. I found the survey lacking in at least two important respects.</p> <p>First, it does not appear to provide or assure confidentiality, as is common with these types</p>



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		<p>of surveys.</p> <p>Second, there was no opportunity to provide qualitative comments or feedback - the only input allowed was through narrowly phrased multiple choice questions.</p> <p>As I have in the past, I would like to provide comments regarding this proposed project:</p> <p>1) I would consider being supportive of the project if sufficient erosion measures are undertaken. This includes protection above the proposed water level increase to a level at least 1 meter above 2007 flood levels (to account for high water levels and wind-surge events).</p> <p>2) Shoreline protection would include removal of existing non-natural materials (plastics, tires, etc. - including those installed by YG and its agencies) prior to installation of rip-rap or similar material.</p> <p>3) Shoreline protection should include an obligation to provide ongoing monitoring and repairs throughout the term of the water license - wave action, ice plucking and other factors will surely require monitoring and ongoing maintenance over the years.</p> <p>4) Residents who are expected to suffer the burden of this project should also derive benefit - in the form of reduced electrical rates for affected properties.</p> <p>Marsh Lake, Yukon</p>
6	Nov 4, 19	<p>Resident left a voicemail on YEC's phone asking for YEC to call him about his concerns on the Southern Lakes project. He lives in Tagish and has concerns about his property is affected by erosion even though he received a letter saying that he's not. Can you please return his call.</p>
7	Nov 11, 19	<p>Dear Yukon Energy,</p> <p>Thank you for the opportunity to respond to your survey. I have done so and I would also like to provide you with an additional comment.</p> <p>I have lived at Marsh Lake for over 18 years. We were residing here during the flood of 2007 which affected our septic, destroyed our dock and caused severe erosion to the shoreline. The fall winds were a major cause of the shoreline erosion. The winds continue to be a major cause of erosion.</p> <p>With the Southern Lakes Additional Water Storage project my major concerns are two-fold; 1. increased erosion of the shoreline and, 2. additional stress on septic fields due wetter ground.</p> <p>While I support increased use of renewable energy, I feel adequate, appropriate compensation for resident homeowners needs to be in place.</p> <p>Shoreline erosion has been happening continuously since the dam was first installed. The soil is predominantly clay and the winds are strong in the fall when the majority of the erosion happens. While the dam was first installed without proper consultation and study, exacerbating the problem by holding more water does not seem logical.</p> <p>My suggestion is that adequate, coordinated shoreline protection needs to be in place for the majority of the lake and especially where there are residences. Why not develop a long-term plan to protect the shoreline? If this was done in a coordinated fashion - and not piecemeal, residents - certainly I for one, would be willing financially support the project if the costs were reasonable, affordable and defrayed/ deferred over a long period of time.</p> <p>Residents of Marsh Lake want to see the shoreline protected and support investments in renewable energy - this could be a win-win situation if the project is done right. This means proper shoreline and septic field protection for the lake as a whole. This would include an appropriate shoreline and septic field protection plan that residents could financially contribute to in a fair and reasonable manner over a long period of time.</p> <p>The Southern Lakes need to be protected with a long-term view before additional damage is done through holding back more water.</p> <p>I'd be happy to discuss this further as consultation continues.</p>
8	Jan 16, 20	<p>Just for your information, it appears you did not consider a few aspects:</p> <p>The soils on the exposed eroded shoreline at my place are very dynamic!</p> <p>I see sinkholes every spring, until the lake water covers them. The ground is made of silt, clay, sand and various sized gravels. Add water, frost and thaw, and you have a dynamic and unstable substrate to place riprap on. The riprap moves due to water, waves, soil dynamics, and the effects of frost. It is age-old knowledge, that water and frost breaks rock!</p>



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		<p>Some of my riprap has been washed downstream.</p> <p>You are likely not aware, that I add riprap every three years or so to the riprap, that's already there. What you and your colleagues saw is not a permanent erosion control! I added - individually placed - several truckloads of riprap since your photos were taken. And have been doing so since 1986. Other owners have been attempting to control erosion before me in other ways since the 1970's.</p> <p>Therefore I disagree with your assessment, that your proposal would not have any effect on the erosion control that is in place now in front of my property.</p> <p>This would hold true to other riprap erosion control attempts along the Southern Lakes.</p> <p>I suggest you reassess my file with this information included.</p> <p>Another thing you may not be aware of: Several years ago I had to get a land use permit to place an additional 20 + meters of riprap on each end of existing riprap. This is because the property pins were being threatened by erosion on unprotected shoreline.</p> <p>Erosion is going on all the time, because the lake system is now a reservoir. Every year, more and more trees and bushes are leaning over the ever-changing shoreline. For your project to go ahead, Yukon Energy would have to permanently protect not just a few pieces of shoreline, but all of it.</p> <p>For example: The permafrost shoreline on the northwest side of the lake (adjoining Settlement Land) is oozing melting clay into the lake every spring, summer and fall, with its associated sedimentation effects on fish, wildlife, and vegetation communities downstream. This is due to the fact that water levels are being held high artificially, and have been for decades. Such conditions would only be exasperated with your Southern Lakes Enhancement Storage Project proposal.</p>
9		<p>I have a couple of questions about the Southern Lakes Enhanced Storage Project. Are all the studies referred to available on the website? What are the timelines for submitting any comments regarding the proposed project? And, depending on the comments I have after reviewing the information, will I be able to request a meeting with YEC staff to discuss this project in more detail?</p>
10	Sept 20, 19	<p>As a lakeshore resident I am torn. I have always appreciated sustainable energy. I am now looking at a loss of property and the way I read this, there will be ZERO recompense for the loss.</p> <p>You offer repairs/moving for peoples septic or wells, but I do not see anything for the land, the actual ground that will be lost. 10 meters from a lakes HIGH water mark is deemed public land in Canada. Your project aims to raise that mark, therefore actual privately owned land will have to revert to public land. Where are you plans for this. Your graphs on water levels are interesting but are extremely vague. Publish a graphic that shows how high the Marsh lake level the 2 years your organization flooded us. I lost my garden twice, there was not even comments from your organization except for the unbelievable audacity to ask permission to do it again, and still you are asking permission to flood residents. This is far more than a well or septic field issue. Now, if you can provide a simple answer. Today is September 19th, 2019. I just sat on the beach in front of my house on Judas Creek Drive, Marsh Lake. In relation to what I just saw, on this day. How much higher will this project raise the lake level?</p>
11	Sept 20, 19	<p>I believe that the media are, again, presenting an inappropriate message from the very beginning: YEC is not planning to "raise" any water level, just to "stabilize" the normal and natural water level drop during the fall. Before making this public, I would have recommended to make sure that the terms and conditions are clearly expressed: YEC will not affect the risk of flooding at any time (if water levels are naturally high, YEC will evacuate as much water as possible).</p> <ul style="list-style-type: none"> • Not doing this is in fact disrespectful of both nature and taxpayers (no hydro company spill water for no reason prior to winter) • This is by far the easiest way to produce clean energy in Yukon over the short term using an existing facility with no additional impact in the short term. • If the question needs to become political like in 2014, the conversation should be consistent and consider the impacts of other power plants on nature and people.



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		Conclusion: there is an impact everywhere else. Feel free to contact experts from the Government of Yukon to provide an independent point of view to the population.
12	Sept 24, 19	I live in Whitehorse and my husband is an electrical engineer. The proposed southern lakes enhanced storage project makes so much sense in terms of increasing renewable energy capacity. I am not sure if I will be able to attend any community events, but I just wanted to voice my approval and support of this project.
13	Oct 16, 19	the proposed new Low Supply Level may impact habitat in the Southern Lakes.
14	Oct 16, 19	We have some concerns re our property on Marsh Lake. Groundwater concerns.
15	Oct 17, 19	My concern is that the focus on erosion has been too narrow in geographical locations in Tagish. Also I am concerned about the erosion over the long term as my property has been identified as unaffected by erosion but upstream of my property erosion WILL occur during the fall storm period and it WILL affect the shore line in front of my property over the long term. I do feel that the water levels could be better controlled with the water level control structure delaying the water level dropping in the fall as we have been witnessing over the last few years. I have been there for 40 years and have seen water levels dropping over that period but have seen a lot of erosion as well. I would be happy to discuss my concerns in person, [REDACTED].
16	Oct 24, 19	Would be good to have an area where a person could talk about other concerns. Like when you were here last time it took you 6 month to get me the research, research that was extremely generic. I would like to see what you've done since, but I don't have time to waste when it takes six months. I want to see Yukon Energy put some energy into this by installing more then one weather station on the lakes, there should be at least four on Tagish and 4 on Marsh Lake. Because wind in Whitehorse is completely different. Our last major snow storm should prove that. Also let's do some wave, erosion, ice and other hydrology studies on these lakes too because these lakes are not like other lakes each have unique wave action just like all water.
17	Oct 25, 19	<p>I missed adding the words "in every year" in my message below to read "Further to my earlier message below I ask you that you please stop misleading the public by implying the natural levels in the lake exceed that of the proposed Full Supply Level (FSL) in every year". I think many people, including myself, interpret your sketch as being every year rather than once in four years .</p> <p>On Oct 24, 2019, at 7:21 PM, wrote: Yukon Energy</p> <p>Further to my earlier message below I ask you that you please stop misleading the public by implying the natural levels in the lake exceed that of the proposed Full Supply Level (FSL). This is displayed in your sketch in your brochures, presentations etc. showing the proposed FSL lower than that of the "the lake level naturally fluctuates this much during the year". You know this only occurs every 3rd or 4th year and the actual average high water level matches your current FSL.</p> <p>Thank you for considering this.</p> <p>On Oct 24, 2019, at 9:43 AM, wrote: Yukon Energy</p> <p>I wish to provide you some comments on your Southern Lakes Enhanced Storage Project. I participated in your public consultations during the period 2010 to 2015 where we exchanged several emails and I met with your with your team. During this period I was primarily concerned with the erosion along the shore adjacent to my property on Tagish Lake. I'm pleased that you have committed to install and maintain adequate erosion protection if the project proceeds.</p> <p>You have provided the public with a impressive amount of information from research and studies. What's lacking is information on your discussions with the affected First Nations. One thing that may be overlooked in your discussions is the potential impact on the ordinary</p>



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		<p>high water mark boundary (OHWM) of the settlement lands along the southern lakes and Yukon River. I surveyed some of the OHWM boundaries along Marsh Lake while I was employed with the Surveyor General Branch, NRCan - I'm now retired. A 30 cm rise in the storage level probably will not cause much of a visible change to most of the OHWM, but the rise will flood the low-lying areas (e.g. marshy areas) causing a change to the OHWM boundary in these areas. My survey noted that the elevation of the OHWM in these low-lying areas and other areas protected by the wind and wave action match that of the current storage level.</p> <p>It's arguable whether there will even be a OHWM boundary definition after a storage level change as the lakes lose some of their natural characteristics. Its complex, made even more so with such a small change to the regulated levels. Regardless, the flooded areas probably will need to be identified and dealt with under agreements with the First Nations. It will be difficult to identify the potential flooded areas prior to a storage level change; one option is to identify and survey the areas after 10 to 20 years when the flooding has caused a visible change to the vegetation and soil. There may also need to be some analysis and resurveys done to either update the OHWM locations or replace the OHWM with some other boundary definition.</p> <p>Further details on this topic can be found in two reports that I prepared on the OHWM mapping of settlement lands. These can be downloaded from the plan search application on NRCan's website at http://clss.nrcan.gc.ca/clss/plan/search-recherche/. Input plan numbers "FB38247 CLSR YT" or "FB38959 CLSR YT".</p> <p>Feel free to contact me if you have any questions and I will try to provide answers. I am unable to provide you with specific boundary analysis or surveys as I am a non-practicing retired Canada Lands Surveyor. You may wish to contact the Yukon Office of the Surveyor General Branch to further discuss this matter.</p>
18	Oct 25, 19	<p>I am a property owner at Tagish for the last 22 years. The last two years the peak water levels have been what I would call the maximum height I would recommend that never gets exceeded. Can you tell me how these last two season high water levels compare to your proposed change to your water license.</p>
19	Oct 25, 19	<p>To whom it may concern,</p> <p>I live in Carcross. My property isn't gonna be affected for what is being proposed. My First Nation Family has cabins on [REDACTED] on Tagish Lake, [REDACTED]. My family also has a lease down Tagish Lake by [REDACTED]. My Family also has a cabin (First Nation interest) by the Wann River. We enjoy going down Tagish lake, but decreased the spring lake level will make it harder for us to launch our boats to access these areas we use for recreation, hunting and relaxation, until later summer. Raising the water level in the fall will also effect our hunting, there will be no shoreline for the moose to walk out on. If theses changes are to occur it will affect our life style.</p>
20	Oct 25, 19	<p>The Southern Lakes Survey did not offer a chance to comment, so quickly I will summarize my feelings on this project.</p> <p>I feel this project has taken long enough consulting and offering remedies for any downsides. It is time to put it into operation. Those that continue to oppose it are probably the same activists who say we are in a "Climate Emergency" and they will not be satisfied no matter how much we consult or any changes made. If a climate emergency truly exists, then this is a necessary action and should not be delayed!! We need the additional electricity and carbon reduction, and everyone needs to accept the necessary downsides. Especially those who claim the sky is falling and demand action from me. Here is my action!</p>
21	Oct 27, 19	<p>I don't like that there were no spaces for comments. Your survey did not give the option of suggesting other ideas. I am afraid that I will come across as anti-hydro electrical energy when in fact I am in favor. I am just against Mega projects. Increasing water levels in the very large lakes will have a huge impact for the folks who live around the area. Small local projects (the Yukon has so many rivers) is what I would support and your survey did not allow me to say that.</p>



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No.	Date	Submission
22	Mar 3 & 10, 20	<p>Hello Travis, hello Stephanie,</p> <p>Re: Southern Lakes Enhancement Storage Project proposal.</p> <p>Thank you Travis for sending me the studies about the shoreline at my property.</p> <p>Just for your information, it appears you did not consider a few aspects:</p> <p>The soils on the exposed eroded shoreline at my place are very dynamic!</p> <p>I see sinkholes every spring, until the lake water covers them. The ground is made of silt, clay, sand and various sized gravels. Add water, frost and thaw, and you have a dynamic and unstable substrate to place riprap on. The riprap moves due to water, waves, soil dynamics, and the effects of frost. It is age-old knowledge, that water and frost breaks rock! Some of my riprap has been washed downstream.</p> <p>You are likely not aware, that I add riprap every three years or so to the riprap, that's already there. What you and your colleagues saw is not a permanent erosion control! I added - individually placed - several truckloads of riprap since your photos were taken. And have been doing so since 1986. Other owners have been attempting to control erosion before me in other ways since the 1970's.</p> <p>Therefore I disagree with your assessment, that your proposal would not have any effect on the erosion control that is in place now in front of my property.</p> <p>This would hold true to other riprap erosion control attempts along the Southern Lakes.</p> <p>I suggest you reassess my file with this information included.</p> <p>Another thing you may not be aware of: Several years ago I had to get a land use permit to place an additional 20 + meters of riprap on each end of existing riprap. This is because the property pins were being threatened by erosion on unprotected shoreline.</p> <p>Erosion is going on all the time, because the lake system is now a reservoir. Every year, more and more trees and bushes are leaning over the ever-changing shoreline. For your project to go ahead, Yukon Energy would have to permanently protect not just a few pieces of shoreline, but all of it.</p> <p>For example: The permafrost shoreline on the northwest side of the lake (adjoining Settlement Land) is oozing melting clay into the lake every spring, summer and fall, with its associated sedimentation effects on fish, wildlife, and vegetation communities downstream. This is due to the fact that water levels are being held high artificially, and have been for decades. Such conditions would only be exasperated with your Southern Lakes Enhancement Storage Project proposal.</p> <p>Travis, please acknowledge that you have read this email, and made it part of the record for my file.</p> <p>I thank you,</p> <p>[REDACTED]</p> <p>Marsh Lake, Yukon.</p> <p>which date will this report be presented? To your Board of Directors, and will it be available for the public? On which date? Will it be available for me to read? On which date?</p> <p>Hello Travis,</p> <p>I haven't heard back from you from my last email of January 14, 2020, as I requested. Hence I am including Zoe at Stantec in this email.</p> <p>I forgot an aspect in that email to you:</p> <p>I have a drinking water well within the lake edge of my lot, with good quality water, which does not require treatment. This well is about six meters from the high water mark in average summers.</p> <p>If the SLESC was to go ahead, the additional water pressure could affect the well water supply quality in the short, medium and long term, at all seasons of a year. This aspect was not addressed in the assessment at my property. I would like this fact to be part of the record, and included in the assessment done for my property.</p>



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No.	Date	Submission
		<p>Thank you for your attention to this email and the previous one, I look forward to your reply to both, [REDACTED] Marsh Lake Hello Zoe, will you include my today's email - regarding my well - in this What We Heard Report? Hello Stephanie, which date will this report be presented? To your Board of Directors, and will it be available for the public? On which date? Will it be available for me to read? On which date? Hello Travis, will you include my January 14, 2020 comments, as well as my drinking water well comments of today, in your assessment of this location ([REDACTED])? Thank you Zoe, Travis and Stephanie, [REDACTED] [REDACTED] Marsh Lake</p>



APPENDIX C

Stakeholder and Other Submissions





December 20, 2019

Yukon Energy
2 Miles Canyon Road
Whitehorse, YT
Y1A 6S7

RE: Ducks Unlimited Canada's comments on Southern Lakes Enhanced Storage Project

Ducks Unlimited Canada (DUC) submits the following comments on Yukon Energy's Southern Lakes Enhanced Storage Project. DUC participated in previous consultations related to this project in 2012 including attending workshops and meeting with Yukon Energy staff and consultants where we raised several concerns we had regarding potential impacts to waterfowl and their habitats. Unfortunately, we do not feel our comments and concerns have been adequately addressed. Therefore, we continue to have the following concerns over what impact the proposed change in water levels will have on wetlands in the impacted areas and the waterfowl that depend on these habitats.

DUC is interested in the Southern Lakes area due to its immense value to waterfowl and the presence of protected areas that ensures the conservation of their habitats. Lewes Marsh and Tagish Narrows were both identified as Habitat Protection Areas (HPA) through final land claim negotiations with First Nation governments. Although no management plan yet exists for either of these protected areas it is very likely that conservation of waterfowl use of these HPAs will be a significant focus. DUC has shown through our science that Lewes Marsh and Tagish Narrows, along with Nares Lake, are among the most important spring staging sites in the southern Yukon with Lewes Marsh having the most use by waterfowl. Maintaining this high level of use is important. Thousands of ducks, geese, swans, gulls, shorebirds, and loons rely on these habitats to reach breeding grounds throughout the north. Loss or degradation of habitat along their migratory route may impact their ability to breed successfully.

After having examined the statements Yukon Energy has on their website and reviewing the reports of the numerous studies Yukon Energy conducted, we fail to reach the same conclusion that impacts to waterfowl and wetlands would be minimal. However, we cannot conclusively say there will be an impact on waterfowl from the proposed changes to the water license. To date, the necessary studies have not been done. We encourage Yukon Energy to improve their assessment of impacts to waterfowl through increased baseline data collection and post-impact monitoring to inform adaptive decision making.

Concerns:

To assess impacts to waterfowl it is best to examine how their habitat will change under the proposed water regime. Waterfowl habitat, specifically the emergent and submergent vegetation communities, is vital for foraging as waterfowl eat the plants and invertebrates that are associated with these vegetation communities. In our experience across Canada, including in northern areas, an increase in water levels usually alters the vegetation community along lakeshores and in submergent habitat. What we have

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observed is a rapid increase in water depth tends to kill plants or at the very least results in a decreased density of vegetation at the water's edge. Given the timing of the proposed water level changes may coincide with the latter stages of the growing season, an impact to the vegetation community could be more likely or possibly more severe. This rapid change to a new "normal" water level also does not allow the plant community to adapt. Additionally, the higher water levels in the fall and early winter will allow the formation of ice higher up the bank than previously experienced. This will cause ice scouring to take place in new areas that will then have a subsequent change in the vegetation community.

Submergent vegetation, such as those plants that grow on the mudflats of M'Clintock Bay, are linked to the emergent vegetation that grow along the lake margins. If the emergent vegetation declines it can lead to a decline in the amount of submergent vegetation due to the loss of protection from wind and currents provided by the emergent vegetation. However, the decline in submergent vegetation usually lags behind the loss of emergent vegetations, therefore the impacts would not be observed until later. Submergent vegetation that is rooted, an important food source for species such as Trumpeter Swans, is also more likely to be disproportionately affected by increased water levels by reducing access to sunlight.

Our work has shown that in such situations, changes to the emergent vegetation community may not be observed until 3-5 years after a water level increase. It is critical to detect and respond to any changes within the first 5 years as after that a tipping point can be reached that prevents the vegetation from recovering. This is due to many species of plants along the shoreline edge having a seed bank that is only viable for 5-10 years. We have found it is difficult to bring vegetation communities back to what they were prior to an alteration so any future vegetation community will likely be different than what currently exists.

Another concern is the changes that may occur to the mudflats in M'Clintock Bay. This area sees the most use by waterfowl as they feed on the submergent vegetation that becomes available during low water in the spring. With the proposed higher water levels in the fall and lower water levels in the spring there could be changes to deposition or erosion rates that could impact the amount and/or quality of habitat that is available for waterfowl to utilize.

Further, it is unclear how the change in water levels will impact ice cover of the lake outlets. One of the reasons these sites are important for waterfowl in the spring is they are the first areas to become ice free. If ice extent was to increase and the amount of open water decreases, then there could be less habitat available for waterfowl to use either through impacting where vegetation grows or by being covered in ice when waterfowl are migrating through the region. Similarly, if ice thickness was to become thicker then it may take longer to melt and therefore cover foraging areas thereby reducing the amount of habitat available to waterfowl.

Recommendations:

The information provided by Yukon Energy is insufficient to allow us to ascertain what, if any, impact to waterfowl and their habitat will be observed if the proposed changes to the water license are

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approved. However, through various mechanisms, DUC believes there is a significant risk of negative impacts on some species of waterfowl using these valuable staging areas via changes to their habitat. We also acknowledge that the lack of information makes it plausible that some species may realize positive impacts from the proposed changes. Because of this uncertainty, DUC recommends Yukon Energy take an adaptive management approach whereby sufficient baseline data is collected and robust monitoring protocols are enacted to determine if there are impacts to waterfowl and their wetland habitats due to changes in water level. Therefore, we recommend a delay in implementing changes to the water regime until more baseline data is collected. We also recommend that any changes to the water level regime are done in a reversible manner as knowledge of the impacts to the system are gained to allow for adaptive management to occur. In other words, changing the water regime should be done on a trial basis with continual monitoring of impacts and frequent reassessment of the implementation of the proposed water regime. Below we provide more specifics on what baseline data, monitoring requirements, and implementation of the new water regime we recommend.

Waterfowl have been monitored at Swan Haven for many years with additional monitoring at Tagish Narrows at a lesser intensity. We encourage this monitoring to continue. We also suggest monitoring occur at two other scales. The first is monitoring all sites within the Southern Lakes system that will be impacted by the change in water levels. This would expand existing monitoring to Nares Lake, Bennett Lake, the Yukon River downstream of Marsh Lake, and possibly Lake Laberge. The second scale is intensive monitoring at migratory stopover sites not impacted by these water level changes such as Teslin Lake, Little Atlin Lake, and Dezadeash Lake. The purpose of this extra monitoring is to better understand the magnitude of any impact changing water levels have on waterfowl numbers by determining if waterfowl are changing their distribution in response to changes in water levels in the Southern Lakes.

We recommend phasing in the water level changes instead of implementing one large change. An incremental increase of 10cm every 2-3 years will improve the likelihood of wetland plants to adapting to the new water regime. Further, if negative impacts are observed, this level of increase is more likely to be reversible compared to an abrupt shift in water levels. To determine if plants are adapting, vegetation composition in wetlands and along shorelines should be monitored every year for 10 years, beginning with a solid baseline of current conditions. We believe that long-term monitoring is appropriate to assess any impacts as there is commonly a time lag between the change in water levels and the change in plant community. Early detection of an impact will allow corrective measures to be put in place while the impacts are still reversible.

Addressing our concern about changes to the deposition of sediment at sites such as M'Clintock Bay requires an updated bathymetric survey. River deltas are inherently dynamic and there would be an expected change to the area since bathymetry was collected. Repeating this survey will provide a baseline for expected changes with which to compare future bathymetric monitoring to parse out what changes are expected naturally and what changes were likely due to changes in water level manipulation.

Ice extent and ice thickness monitoring is a necessary activity to measure any changes in habitat availability for waterfowl. The monitoring needs to be able to determine the extent and location of ice-

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free areas, if they are a different size than prior to water level changes, and the rate of melt through the spring that relates to the exposure of shallow areas or mudflats used by foraging waterfowl. Monitoring will need to be done over many years to account for inter-annual variability due to annual weather differences. Collecting baseline data would be beneficial to determine the current amount of variability in ice extent.

It is our hope that Yukon Energy finds merit in these recommendations to improve the understanding of how changing water levels may impact waterfowl and their wetland habitat in the Southern Lakes and adopting an adaptive management framework in an effort to minimize or avoid these impacts. If so, DUC is offering to review any newly proposed monitoring regime or wetland study that Yukon Energy undertakes.

Thank you for the opportunity to comment on these proposed changes to Yukon Energy's water license. Feel free to contact DUC at (867) 668-3824 or j_kenyon@ducks.ca if further clarification is required.

Sincerely,

A handwritten signature in black ink, appearing to read "Jamie Kenyon", is written over a light grey circular background.

Jamie Kenyon
Conservation Programs Specialist
Ducks Unlimited Canada

December 2nd, 2019

Travis Ritchie, Manager, Environment, Assessment and Licensing

Yukon Energy Corp.

We, the East Six Mile River Community Association of Tagish would like to express our concerns regarding the raising of the Southern Lakes.

We are having trouble understanding exactly what is being proposed. Are we looking at an increase on top of the normal high water mark or is it the historical high water mark and if we are looking at the normal high water mark where would that be in relation to the height of our docks? We ask this because over the last couple of years the level never came up to the usual high water mark as we remember it. This is important to us as the most damage to the shore line that we see occurs in September and October with the fall winds and if the water level is higher this will increase erosion that is currently happening upstream of our properties.

We do agree that there could be improvements in the controlling of the water level in the fall period so that they don't drop three to four feet by the end of November as they have been doing the last couple of years.

The other concern we have is what mechanisms will be in place should damage occur to our shore line if the water levels are raised.

We request a timely response so that we will have a more comprehensive knowledge so that we are able to respond to the questions in the survey.

Ralph Heynen, Secretary Treasurer, East Six Mile River Community Association

drheynen@northwestel.net or 667-7234 or 334-8580

██████████ –February 2020

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Yukon Territory ██████████

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Letter to: Y.T.G. Minister Ranj Pillai Minister of Energy Mines and Resources, Deputy Minister Paul Moore, Yukon Energy CEO Andrew Hall, Engineer Travis Richie, Yukon Energy Board c/o Stephanie Cunha and Kelly Pollard to be forwarded to each and every member of the Yukon Water Board.

This letter is concerning the water levels at Marsh Lake and the present Yukon's electrical power grid. Please **do not grant** Yukon Energy (YE) the 30 cm. increase in water levels. Yukon Energy has not managed the present water levels with any competency. Yukon Energy needs a workable game plan in place in case of a flood situation like in 2007. Presently their equipment is not designed for flood situations, the Lewes locks are an illegal structure. Yukon Energy and YTG have not addressed the easements on Army Beach and South McClintock this has been brought up many times and is still being ignored. There is no point in armoring the properties on Army Beach if the government easements are not armored. There are senior citizens on fixed income who have high properties on Army Beach, each year they lose a couple of feet due to erosion with the present water permit. Eg. ██████████ have lost a minimum 50-75 feet of their lot frontage to erosion. If the water is held higher longer in the fall, which is prone to high wind and waves, then these seniors will lose a lot more property to erosion. These people cannot afford \$ 50,000. plus to armor their properties. Yukon Energy has stated it will not armor private properties. This is not fair or just. On the other side I have put in about \$ 80,000. in flood protection on my property, all of this out of my pocket. If Yukon Energy pays to have the seniors on fixed incomes, to armor their land, then I want to be reimbursed for the money I have put out of pocket. Yukon Energy has stated that our septic system would be marginal if they get an increase in lake maximum levels. They have stated that they have budgeted \$ 34,000. to upgrade our septic system. But we have also been told that we will have to justify or prove that our system is compromised and it is questionable if Yukon Energy will provide the talked about compensation.

Yukon Energy's stories change often and many of the lake front residences do not believe what Yukon Energy says.

The following history is relevant, it shows that NCPC/Yukon Energy is 100% reactive and only does upgrades in panic mode which have historically been screw ups:

1902 River boats started taking freight from Whitehorse to Dawson and the Mayo areas.

1923 The White Pass locks (Lewes locks) are finished being built. The reason for this structure to be built was to hold the water back and to let it build up in the lower lakes system (Marsh Lake). The water that was held back was then let go all at once, the reason for this was, the release of this water created a wave/surge of water that went through Miles Canyon, Whitehorse (Marwell area) and down river into Lake Laberge. This action would take the spring ice out of Lake Laberge and the river boats could use the river system to Dawson about 30 days earlier. Also this was timed with the launching of the riverboats, the higher river levels made this launching easier. The river boats were wintered in what is now downtown Whitehorse.

In approx. 1945 8 to 10 Army Beach lots are given legal title and other Army Beach lots are given leases from the Yukon Territorial Government. In the 10 years following this the Government gives lot leases on South McClintock. All of these properties are legitimized in 1984 by government letting people who leased these properties buy the properties and obtaining title to the lots.

1955-1959 NCPC has survey done to flood Army Beach/South McClintock peninsula (). This was done with an Order in Council Reserve.

1958 Whitehorse hydro dam is built and finished. This dam created Schwatka Lake as we know it today. If you look on top of Miles Canyon near the suspension bridge there is a picture with a write up telling how the water level in Miles Canyon was approximately 33 feet lower. There is another picture in the preboarding room at the Whitehorse Airport - this shows the water level at the mouth of Miles Canyon clearly approx. 33 feet lower than today's water levels.

1944-1959 Army Beach Road went from Lot #1 to lot #32 behind the properties. At Lot #32, the road jogged out in front of the Lots #32 to lot #52 this put the road

in what is now the Marsh Lake at high water. This road flooded out the year after the Whitehorse dam was put into service. This road was moved approx. 100 feet back from the new high waters edge. Locals estimate that the Marsh Lake water level was raised 5 feet to 6 feet higher. Army Beach area was called Mud Bay by locals prior 1959. The Whitehorse Dam created new lake levels, some lots have been flooded 4 times up to the 2007 flood. Erosion has already taken 75-100 feet of beach/lot frontage or prior high water from Army Beach.

1972-1975 Aishihik Hydro plant is built. It is way over budget and all Yukoners call it the White Elephant. NCPC/Yukon Energy did not have the precipitation/rain stats of the valley so they used the rain fall stats from 36 Kilometers north (Haines Junction). What they did not know was most of the rain fell 36 kilometers to the north and never reached the Aishihik valley. Thus the Aishihik hydro plant only created a fraction of the power it was supposed to.

1975 The Federal government gives Yukon Energy/NCPC permits to remove the entire existing Lewes Locks structure and to build a new (Lewes Locks). This follows the Yukon's white elephant Aishihik hydro project, over budget, over time in building and gave about ½ of the electricity it was supposed to. There was huge pressure put on Yukon Energy by Y.T.G. to come in on time and on budget. To everyone's (in government's) surprise, Yukon Energy comes in on time and on budget. The reason for this is Yukon Energy left the old corrugated metal (20 foot long??) that was pile driven into the riverbed. Yukon Energy also left the blast rock that is behind the corrugated metal. This is not what the construction permit called for, the construction permit called for the removal of the entire existing WP&YR locks. The reason for leaving this in place was so Yukon Energy would come in on budget and on time. This is also what keeps the new structure from washing out. The new locks are the same width as the old locks. As the new structure has boat locks on the east side this means that it has about 30 feet less of water gates. Even when all of the water gates are wide open they cannot let all of the high water/flow through. This means it holds the water back and worsens floods as in the 2007-- 100 year flood. I measured the water levels in 2009, the once in a 50 year flood. All of the gates were wide open there was a 27 inch difference in water levels from the upstream side to the downstream side of Lewes locks. I remeasured these water levels in a regular year on 8 September 2019 and found a 14.5 inch difference from the upside to the down side of the

Lewes Locks. When I confronted Yukon Energy in 2008, an engineer stated that they did not know the ledge (corrugated metal/rocks) even existed. When they examined this ledge they came out with the statement that it only impedes their ability to lower Marsh Lake level by 2 extra inches. They do not talk about the differences in water levels on each side of the Lewes Locks. I believe that the locks were never even designed to operate in flood/high water to let all of the water through. I believe the locks were only designed to hold back water. To make the locks so they could let high water volumes through the locks they would have to extend the locks, widen the river and put in more water gates. You would think that this would have being basic engineering? You would think that a government run and owned company would have competent engineers design their equipment for all weather. However in Yukon Energy's defense, who could have seen extreme weather that comes with climate change.

1975 Yukon Energy's Aishihik hydro project - [REDACTED] told me a story over a beer. [REDACTED] was a [REDACTED] who did [REDACTED] work in [REDACTED]. [REDACTED] was also working as a [REDACTED] on the Aishihik project. At the end of the project he went to the [REDACTED] and told [REDACTED] could not leave the oil, diesel, hydraulic oil, barrels and other contaminates in the 40 foot by 200 foot trench that it was all dumped in. The NCPC Manager told [REDACTED] to bury it all. I believe this was done as the project was hugely over budget and under extreme pressure from Y.T.G. - this shows the Yukon Energy's arrogance.

Early 1990's Yukon Energy puts in the 5th wheel at Whitehorse dam. There are complaints about the ground just up from the bridge above Lewes locks on the west side of the highway. Land that has never flooded before is flooding every year now.

In installing the 5th Wheel Y.E. blasted the rock for the water channel. The blaster screws up and the rock beds fractures and river water bypasses 5th wheel and the Whitehorse Dam. Yukon Energy buys bags of special concrete which is put in to the rock fissures/cracks caused by the construction blasting. When soaked in the river water this product swells and fills most of the cracks. This meant that Yukon Energy had to put the 5th wheel at a higher elevation than the other Whitehorse Dam's turbines. The 5th wheel turbine does not work properly unless the water is held at the present un-normally high water level.

2006-2007 the Lower Southern Lakes area has a 200% snow pack in the mountains. Yukon Energy tries to open their frozen water gates at the Lewes locks. They only had heaters on 4 (?) locks - 2 of these heaters were non-functionable. So the two heaters were turned on for a couple of days, when Yukon Energy got these gates open they would disassemble the working heaters and put them on other frozen gates. After the 2007 (100 year flood) Yukon Energy purchases new heaters for the Lewes Locks and installs them on more water gates.

2007 flood was supposedly a once in a 100 year flood according to Yukon Energy. YTG stepped in and brought in three 1,000,000 gallon pumps, large equipment and I think I was told 1,500,000 sand bags. There was a lot of local Army Beach talk about a class action law suit against Y.E./Y.T.G..

2007 Yukon Energy asks their employees to sandbag the side of Lewes locks. It is washing out and they were afraid they would lose the entire structure. When the employees get to the locks they almost immediately give up and call for big machinery to move earth and to save the locks ([REDACTED]).

2007 Yukon Energy releases a statement that even if they did everything perfectly they could only have lowered the Marsh lake flood level by 3.5 inches. **They did this because they did nothing until they were in a disaster situation.** This did not include the 2 inches from the Lewes Locks ledge from the previous locks. So their actual screw up was 5 ½ inches in higher lake flood levels.

2007 YTG. raises Army Beach Drive by up to 2-3 feet in elevation during the 100 year flood. YTG actually buys two properties off of owners in Tagish area and buys or replaces 1-2 homes that are damaged due to the flood in South McLintock area. I think this was because they realized that they were liable for the damage. Better to be a heroes and help people, instead of being sued and held responsible for damages.

2008 I go to #200 Range Road in Whitehorse and look at permits and blueprints for the Lewes locks. I find that the permits/blueprints are not the same. I find that the old locks had long (20 feet?) corrugated galvanized metal pounded into the ground, there is also large rip rap/blast rock behind the corrugated metal. The permit that Yukon Energy took out was to remove the entire structure and to then build a new structure. When I talk to Y.E. engineer I am told with an in a

loud voice “we are not going to remove the ledge”. This engineer told me that this is what keeps Lewes locks from washing out.

2008 I bring the ledge up in a public forum. Later I am told by a different (now retired) engineer that they had no knowledge that the ledge existed until I brought it up. This took Yukon Energy by surprise. This engineer told me that Yukon Energy took a good long look at this ledge which is raised above the lower ledge of the new structure. I was told that this ledge would account for an extra 2 inches of water level in the lower lakes. So if you add the 3 ½ inches that Yukon Energy could have lowered the water level in the 2007 flood, Yukon Energy accounts for 5 ½ inches of the flood waters. What about the difference in water levels upstream and downstream of the Lewes locks, the first time I measured it was 27 inch difference and the second time the difference was 14.5 inches. It is my belief that when all of the gates are open there should be no difference in the water levels on either side of the locks. Provided that the locks are engineered to function in all circumstances and or levels of water.

2009 we have the once in a 50 year flood. This does not affect anyone’s properties that I know about. During meetings Yukon Energy’s CEO states that a new dam takes about 20 years to do the environmental and to get the permits.

The Yukon is on year zero of this process. (CEO Dave Morrison)

2014 Yukon Energy applies to Water Board? and public **to hold the Marsh Lakes water level at a natural higher level.** So when the lake level hits a level of 30 cm above their water license they would just hold the water at this level for a couple of more months.

2015 Yukon Energy now changes the paper work **to raise the water level** when confronted by Army Beach’s government ward (Perry Savoie). We are told this is what they meant all along - they just had wording problems, this is one example of why local residents do not trust Yukon Energy.

2015 The public is told by Yukon Energy there are three critical chokes on the Yukon River and this is the reason that Yukon Energy could not lower the water level during the flood in 2007. One choke is Miles Canyon, if Lewes locks were not there then the water would just build up in front of Miles Canyon. But according to the WP&YR locks (Lewes Locks) the water may have built up in front of in front of Miles Canyon but then it did go through Miles canyon this was in the form of a

surge/wave and it did take the ice out of Lake Laberge. There are pictures of the water 30 plus feet lower in miles canyon before the Whitehorse dam was built. So if the dam was not there it is obvious the water would go through Miles Canyon in a surge/wave. The next Critical choke is the shallow water or the high river bed one kilometer above Lewes Locks. I have being stuck in a boat here and the water was only about 6 inches deep in the spring. You have to ask why is the river bed high in this location? When water is full of sediment what happens when the water stops flowing or when the water slows down, the answer is simple the sediment settles out of the water, thus raising the river bed. I believe that Lewes Locks is the reason the river bed is so high, I also believe that Yukon Energy will have to dredge about 500 feet of river so it will flow properly, so they can benefit from the extra water flow in the spring or low water times. The third critical choke is Lewes locks itself. It is not capable of letting all of the water through at high water, hence the difference in the water levels when all of the gates are open.

2015 in September I go to Lewes locks I put a level on the structure on the west side of the boat locks. The structure is exactly level. I also take note that all of the water gates are wide open. I then measure the water level from the top of the structure to the top of the water. On the upstream side of the structure the top of the water is 25 inches to the top of the Lewes structure. I go to the downstream side of the structure the water is 52 inches from the top of the water to the top of the structure. The difference is 27 inches in water level. We can take it the Y.E. engineer knows what he was talking about on the ledge accounting for 2 inches of water level. This leaves 25 inches of water level not accounted for. I do a remeasure on 7 Sept. 2019 and the difference was only 14 ½ inches minus the two inches and we have 12 ½ inches not accounted for. The water levels in the lower lakes accounts for this difference. The higher the lake levels the greater the difference in the water levels. Do these locks have enough gates to let high water through? Should Lewes locks be expanded with more locks?

Both [REDACTED] (a Y.T.G. Hydrologist) and Yukon Energy have forecasted for a lean water year in years past. Both have been wrong and they both admit that they are guessing based on past weather patterns. [REDACTED] (YTG Hydrology scientist) has stated the Federal government have to change their forecasting as climate change is drastic and their forecasting has not been

accurate. He also states that he does not work for and does not do forecasting for Yukon Energy.

2017 we only have 78% of the average of snow fall but end up with 143% or the average rain fall. We did not have flood levels of water but we had high water. Marsh Lake had wind storms in the fall and we had huge waves hitting the shore and splashing water on to the lake front properties. These waves broke over the break waters causing erosion on the Army Beach lots. **Will Yukon Energy pay for wind damage or erosion if they get a new higher level water license, this higher water level would be directly responsible for most if not all the damage to our lots? This has not been talked about or dealt with by Yukon Energy.** In 2007 the temperatures were 1 ½ degrees cooler than normal, the other miracle we had was there was no wind for in the fall at the high flood levels. If we had had those strong winds, the damage on Army Beach/South McClintock would have been astronomically higher.

I believe that in case of a lean water year, Yukon Energy **already** has the right to close some of the Lewes Locks earlier to so they can achieve a full lake levels as set out in their current water license HY99-010. This has only occurred once this occurrence was in 1996. Question: does Yukon Energy need a higher water license to obtain a present full lake level?

Fact: The Federal Government/ Y.T.G. and Yukon Energy Corporation have not been able to do accurate weather forecasts or accurately predict water levels for the upper lake system (Marsh Lake). If Yukon Energy gets a higher level on the water license and they follow past practices then it will only allow them to screw much worse. If we have bigger fall wind storms then Army Beach properties will definitely suffer more erosion and more damage. I have not heard or seen Yukon Energy state that they will pay for this erosion or for any of this damage to date. (This statement excludes some septic systems, but so far this is talk only we have seen nothing in signed writing, so do we believe Y.E.? Many local residents do not believe Yukon Energy.

2018 Yukon Energy buys 8 new diesel generators to be ready for the mining sector as per agreement. The mine electrical engineer comes into Yukon Energy's offices to see if the electrical is in place for the mine to operate. After looking at the electrical specs he states this is fine until the mine turns on its mill then the

mine will require a lot more electricity than Yukon Energy has the capability of supplying. Yukon Energy goes to Finning and leases 5 more diesel electrical generators. Really!!!!

Yukon Energy Statements:

"If you blew out the Whitehorse Dam it would not make a difference in the level of the water in Marsh Lake." I find this hard to believe as the water was 5-6 feet lower in Marsh Lake (Mud Bay) until the year the Whitehorse Dam was put in place. This also washed out the road on the beach, this road was moved behind the cabins in 1959. However in context unless you also blew out the Lewes locks this statement could be correct even if it is a dishonest play on words.

"If the Lewes Locks were removed the water would just bunch up in front of Miles Canyon which is a Critical Choke." This does not make sense as the water in Miles Canyon was approx... 33 feet lower before the Whitehorse Dam was put in depending on reference material. The water flowed through Miles Canyon at both levels, did it fan out wider above Miles Canyon. Yes but after the water builds up it still goes through Miles Canyon just fine. Also before the Whitehorse Dam, White Pass Locks (Lewes Locks) were built to hold the water back, to raise the water level and then to let it go all at once. This wave/surge went through Miles Canyon all at once and did take the ice out at Lake Labarge approx. 30 days earlier than the regular spring melt would take. Being a professional 37 year Firefighter I can tell you when a pipe/river is made smaller the water speeds up and the flow remains constant.

"There are 3 critical chokes which mean you cannot lower Marsh Lake levels more than 3 ½ inches below what we did in the 2007 flood." The first choke is Miles Canyon- Yukon Energy states that if more water comes down the Yukon River then the water will only bunch up in front of Miles Canyon. I do not believe this as the water flowed through Miles Canyon at its old 20-33 foot lower level and now it flows through the canyon just the same. Some water may have bunched up above Miles Canyon but it will go through after spreading out a little bit.

The river bed may be high just 1 kilometer above Lewes Locks, this may be true. It is also true that slowing the sediment heavy water down (Lewes Locks) could be responsible for this 500 foot part of raised river bed.

The third critical choke is Lewes Locks, if the locks and the raised ledge behind it were removed or altered to work the way they should have been designed to this critical choke would be removed.

Yukon Energy's strategy to produce more electricity??? They do not have any proper answer, they state the answer is a lot of small projects. However our present production of electricity is stretched to its max. Another 500 homes will be built in Whistle Bend in the near future, almost all of these will be using electrical heat. **Even if all of the small things come together they will not provide enough electricity for the Yukon. Each one of these small bandage projects have problems and none of them may come to fruition.** Yet what is the Water Board, YTG and Yukon Energy doing? As far as I can see, the answer is absolutely nothing. Again we wait for an emergency situation. This is getting tiresome. Is there nobody in Y.T.G. or Yukon Energy that is competent? We have tried wind power which only works 17% of the time. New dams or hydro take 20 years and we are on year zero. Geothermal does not seem to fit but was looked at in Mayo area. When you mention a nuclear power plant, Yukon Energy trembles, no intestinal fortitude here. They must be afraid of the greenies or the tree huggers. Funny, I am a tree hugger and I think that it is the way to go. Instead Yukon Energy under Premier Dennis Fentie bought natural gas generators. These were supposed to be more efficient than the diesels that Yukon Energy used to have. But I have 2nd hand information that the new natural gas generators have not worked out cheaper than the old diesels. These new generators take 18 minutes to bring on line at about 50% capacity, it takes about 2 hours to come to 100% capacity. The natural gas storage tanks off gas 4% per month, even if the generators are not in use, this means that for the 6 plus summer months over 20% of the natural gas is vented to the atmosphere producing not one watt of electricity. Also the natural gas generators will only run at one speed and they only have one set amount of electrical generation they put out. This meant that Yukon Energy had to buy or lease new Diesel Generators that will ramp up and down to match the amount of electricity output that is required. The new Diesel generators only put out a fraction of the exhaust emissions, 20% more electricity is made and at 20% less of a cost. Buying natural gas generators was stupid at the best. The decision was made by Premier Fentie because he wanted to go in the back door and have the Yukon drill and frack for

natural gas, he wanted a new industry. As usual this is just another in the long list of Y.T.G's/Yukon Energy's screw ups.

Presently Yukon Energy Corp. has 8-9 45 foot trailers with large CAT electrical generators on the Whitehorse site. Hooking these into the main grid is a nightmare. Instead of using common sense and put some of these at Victoria Gold mine and simplifying the Whitehorse set up, Yukon Energy has opted to lose what? 20% of the electricity supplied to Victoria Gold mine due to friction or line loss. Each of these generators should be in separate areas, this way only the affected area would lose power in any power outage. Instead, if one of the plants fail the entire grid could go down. Really? I have no idea what the new CEO of Yukon Energy has for experience with hydro, diesel, natural gas electricity plants. I do know that the last CEO had absolutely no experience in any part of the electrical creation industry. 2020 Yukon Energy has had to rent 4-5 more Diesel generators from Finning as they cannot physically put any more generators at the Whitehorse plant these will have to go to Faro. They should be put at Victoria Gold Mine but Yukon Energy would have to put in a very expensive substation. With mine life's being uncertain this is not worth it, I agree with this decision.

It is obvious that Yukon Energy is and has been incompetent after the year 1959 when the Whitehorse Dam was constructed. Yukon Energy has done nothing ahead of time. Yukon Energy is purely 100% reactive and only operates in an emergency situation. In the last CEO's words Yukon Energy is on year 0 of a new hydro project. As this letter clearly shows, there has been one screw up after another screw up. We keep having power outages that affect businesses and restaurant sales, and my [REDACTED] ability to work on [REDACTED] computer from home at Marsh Lake for [REDACTED]. Every time the power goes out in Whitehorse, something has to be rebooted at [REDACTED] there so [REDACTED] can connect again from home and if it's on the weekend, nobody is there until Monday to do that. My suggestion is to give Yukon Energy a proper mandate and a year to come up with an actual workable plan for the future that will meet all of our electrical needs. Also give them notice that there will be multiple dismissals if there is not an actual plan in place that will take the Yukon comfortably into the future within that year. To rely on all of these stupid small band aid projects is just, **incompetent, lazy and stupid.**

Bad, Good and Best options for Electricity for the Yukon Territory:

Wind power only works 17% of the time. Not a good option

Huge liquid batteries take lots of room and have to be kept warm. They are slow charging, battery life time is short, they can off gas dangerous gases, they can catch fire and burn explosively and the materials to build one are not readily available and come from third world countries. Not a good option.

Solar panels; only 50% effective under snow given our latitude and the extra chances of roofs leaking due to the wind on the panels and the brackets. This is not a good option.

Hydro we are on year zero of a twenty year plan: not a good option.

Boosting Southern lake levels to boost water hydro: On high precipitation years may help out for a month. But the glaciers are melting and this is a very time limited option. On high water years this will only help with 2-4 extra weeks of hydro and it will not help at all on low water years. Down sides are erosion and law suits from lake residences. Yukon Energy has not addressed all of the local resident's problems. Not a good option.

Pumping water uphill into a lake in the summer and then putting a hydro turbine and piping to use this electricity in the winter (as per YE's draft 10-Year Plan).

What if the lake will not hold more summer water? Why would we pay to pump water uphill in the summer when we can sell this power to mines in the summer? When Victoria Gold's mill is running we are close to maxing out on our hydro power. What happens when we have 500-1000 more houses in Whistle bend? We will not have any extra power to pump water uphill. What is the cost of this venture? This is not a good option.

Atlin Taku River Tlingits do not want an extra turbine put in their residential area because of the noise it will cause and unless they have changed their minds in the last year, this is not an option.

Trading power with Skagway, power to be sold to Skagway in the summer and then purchases back in the winter is a good option. But when our demand increases which it is doing very quickly right now, will we have any extra power to

sell? The answer is no, not unless we create an large extra power source that will take us into the distant future.

Natural Gas generators: These are a purchase done by Premier Dennis Fentie who wanted a southern Yukon industry in Natural Gas. These units take 18 minutes to bring on line at 40%-50% capacity. It takes 2 hours to bring them on line at 100% capacity. These units will not modulate up or down with electrical demand, so our power has to be supplemented with Diesel power. The Natural gas naturally turns from a liquid to a gas and the storage tanks off gas 2%-4% per month when not in use. This is a 12% to 24% (?) loss of Natural Gas without a watt of power being produced. No other way of saying this the purchase of the Natural Gas generators was just stupid.

Put a dam at Eagle Bluff which is about 40 kilometers east of Carmacks, this will put out 100 megawatts of power. I think that the Yukon presently uses a maximum of 103 megawatts of power. The glitch is that some or all of this land is on the Carmacks First Nations lands which have a First Nations grave yard which would need to be flooded. Answer - move the grave yard. Bring the Carmacks First Nations in as equal partners in all of the power taken from this hydro dam project. Have them put into for the Federal Government to subsidize this project for the First Nations and the Yukon Territorial Government. With the First Nations aboard this project could be fast tracked. If Y.T.G./Y.E. does this project by themselves this project will take 20 years and we do not have 20 years to play more unending games. If and only if this project could be fast tracked. **This would be a good option** in the end and we could sell excess power to Skagway. We could also put in government subsidies to turn all buildings that burn hydro carbons to electrical boilers and we would have lots of power for electrical vehicles etc.

Nuclear Power Plant?

The biggest reason against nuclear power is the nuclear waste. Just recently Prof. Gerard Mourou (Nobel Prize winner) has designed a pulse laser generator. This laser will take nuclear waste and render it neutral in about 30 minutes. They are presently working to upscale this to work on nuclear power rods.

Terrestrial Energy (David Staples) are working on a generation 4 nuclear power plants in Canada. The generation 4 nuclear power plant will be immune to

meltdowns (melt downs have been possible problems in 40-50 year old power plants). Bill Gates has recently invested heavily into this company.

31 Countries now enjoy electricity from nuclear power plants, this is from approximately 450 nuclear power plants. Plus there are 15 nuclear power plants on aircraft carriers and about 70 nuclear powered submarines. 10% of the world's electricity is now made by nuclear power plants.

They are small and next to wind power, they are the cheapest means of electricity. Many European countries rely on nuclear for their electricity generation.

Canada's Natural Resource Minister Amarjeet Sohi is looking to the Generation 4 nuclear power plants to provide a lot of Canada's future electricity. Prime Minister Trudeau is hoping this company and its nuclear generation 4 electrical power plants will make Canada not meet but beat its climate change Paris accord targets. This will be done by using nuclear power plants in extracting oil and gas from the Alberta Tar Sands making Canada's oil the cleanest in the world.

Maybe Y.T.G./Yukon Energy should gather and distribute information of nuclear options and have YTG/Yukon Energy put out a public plebiscite.

If this does not work then pick an area for a new hydro project which will provide enough electricity to carry the Yukon into the future. But please do the research properly, no more white elephants. Be fair, but quit trying to make everybody happy.

The HTR-PM small nuclear reactor, the first one is operation in China now. This is a 250 megawatt plant operation with two reactors which are connected to a single steam turbine creating 210 Mega Watts of electricity. These two units are generation 4 nuclear power plants and are immune to melt downs, which means that they are safe.

A Canadian company which the Federal Government is supporting is Terrestrial Energy. They are building a 195 megawatt generation 4 nuclear power plant. If the Yukon did this we could get houses/commercial buildings off of fossil fuels. We could put in electrical chargers for electrical vehicles. This would make the Yukon a leader in the green technologies and practices. With this we could petition the Federal Government to exempt the Yukon from the carbon tax and

lower the cost of living. Also the Federal Government has stated that green companies would only have to pay ½ the taxes verses non green companies.

Sounds like the Yukon should be the **first in line** for a (generation 4) 195 megawatt nuclear power plant from Terrestrial Energy. Until then I say suck it up and rent Cat Diesel powered generators from Finning. Of course this would mean we would have to take a common sense approach and be proactive, unlike Y.T.G. or Yukon Energy. These nuclear power plants will not be ready for the next couple of years. If I know YTG/Yukon Energy they will wait until the nuclear power plants are ready and there is a long waiting list. My suggestion is to be the first government on the waiting list.

In closing I would like to point out that I have repeated things on a continued basis throughout the letter, this is deliberate as it seems that Yukon Energy does not get it. Like a petulant child that has fixated on a particular “I WANT therefore I should get”, and the deceitful propaganda that they continue to pander to the public at large that ie: raising the water in Southern lakes solves all the Yukon power needs going forward, shows a total disconnect from the environmental and economic facts of the situation. The people of the southern lakes region have put up with this onslaught of corporate mismanagement for much too long, **so to repeat it again Local residents say NO to any increase in southern lakes level.** In saying that we the local residents suggest that the Water Board imposes a moratorium on any more requests for 5 years minimum.

Dave Morrison said 20 years ago that Yukon Energy was on year zero of a new dam. CEO Andrew Hall has stated the same thing and 5 years before this Premier Pasloski said the same.

We have heard absolutely nothing from Minister Ranj Pillai, Premier Silver and/or Andrew Hall on any new projects. This stinks of total incompetence.

Author [REDACTED] cell [REDACTED]



February 24th 2020

Yukon Energy Corporation
Via Email.

Attn: Andrew Hall, President and C.E.O.
Travis Richie, P.Biol

Dear Yukon Energy Corporation,

Yukon Conservation Society's response to the proposed Southern Lakes Enhanced Storage Project (SLESP) includes some concerns and recommendations.

Firstly, thank you for hosting a thorough public consultation on the proposed project and for providing an opportunity for the public to share their input both online and at the multiple open house events. We strongly support the incorporation of public input in decision-making and recognize the significant steps that Yukon Energy took to enable the public to participate in the process.

Regarding the Southern Lakes Enhanced Storage Project, the Yukon Conservation Society is concerned about adding additional environmental stressors to those already experienced due to the existence of the Whitehorse hydro plant. We fully recognize that the Whitehorse hydro plant is a major source of low carbon electricity, but we are also conscious that if one were to propose damming the Yukon River today, the environmental concern would be enormous.

We also recognize the appeal of getting more energy from existing infrastructure, and we caution that environmental effects are not linear, and as water level ranges increase, we may reach thresholds and tipping points. This has been clearly observed in the past at the Aishihik facility where an additional drawdown of about 40cm in certain years caused complete spawning failures among lake whitefish¹.

Some specific concerns and recommendations:

- 1. The Yukon Conservation Society is deeply concerned that additional springtime drawdown will be detrimental to wetlands on the lakes as well as those connected to the Yukon River downstream. YCS recommends that Yukon Energy remove the additional 10cm of drawdown from their proposed plan to mitigate adverse effects on springtime wetland habitat.**

According to AECOM's Aquatic Effects Assessment, one marsh along the Yukon River could see wetted habitat reduced by 40% while others will see a range of reductions between 5% - 27%². Though the report suggests that this change will only last for a few days, the historical water level charts (provided

¹ http://www.env.gov.yk.ca/publications-maps/documents/status_yukon_fisheries2010.pdf

²

https://yukonenergy.ca/media/site_documents/Southern_Lakes/Preliminary_Effects_Assessments/Preliminary%20Effects%20Assessment%20AQUATIC%20ECOSYSTEMS%20Southern%20Lakes%20Enhanced%20Storage%20Concept.pdf



at YEC's SLESP open houses) indicate that the lake levels can stay very near the Low Supply Level (LSL) for weeks until the freshet arrives. The Yukon River water levels observed in the spring of 2019 are evidence of this challenge, and the Yukon Conservation Society does not support additional drawdown that would exacerbate the situation.

2. Abrupt changes to the water level regime pose a risk to wildlife and ecosystems that need time to adapt. Any water level/timing changes should be gradual and potential effects monitored closely.

In reviewing the relevant research documentation provided on Yukon Energy's website, we noted that making changes to the water license gradually rather than instantaneously is a suggested mitigation measure for a number of wildlife habitat risks.

From the Preliminary Terrestrial Effects Assessment³:

There may be a negative effect on winter denning habitat for muskrat and beaver due to the increased water levels, which would require mitigation measures such as a gradual increase in water levels over several years and/or the development of artificial denning structures.

From the same report:

A short-term decrease in available shrub habitats due to shrub die-off and lag time in establishment of shrub species may occur, but this can be mitigated through planting and a gradual increase in inundation over time.

The Yukon Conservation Society is of the opinion that making changes gradually to the water license (over perhaps 5 years) would be a prudent and cautionary approach to allow the ecosystem to adapt.

3. Impact Significance methodology is not consistent among the preliminary impact assessments.

The table below compares the impact rating criteria used in the Preliminary Terrestrial Effects Assessment and Preliminary Aquatic Effects Assessment.

3

https://yukonenergy.ca/media/site_documents/Southern_Lakes/Preliminary_Effects_Assessments/Preliminary%20Effects%20Assessment%20TERRESTRIAL%20ECOSYSTEMS%20Southern%20Lakes%20Enhanced%20Storage%20Concept.pdf, Ardea Biological Consulting, 2013, pg 27



	TERRESTRIAL EFFECTS ASSESSMENT (ARDEA BIOLOGICAL CONSULTING)	AQUATIC EFFECTS ASSESSMENT (AECOM)
LOW MAGNITUDE EFFECT	A change that is expected to affect less than 5% of baseline habitat; or is expected to have minimal effect on species' life requisites or functions	A change in habitat function expected to affect <10% of overall available habitat or productivity of available habitat
MEDIUM/MODERATE MAGNITUDE EFFECT	A change that is expected to affect between 5% and 10% of baseline habitat; or is expected to affect one of a species' life requisites or functions	A change in fish habitat, expected to affect up to 10-25% of overall available habitat or productivity of available habitat
HIGH MAGNITUDE EFFECT	A change that is expected to affect more than 10% of baseline habitat; or is expected to significantly affect a species' life requisites or functions.	A change in fish habitat expected to affect greater than 25% of available habitat or productivity of available habitat.

The differences between the ratings criteria used could have a significant outcome on the assessment conclusions. For example, a 9.9% reduction in habitat would be a "low" according to AECOM's method, but would be on the cusp of a "high" magnitude according to Ardea Biological Consulting. AECOM's aquatic impacts report makes note of a number of negative effects that reduce habitat quality by less than 10%, and thus would be considered "Medium/moderate" magnitude by Ardea's methodology.

The Yukon Conservation Society posits that a theoretical 24% reduction in salmon spawning habitat should be considered a high magnitude effect considering the state of the Yukon's salmon runs. Considering AECOM's methodology however, such an impact would only be considered 'medium/moderate'. Though such a reduction is not predicted by the analysis, this reflection suggests that Ardea's thresholds are more appropriate and should be applied in place of AECOM's.

4. Hydro water levels vs winter wind energy

Wind projects in the Yukon could provide winter energy, which could mitigate Marsh, Aishihik, and Mayo lake level fluctuations caused by overfilling and overdrawing water to meet winter energy demands. Wind projects have less impact on fish and bird habitat than large-scale hydro projects.

YCS recommends that large-scale wind projects (in the order of 25 to 50 MW) be developed to achieve significant greenhouse emissions reductions and to minimize water level fluctuation. Larger scale wind projects also reduce the burden on electricity costs for Yukoners. For example, the 25 MW Eva Creek wind farm 100 km south of Fairbanks was built with a 14% subsidy and is selling electricity at Can\$0.125 per kWh.



Conclusions

Overall, the Yukon Conservation Society understands the appeal for Yukon Energy to extract more electricity from existing low-carbon infrastructure, and we are strong supporters of renewable energy. We are however mindful that ecosystem limits must be respected and we are concerned that increasing the lake ranges will add adverse cumulative effects on an already taxed system. Yukon Energy's claims such as "There would also be no harm done to wetlands in the area"⁴ are not fully consistent with the information we reviewed in the preliminary effects assessments, nor is it consistent with the first-hand knowledge of specific experts on our Energy and Wildlife Committees.

Considering these observations and the territory's growing electrical demand, the Yukon Conservation Society recommends that Yukon Energy accelerate its efforts on lower impact winter energy sources such as wind, demand side management, and small hydro, regardless of whether the SLESP moves forward.

Thank you for considering this submission. We hope that this feedback is helpful and we welcome any opportunity to discuss the opportunities and challenges of this issue.

Yours truly,

JP Pinard, PhD, PEng
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Yukon Conservation Society

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⁴ <https://yukonenergy.ca/energy-in-yukon/projects-facilities/southern-lakes-enhancement/potential-effects/>

APPENDIX D

Questions



Appendix D QUESTIONS

D.1 WATER LEVELS

- Would like more information about and studies into the impacts of low water levels on habitat, fish and wildlife.
- Have there been studies on glacial water?
- I am a property owner at Tagish and the last two years the peak water levels have been what I would call the maximum height I would recommend that never gets exceeded. Can you tell me how these last two season high water levels compare to your proposed change to your water license?
- We would like a definition of "late fall/early winter".
- Will the raised levels affect Tagish?
- Water levels are currently low. Why aren't you holding at your current level if you need more?
- How close to the limit are you today?
- Why do you want to raise levels if water did not meet max levels in 2018 and 2019?
- Why was there flow all winter? Why not close the gates in the winter if you supposedly need more water?
- What caused this years low water?
- What are the affects on wild life when lowering the water levels?
- how is holding the same a mount of water back for a longer period of time going to create more electricity? The only way to have more hydro is to have more water. Which means high lake water. Which most of us do not want.
- Are we looking at an increase on top of the normal high water mark or is it the historical high water mark and if we are looking at the normal high water mark where would that be in relation to the height of our docks?
- Is the downstream water flow (town) will be under average during the fall and rise during the winter (and more peak follow)? Does it mean that the river will even have more open water and less ice?
- According to the concept diagram, the proposed increase of 10cm at the bottom end is outside "natural lake levels". Is that because the baseline is post-dam, because of how the water management is currently licensed? The water in the river this past spring was very low. Did it get down to the proposed level?
- How much land do you plan on flooding?
- What is the plan if the water is not going to be any higher how are you going to have more?
- If you hold back more water how does that affect the flow downstream. How do you monitor affects during a dry spring?
- Is marsh lake more affected by lower water than the rest of the lake? Does low water affect wells on peoples property?
- Where to find Historic highs and lows? What are the specifics of improved forecasting
- How much are they raising levels?
- Are these +30 cm and -10 cm fluctuation levels the actual submission numbers submitted in the YESAA proposal?



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- Where are the levels measured for compliance?
- Will the public be able to see a water level benchmark and observe compliance?
- Flood maps are available for most areas in Canada. Do we have flood maps for the Southern Lakes.
- How are the lake levels monitored in Bennett Lake?
- How is the 'Natural' level of the lake determined, especially when the system has been managed for the last 50 years and there is significant annual variation.
- How many years does the water naturally go this high? What percentage of the 35% of years are in the last 20 years?
- Since water is already below full water supply level could the water not just be kept at the highest current level instead of increasing level.
- Will floods be higher too now?
- properties affected by water level since the dam was built not mitigated why would we trust you now? What is the difference between the high level water mark now and before the dam was put in?
- what are the water levels? Water has already dropped since the high in mid august. What are the alternatives for renewables in Yukon in middle of winter. Is it realistic to replace fossil fuel consumption in the Yukon. If Lewis control structure wasn't in place how much lower would the water level be?

D.2 IMPACTS

- Define “minimal effects”.
- We have been experiencing erosion for years: what can we do about it?
- There seems to be less water coming in to Bennett and Tagish Lakes from Glaciers. How has global warming been factoring in to this project?
- What is the long term plan? With glacial melt will this project even matter in the long term?
- How much knowledge is there about climate change and the affects on the glaciers?
- Shelf ice affected by this project?
- how will these new water levels impact the nesting seagulls in the area across from Walmart? as it is, when more water is released from the dam in the spring it is flooding out the seagulls' nests. there have been fewer young seagulls than in past years
- Will the project have impacts on Bennett Beach?
- Will slowing velocity mean that more sediment will be deposited and lake depths will change?
- is there an increase in mercury poisoning? Mercury in birch bark

D.3 MITIGATION AND COMPENSATION

- Would home owners who don't own up to the water be involved in mitigation?
- How will mitigation be done for neighboring property?
- are the properties being currently affected? Does the mitigation not aide the properties currently being affected by erosion.
- What will you do to protect my property?
- What is the not affected, not surveyed mean on my letter. We are the second lowest property. Neighbors are considered surveyed, and not affected. Why wasn't I surveyed.



Appendix D

- what mechanisms will be in place should damage occur to our shore line if the water levels are raised.
- How will YEC mitigate damage that is already occurring do to current water levels?
- More information about the erosion assessment at the shoreline abutting my residential property.
- For erosion and groundwater mitigation, is the restructuring for the homeowner restricted to the number or letter (#) on the mail-out map as it stipulates. These nebulous identifications require actual lot numbers if they are exclusive.
- Ongoing mitigation plans, looking at extended use, example, can run boats longer?

D.4 COMMUNITY ENGAGEMENT

- Have you engaged with the Renewable Resource Council?
- Did the people formally surveyed support the mitigation or the overall project?
- I would like to know what the general comments at these meeting have been?
- How many surveys were sent out?
- Why hasn't the Southern Lakes Water Level committee report been given to everyone involved in the decision making?
- What are the timelines for submitting any comments regarding the proposed project?
- And, depending on the comments I have after reviewing the information, will I be able to request a meeting with YEC staff to discuss this project in more detail?
- Is new information being presented at the information sessions or is this simply a reiteration of previously presented materials?
- Some people may have been informed, but was the information given properly?
- Which form of communication takes precedence, the website, or the mailing?
- Would like to see information about previous public input provided at the next meeting.
- How will the YBS work with so many people who have no land line?
- Did anyone other than Stantec or Yukon Energy have input into the survey questions?
- How many times will these meetings happen if the questions have already been asked and answered.
- Where are we at with the planning of these programs?
- Where are we at with consultation with the first nation?

D.5 INFORMATION AND BACKGROUND REPORTS

- Does YEC perform the study or is that subcontracted out?
- Some studies take decades to see results. How do you study these?
- Does anyone measure erosion during west winds?
- Concerned that wind is getting worse increasing the rate of erosion. When were the studies performed?
- Are all the studies referred to available on the website?
- what future studies will happen? Has the YESAB process started yet?
- Asking as representative of CTFN. Curious if the studies requested were carried out. Performed a 2 year study and would like to discuss the results with YEC. Would like to discuss the affects on habitat.



Appendix D

CTFN has at no time said they support this project, working with YEC but have not said they support the project. Climate Change consideration. Reservoir effect.

- Has the mitigation study considered ice expanding? Why not put in a weir at Tagish?
- Questions about how wave action impacts were studied and the validity of the results.
- Regarding the AECOM Marsh Lake Wave Run-up Analysis: I am seeking concepts and detailed on the methodology. It is not explained in the report itself or the document it references (Marsh Lake Storage Concept: 2011 Geomorphology Field and Associated Studies Report). Please, why are the wave run up levels in the AECOM Marsh Lake Run-up analysis exactly the same for 2 yr., 5 yr., and 10 yr. return periods? What is being referenced: 2, 5 and ten year flood levels, wind driven wave heights or storm surge height (combination of the two).
- Why isn't it head office assessment?
- Who did the wildlife studies? How were they selected?
- CTFN wanted to do studies, where are the results.

D.6 PROJECT FINANCIALS

- Will the financial savings from this project be passed on to the consumer?
- \$1M cost saving annually but a \$7M cost to mitigate, who pays for mitigation.
- How much will this cost?
- How much will Yukoners pay BC each year for the water use?
- Yukon consumers will pay bills directly or indirectly through Yukon Electrical or ATCO contractor outlets. They certainly are impacted by the cost of the proposed project. Please provide a study that projects your Southern Lakes Enhancement Proposal costs in total dollars and the amount you intend to pass on.
- Will the consumer pay more or less because of these land and nature encroachment enhancements?
- Will this project lead to lower electricity rates?
- 1M saved LNG/diesels costs, is that saved after the project is in place?
- Would it be fair to say if \$10M was available would you be able to do DSM? If Utility board doesn't approve and YEC goes ahead with project would it end up affecting the bottom line.
- Saving a million dollars a year but will cost millions to mitigate. How long is the pay back period?
- What is annual budget for adaptive management and monitoring?

D.7 MONITORING AND ADAPTATIVE MANAGEMENT

- Who will be on the committee to decide the level of mitigation and the adaptive management stipulations? How will Marsh Lake residents be involve?
- Will active management include mitigation?
- Adaptive management and mitigation clauses incorporated into this project? Compensation incorporated into license or separate, under S 12 or S 14 in the CTFN UFA
- Is the management of this project supposed to be dynamic?
- What will be outlined in the Water License to monitor? What thresholds will there be?



D.8 ENERGY PLANNING AND RENEWABLES

- Will there be any move towards a "Bulk Water for Export" Project is the Southern Lakes Enhanced Storage enormously exceeds the amount required for "more renewable electricity each winter" and "enough to power 500 homes"?
- What is the most recent Northern Hydro Project?
- Has a dam at 6 mile been considered?
- Has YEC has looked at pump storage using Scout Lake and Cantlie lake?
- How will the new battery be used? Will be part of the overall Yukon Energy portfolio.
- How much of the current LNG use will be replaced by this project?
- Who will be responsible for the monitoring? Will first nations be involved in future monitoring, studies, etc.?
- How much has been invested in Renewable energy projects, storage projects...?
- what are the other renewable options that could have a similar outcome?
- Is this related to adding the control structure that was proposed in Atlin lake
- Is Pump storage an option? Small hydro in Atlin?
- 7GWHr is what's being proposed however a 3GW wind turbine will produce the same amount of power in a year. Wind is viable at larger scale. YEC has had a feasibility study for wind, why hasn't YEC moved forward on that instead of more hydro?
- Is this the only project being currently considered or one of a basket of projects. Is this one of the highest priority project?
- what is the likelihood of a transmission line coming up from BC? What about a powerline from Skagway?
- There is sources for wind in the Yukon. Why isn't it being considered. Can you store energy.

D.9 OTHER TOPICS

- Has YEC taken into account that properties may have a license of occupation?
- Where is the Order In Council for YEC to implement DSM.
- What are the incentives for reduction of use, there is a waste of electricity so should we cap that? Can disincentives for use be implemented?
- Why is nuclear outlawed in Yukon?
- Can I produce power my own power to sell?
- Why are new houses using electric heat? This is increasing demand.
- So many new homes are being developed with only electricity. Is this something that Yukon Energy tracks?
- have you thought about training opportunities for locals and/or first nation?
- Can the government choose to shut down this project?
- Your brochures tells us to consult your maps on this site to find out if our property is affected by your plan. Where are the maps????? I browse everything on this site but NO MAPS
- Is there a graph that shows the proposed energy that would be supplied?
- Where can I find the detailed maps?



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Appendix D

- In the mail-out it says that "We want to revise our water use license to CONTROL this much" Control 40 cm? How will Yukon Energy CONTROL these levels?
- What and where is this control device?
- Will the control device need to be modified or rebuilt? If so, what will this cost?
- How is YESAB involved?
- Would like to see maps of impacted areas.
- Will YEC be liable for damages if there are unforeseen damages?
- What is the percentage of population that will be affected?



APPENDIX E

Community Meeting Notes



Appendix E COMMUNITY MEETING NOTES

E.1 TAGISH COMMUNITY MEETING

Participant Feedback	Yukon Energy's Response
Request more definition on late fall/early winter. Did the people formally surveyed support the mitigation or the overall project. Has YEC taken into account the extend of license of occupation.	Begin to store water in mid to late august and hold till early November before water level starts to drop. Demand increases in the winter so water will be depleted over the winter. Believe the support was for the entire project. YEC looked at the shoreline of the lake regardless of where the property line.
Concerned about the effect of erosion if water is raised due to wind and boats causing waves on certain sides of lakes. Is the savings going to be passed on to the consumer	YEC has to invest to get approval which could increase rates however the savings would also be passed onto the consumer.
South M'Clintock down to control structure is a protected waterfowl habitat which increases restrictions on mitigations that can be done.	
Haven't heard complete release of information form YEC. Lewis Locks built with lack of communication and not built to spec. Lewis Locks is restriction on river, reduces YEC ability to control water level. Would like to extend the locks/update equipment.	Come into YEC and discuss concerns with operations.
Believed he was not contacted. Concerned about the static high-water level in the future. Is there a way of reversing project if mistake occurs? What is the response time? What are the mitigation measures? How will it be reversed? Concerns about permeation of holding water at high water level, longer. how will controls in monitoring programing be set (adaptive management)?	Property was accessed. Ground would not be affected by the project; subsurface infrastructure may be but the ground itself will not be affected. Report available online for more information. Monitor places where mitigations are and affects are expected as well as other places. Included in the economics of the project for additional mitigation for unforeseen impact. Additional mitigation may be constructed
Since winds are predominately from the south the main cause of erosion isn't the water level but the waves from the wind. How far does the erosion have to come before YEC has to protect private residents?	Have to figure out what is reasonable to mitigate. i.e. what is nature related and what is directly the cause of power production. If it is the fault of YEC there will be mitigation done.
CTFN wanted to do studies, where are the results. How much has been invested in Renewable energy projects, storage projects...? How many times will these meetings happen if the questions have already been asked and answered.	CTFN has done technical reviews of studies in 2017 and was satisfied with the study. \$100 million in Mayo renewable project. Over \$100 million in transmission lines. Approx. 300 mill. New board requested meetings to take place again to ensure results are consistent.
what are the water levels? Water has already dropped since the high in mid-august. What are the alternatives for renewables in Yukon in middle of winter? Is it realistic to replace fossil fuel consumption in the Yukon? If Lewes control structure wasn't in place how much lower would the water level be?	Water survey of Canada has a website that has the information about water levels and shows real time what lake levels are at. At this point of year YEC holds water a few cm below existing license. If control structure wasn't in place the amount of power that could be produced would be reduced. Lower limit would still be a controlled level. Building large hydro projects in the Yukon is difficult. Series of smaller projects is more feasible to generate renewable energy in Yukon. Benefit of doing series of projects is YEC can build supply as demand



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Participant Feedback	Yukon Energy's Response
	increases. This project is considered a short-term project. Replacing turbine to increase efficiency is another short-term example. In terms of renewable projects available in the winter include additional hydro projects and wind projects. Wind is less reliable due to intermittency issues. Geothermal not cost effective or feasible.
Since water is already below full water supply level could the water not just be kept at the highest current level instead of increasing level.	
What is the percentage of population that will be affected?	Could be determined.
Where is support for people who believe they will be affect but YEC disagrees	There will be an ongoing process to collect information to see if the predictions are accurate and if not there will be mitigations for these people. These meetings are for people to address concerns as well.
How many years of base line data has been collected? How were consultants chosen?	in 2009 YEC started to spend time with FN and specialist, to find what their concerns would be. Base line study done based on this information done from approx. 2009-2013. report available online.
How long will the new water license last, since feed lakes are drying.	existing license 2025, would amend license from 2020-2025 then apply for new license for 2025 to 2050. Control structure allows for sufficient storage. Impacts on available water not an issue. Predictions is Yukon to be warmer and wetter, which mitigates the lowering water levels. Warmer weather also predicted to increase glacier melt which also increase water supply. southern lakes most robust watershed.



E.2 CARCROSS COMMUNITY MEETING

Participant Feedback	Yukon Energy's Response
Disappointed with the minimal impact's statements. More clarification on the effects of dropping water levels since it affects amount of habitat.	List of environmental studies done available online. Looked at fish species, limited impact on accessing shallow areas. Approximately a week delay, limited impact. Staging area for birds would actually be increased by lowering the water, possible improvement for birds. Beavers and muskrats have limited population in affected areas, animals have an adaptive range and this project would have limited effects on these animals. Studies were fairly in-depth.
Asking as representative of CTFN. Curious if the studies requested were carried out. Performed a 2-year study and would like to discuss the results with YEC. Would like to discuss the effects on habitat. CTFN has at no time said they support this project, working with YEC but have not said they support the project. Climate Change consideration. Reservoir effect.	YEC developed the work plan with CTFN. YEC funded multiple studies. If project moves forward the next step would be YESAB and further field work would be required with collaboration with FN. Research into the effect of climate change is used to inform YEC's decision making process. Has had a communication with the CTFN development corporation.
What are the other renewable options that could have a similar outcome?	Regulator must approve and the primary focus is on economics. LNG is viewed as the next best options, therefore if it is cheaper than LNG it is viewed as a viable option. This project is viewed as a short-term project to meet demand. A new project would require more time. Like to look at a portfolio of options each aiding the solution. System analysis has chosen this project. If this project does not go through more LNG use is the short-term solution. Energy demand has and will continue to increase, so whether this project is approved or not a way to produce more renewable energy is needed.
If you hold back more water how does that affect the flow downstream. How do you monitor affects during a dry spring? What are the incentives for reduction of use, there is a waste of electricity so should we cap that? Can disincentives for use be implemented?	Approximately 10% less flow in order to build up the storage. Study shows a positive affect for fish species and neutral affect to other species. Study available online. YEC has to adapt to the available water, in low water level years YEC has to use LNG. Minimum flow levels that YEC must meet. Yukon population is growing, and energy conservation cannot meet the necessary demand. Price differential would require approximately a 3 times difference so implementing price differential is not feasible. Cost incurred by YEC must be approved by regulator, making it difficult to implement energy efficiency programs.
Is marsh lake more affected by lower water than the rest of the lake? Does low water affect wells on people's property? Shelf ice affected by this project? \$1M cost saving annually but a \$7M cost to mitigate, who pays for mitigation.	Yes most lakes are similar during the high water but Marsh lake is more drastic during the low time of year. The ground water response is delayed to the lake level and since low levels are short only extremely shallow wells would be affected. Ice will form approximately 30cm higher than now. Mitigation not driving electric rate costs.
Where to find Historic highs and lows? What are the specifics of improved forecasting. Clarification on... Adaptive management and mitigation clauses incorporated into this project? Compensation	Water levels are measured by government, records range 50 years.



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Participant Feedback	Yukon Energy's Response
incorporated into license or separate, under S 12 or S 14 in the CTFN UFA	
Lots of changes over the past few decades. No help has been given for the erosion that has been happening. Planning on building there in 2 years, want to be sure there will be help. Do not support this project.	
Why wasn't TRTFN listed as a FN that was consulted. CTFN does not support the project and neither do the elders. No muskrats or beavers near residents anymore. YEC has had a negative impact on the community. When water is on the ice it affects traditional ways of life, no animal tracks and can't trap. Water levels lower than ever this year.	YEC says they met with the Chief of CTFN and received a different message. They received a support letter in 2014, will reconfirm. If FN doesn't support the project YEC won't go through with the project.



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E.3 KWANLIN DÜN CITIZEN MEETING

Participant Feedback	Yukon Energy's Response
I would like to see more work done in coordination with the FN and more information shared. Communication has been lost because the FN has to deal with so many subconsultants. Want be more involved.	YEC asked the FN governments what is the best way to approach this. In 2016 YEC was told to work directly with each FN and they would communicate amongst themselves. KDFN finished technical review of studies but YEC had to wait for the other FN and never heard back if about the communication between FN. YEC has heard similar comments from other FN and is open to having a sit down with all involved FN and YEC.
What have been the general comments of these meetings?	There has been a mixture of feelings towards this project. That is why YEC is doing the statistical survey to ensure that the options heard at the meeting are representative of the population.
There has been erosion occur for years. What can we do	affected properties will have erosion protection installed. There will be contractors and material in the area so non affected properties may be able to get better prices to do the work if they choose.
Concern about wildlife. Saw effects on fish habitat this year.	YEC has been working with Canadian Wildlife on fish studies to see where fish habitat is. Put over \$100K into project. Study wraps up next year.
Concerned about getting fish to the spawning area.	Ongoing study, result will be released next year.
Instream incubation box should be further developed.	Overfishing is more of an issue on the other side of the border. Trends are the same all the way down the river, main cause is over harvesting.
KDFN has land around Marsh lake. Is there compensation for the extended duration of ground water for future developments.	Lots of land in those areas have existing seasonal ground water issues. If there is no development, there now there won't be mitigation because the developer can build accordingly if ground water is there. YEC has lots of information available on construction options.
Is there a graph that shows the proposed energy that would be supplied?	This project would produce 6 GWH and the key is the time of year it supplies the power, in the winter. This is only one of the contributing solutions that is necessary to supply the needed power. The biggest thing is it is short term and eliminates some GHG.
What is the cost of this project	\$7.2 M for mitigation. It will take approximately 12 years to pay off the project.
Is this related to adding the control structure that was proposed in Atlin lake	Not related. That was looked into but couldn't proceed due to FN saying no. LUP with Gov of BC and TRTFN zoned no infrastructure on lakes.
Is Pump storage an option? Small hydro in Atlin?	It did not make through the selection process due to the cost.
What are the further biological studies required and would they be done in coordination with FN?	There is a heritage study still to be done and that would be done in coordination with FN. There is an ongoing fish study going on, involving fish tagging. There will be further communication with YEC and FN leadership before going further.



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Participant Feedback	Yukon Energy's Response
FN has done work to protect existing shoreline, what is YEC plan for further protection? KDFN has graveyard to consider - is there a plan for protection?	Engineers will look at existing mitigation efforts on affected properties and decide if additional work is needed or the existing mitigation is sufficient and can just be tied into.
will this affect the water quality for wells?	There should not be a difference in ground water quality.
Have there been studies on glacial water?	Yes there was a study. Study on Water Security to ensure there would be enough flow/supply for this to be a long-term option. Study done by YK College shows that there will be warmer temp, resulting in more melting, and an increase in precipitation. So from a water perspective there is enough supply. Consensus is that glaciers will last into next century. YEC is expecting a climate change report and will share the results of the study in the next 6 weeks or so.



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E.4 WHITEHORSE COMMUNITY MEETING

Participant Feedback	Yukon Energy's Response
YEC should provide a summary sheet of all the studies done	
Map and letter don't match each other.	The scale of the map may be the cause of the confusion. Will look at it after.
No transparency. Haven't heard from anyone about risk to property.	study was done in 2015 so if you are a new owner you would not have been involved. Happy to share information after, will collect contact info.
Member of Southern lakes committee. YEC supported the committee. Committee surveyed members of community. Found lots of misunderstanding of concept, mitigation, climate change. committee hired consultants to analyze these topics and held meetings. Report available and asked YEC to put report on the website, which they refused. Email available where you can ask for the study, available on YEC website.	
there has been silence for the past 3 years - the public should be updated on what has happened and informed in order to make a decision	
YEC demonstrate all of the other projects being considered	
Would it be fair to say if \$10M was available would you be able to do DSM? If Utility board doesn't approve and YEC goes ahead with project would it end up affecting the bottom line.	Yes if not approved it would affect, it could be denied later and then YEC would have to eat the cost.
What would happen if you got the increase? The affects are already human caused so why would that not affect everyone. What is the cost of this project going ahead? Why are there not more projects being looked at?	The benefits would persist along as the storage is allowed. The planning cost have been in the millions, the mitigation costs will be \$7M. There will be a payback period. There are a number of near term and long-term projects. There is no cure all project out there, this is one of many projects. The regulator doesn't look at projects compared to other projects, they look at each project individually so each project must be approved or denied on a stand-alone basis. On another note if there is a better solution down the road YEC may go forward with those but the benefits of the Mitigation will last.
7GWhr is what's being proposed however a 3GW wind turbine will produce the same amount of power in a year. Wind is viable at larger scale. YEC has had a feasibility study for wind, why hasn't YEC moved forward on that instead of more hydro?	
Is this the only project being currently considered or one of a basket of projects? Is this one of the highest priority projects?	Decision for this project is in the new year. New board wants to another round to ensure public is still on board. This is one of the highest priorities and fastest to implement.
There are sources for wind in the Yukon. Why isn't it being considered. Can you store energy.	It is being considered. The analytic process cuts it out do to the fact that it can't meet instantaneous demand. You can store it but it is expensive.



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Participant Feedback	Yukon Energy's Response
Why won't wind be implemented in a way that supplements the existing hydro	YEC encourages looking at the available studies to see how these projects can work in a complementary way.
what is the likelihood of a transmission line coming up from BC?	
is there an increase in mercury poisoning? Mercury in birch bark	
what future studies will happen? Has the YESAB process started yet?	
What is the not affected, not surveyed mean on my letter? We are the second lowest property. Neighbors are considered surveyed, and not affected. Why wasn't I surveyed.	Survey is only for subsurface infrastructure, so if you don't have subsurface infrastructure you weren't surveyed.
What will you do to protect my property?	Mitigation has been discussed and we can further discuss with you.
Where is the Order In Council for YEC to implement DSM?	Can't comment on the current progress; however, if people like to call the minister about OIC that would be a good idea.
are the properties being currently affected? Does the mitigation not aide the properties currently being affected by erosion?	People are currently experiencing the effects of erosion during both the control period and the free flowing times of the year. If project will cause more damage YEC will provide mitigation action.
Not for the project. 65% of the years the water doesn't hit this level. Instead of the 4 weeks it currently hits the high levels it will now be 4-6 months and during the summer. YEC can do more to manage demand in order to limit the demand instead of bringing up waters. Other options to produce power. misleading to say 500 homes will get new power, it will just reduce the amount of diesel. Gates were also left open last winter. If the water was needed to produce power, why was there gates left open.	YEC has attempted to make the information available, it is difficult to do so in brochure. Happy to go into more detail with individual after. Research has been done on the various effects of raising the license level. Studies available online, and if it is for an individual property YEC can discuss during the open house. Affected properties have been involved in discussions about mitigation. Demand side management requires regulatory approval and doesn't agree that YEC should do any DSM. YEC is interested in implementing DSM for peak consumption programs; however it will require regulatory approval. Operations may not go above full supply level after Aug 15, so there must be a buffer. If max plant flow is occurring, there may be additional flow during parts of the year.
When does no mean no for this project? There was a resounding no the last time. If the answer is no this time what will you do.	We don't just hear no. There is a range of opinions. This is why it is important that residents participate in the studies being released. If the answer is no then YEC will inform regulator.
All for this project once the mitigation is known and communicated.	Residents already agreed; however, if project moves forward more consultation will be done. Monitoring will be part of the water license and YEC will be legally bound to continue monitoring.
There is a misconception that this will meet demand. People don't understand that demand is increasing.	
There are lots of new homeowners in Taku who weren't involved in the mitigation discussions.	If project moves forward additional mitigation conversations will occur.
Submitted a question and still haven't heard back.	Lots of emails, it's taking a long time to get through them. Will respond as soon as possible.



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Participant Feedback	Yukon Energy's Response
Concerned about swans.	High water will have no effect. Low levels only affect Marsh Lake. Low levels will actually be a benefit, exposes more feeding areas.
Don't oppose project as long as not left in a worse position than before project.	
Define "minimal effects"?	Anything beyond natural on both high and low levels. Affects are neutral to slightly negative for fish and neutral to slightly positive for migratory birds.
What is the long-term plan? With glacial melt will this project even matter in the long term?	Studies have been done by U of Sask and Yukon College and the studies found that glacial melt won't be a factor in the next 50 years. Additionally, it was found that there will be higher precipitation levels and more extreme weather conditions.
How close to the limit are you today?	approximately 10cm below current license max.
What caused this year's low water?	Low snowpack. Approximately 40% of normal.
What are the effects on wildlife when lowering the water levels?	Studies available online. Muskrats will be the main species affected.
Why was there flow all winter? Why not close the gates in the winter if you supposedly need more water?	YEC can only control water levels during its license period. They keep levels as close to license max as possible till demand increases. If water level at max level there may be a need to spill water to ensure YEC doesn't go over max level.
Why do you want to raise levels if water did not meet max levels in 2018 and 2019	
Water levels are currently low. Why aren't you holding at your current level if you need more?	Typically, water peaks in August. On a low year water levels may not hit max. YEC tries to keep levels as close as possible to the max level without going over.
Will the raised levels affect Tagish?	On the upper end of the license all three lakes act as one, so the levels in Tagish will still increase. On the low end of the license there is no change to Tagish's current low levels.
How will mitigation be done for neighboring property?	Mitigation was agreed upon by majority of affected properties.
Would homeowners who don't own up to the water be involved in mitigation?	Mitigation is for properties that the rate of erosion increases above natural levels.
Will active management include mitigation?	Yes, monitoring program will be set up to monitor important factors. Won't allow permanent affects to take place.
Does anyone measure erosion during west winds?	The erosion study looked at this, that is part of how the affected properties were selected?
Concerned that wind is getting worse increasing the rate of erosion. When were the studies performed?	
Some studies take decades to see results. How do you study these?	It will be done during the assessment time frame. If affects can't be predicted it will be deemed not worth the risk. Reports on the website.



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Participant Feedback	Yukon Energy's Response
Does YEC perform the study or is that subcontracted out?	Both. Studies available online.
Feel changing levels is irresponsible given the unpredictability due to climate change	



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Appendix E Community Meeting Notes

E.5 MARSH LAKE COMMUNITY MEETING

Participant Feedback	Yukon Energy's Response
Never had issues before the dam, now experiencing ground water problems on property. Dam is back feeding the river.	Affects aren't from back flooding, it's from freshet.
How many surveys were sent out?	1100
How much knowledge is there about climate change and the effects on the glaciers?	Study is currently ongoing.
How much are they raising levels?	30cm on the high end and lowering 10cm on the low end.
How much will this cost?	\$7M for mitigation. It is approximately a 12 year payback period
Why is nuclear outlawed in Yukon?	May change in the future.
Can I produce power my own power to sell?	Yes, will run into the same issues as YEC. Need to have a PPP and a deal with YESAB
What is the most recent Northern Hydro Project?	Goat lake by Skagway. Dalayee lake has been looked at.
How will YEC mitigate damage that is already occurring do to current water levels?	
Why are new houses using electric heat? This is increasing demand.	
Is the management of this project supposed to be dynamic?	Yes, if unforeseen affects occur additional mitigation will occur.
Has a dam at 6 Mile been considered?	Yes
If water levels are high at freeze up more damage will occur	
Raising Tagish and Bennett would hold more water than this proposed project.	
Want the beach back. No need to flood during summer. Don't fill till later in the year.	
No mention of M'Clintock place clay cliffs. If water goes up another 6" cliffs will erode and in the fall there is wind.	
lost 10ft to erosion in the last 15-20 years. Ice has lifted land on property. Insurance cost for water damage is at \$900 a year currently and will increase if water level raised.	
Flood is not covered for insurance. If you raise that level, there is a higher risk.	1-meter difference from the flood elevation to the proposed high level.
Lot 746 Scout Bay Road. Septic is already stressed at high water levels. Who is going to fix septic's & raised beds? Cost to homeowner to fix. Implications on insurance - confirm with insurer about how they are assessed. Homeowner shouldn't have to pay for mitigation. The longer the water stays at high water level the greater the impact on the property.	



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Participant Feedback	Yukon Energy's Response
who will be on the committee to decide the level of mitigation and the adaptive management stipulations? Will marsh lake residents be involved?	Will be included in the water license so that they are enforceable. Monitoring program will be in place on properties that are predicted to not be affected, if affected there will be mitigation.
Why hasn't the report been given to everyone involved in the decision making.	
Has the mitigation study considered ice expanding? Why not put in a weir at Tagish?	Have to look at history to see the last comments on the 6 Mile comments.
How many years does the water naturally go this high? What percentage of the 35% of years are in the last 20 years? Saving a million dollars a year but will cost millions to mitigate. How long is the payback period?	35% percent of years since the dam was installed. Approximately since 1950. Approximately 30 years. Invest money and recoup over time, based on average projections. 14 years.
Why aren't the costs being portrait to the public?	Been transparent about the cost, on the slide, in the brochure, on the website.
what was the cost that the government had to pay for the damage from the 2007 flood?	
Will YEC be liable for damages if there are unforeseen damages?	There are contingencies built into the project for additional mitigation. Approximately 30% of the \$7.2M is contingency
DSM been considered?	YEC likes DSM however regulators need to approve, and they don't want YEC involved in DSM. Regulator believes that the government should be the one implementing DSM.
What happened to the proposal of the powerline form Skagway to Whitehorse?	The hydro project wasn't built in Skagway, so the powerline has gone away.
properties affected by water level since the dam was built not mitigated why would we trust you now? What is the difference between the high-level water mark now and before the dam was put in?	Base line of study was the last 60 years.
Are we the only one that are affected or are other lakes affected?	properties at other lakes will be affected, just outlined the marsh lake properties at this meeting.
Can the government choose to shut down this project?	
Will everything be affected by one foot? Will floods be higher too now>	No, once the license is invoked YEC will manage level to stay below the level. The floods occur during times of the year when YEC isn't allowed to affect the water level.
What will happen to our insurance if water is raised? Beach front properties will be affected. Water damage losses are now the greatest expense for insurance companies.	Recent studies show that high level will occur naturally anyways.
previous owner put in 35k of mitigation and new owner is currently installing retaining wall. Will insurance company be given the information form the studies? Don't understand the economics? What do we get out of this? Are we just going to have to pay more insurance and see no benefit?	
Following the flood in 2007, piezometers were installed and only measure for three years. Why did it	Purpose of those studies were to understand the ground water behavior in those areas. Wasn't a need to continue



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Participant Feedback	Yukon Energy's Response
stop at three years? If wanting to expand we should have more recent data	because those years were high years, so it was enough information to predict impacts.
Against project, stop coming back.	Not everyone is saying no, that is the purpose of the surveys.
Property not affected. Study done a few years ago, since the study there has been a septic field installed. What happens to the vacant land that people want to develop in the future? Water line being higher longer affects utility and enjoyment and land? Affects land value. 500 homes is not worth the cost.	Subsurface development- new level would change the licensing. Wouldn't be able to develop future infrastructure. Close lake properties wouldn't be able to develop anyways. Contractors and licensing officer will confirm high level before buildings. Increasing duration - sump pumps will run more frequently for longer duration. If YEC is responsible for the increase cost YEC will pay.
Occasional years that the water reaches the supply levels, now you want to hold it there for 6 months. Took photos of still water and during wind, erosion study is flawed. Must go back to the drawing board.	All information has followed standard engineering practices. Studied entire southern lakes. YEC will look through research with individual.
Did YEC look at the Southern Lakes study showing that the majority of southern lake residents don't want this project. Studies completed between January 2013 and December 2014.	Have not looked at the study as of yet.



APPENDIX F

Facebook Input



Appendix F FACEBOOK INPUT

- Don't fool with Mother Nature
- Some people believe that holding September water levels will encroach on their properties. Have they built on the 100-foot reserve above the high water level? They don't own that land. This 'buffer zone' exists so normal water levels don't cause problems on private properties. In that case they have no basis for compensation. Ignorance of the law is not a valid defense.
- [REDACTED] this gets legally "messy". When more and more natural floods occur, entire properties are under water. So u need definitions of a "normal high water level".. and this of course could change as climate change continues to drive seasonal high water levels higher and higher. Fun times.
- More and more natural floods are not occurring, nor is the high water mark changing compared with what it's been for hundreds of years. The unfounded belief that "climate change continues to drive seasonal high water levels higher and higher" is another silly myth. Just because something didn't occur in our short lifetime does not make it unusual. Climate change delusions are not real.
- None of these properties have the 100' set back these are "old" property's that have small set backs and the cabins and houses were built long before, we started messing with water levels.
- [REDACTED] "built long before, we started messing with water levels"?? The flood control dam has been in operation since the 1920s. Beside natural water level changes are far greater than what is proposed.
- This is such a no brainer project! I'm so proud that YEC is finally taking on this project in a serious way. If it doesn't happen I will be sad. I will also make a point of making sure people who have built homes on the waters edge and who will eventually be impacted by the next natural 2007 or larger flood, get no "emergency" money to help them. Its not a matter of if, its just a matter of when.
- Extremely misleading ad. What Yukon Energy is not telling you is Mark Lake only reaches their proposed water levels 3 out of 10 years and in those three years it only stays there for less than a month and in many cases for less than two weeks.
- I am not sure that they did not take this into account, it is also possible that this might be intentional and reveals malice rather than negligent planning. You are simply giving them the benefit of the doubt, but after 30 years I no longer believe they are innocently incompetent.
- [REDACTED] you are absolutely right! and there are those who believe that YE is "adding" water to the lake.
- [REDACTED] & [REDACTED]. I'm by no means educated on Marsh Lake water levels, winds etc. and maybe as a result I'm missing a big piece of the puzzle. But, to play devils advocate.. is there a realistic alternative?
- The big problem is that residents are today still facing erosion issues from Yukon Energy's current levels which they will do nothing about and won't admit too. NO they want to impact residents more with their new enhancement plans of raising the water.
- Maybe it's time to start looking for the next "real" project, that will be able to produce enough power to take us forward for the next 50 years. Instead of this piece meal stuff.



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Appendix F Facebook Input

- If people have built wisely to be above the natural springtime floods that happen when the snowpack melts, then this project should have no impact on them. This project will hold September levels into the winter, nothing alarming.
- [REDACTED] have no idea how so many properties are so close to the water. I thought there were regulations about being 300 ft from high water mark?
- Exactly. Some people made mistakes and now they want the rest of us to compensate them for it. The Govt knows who they are because they always have problems with normal spring floods. This project will save a million in diesel fuel and these folks want a cut. Instead the government could provide low interest loans to people who have to upgrade to meet regulations.
- [REDACTED] facts are important here, the only time people had major problems with flooding was 2007. Water had never reached that level in over 100+ years. It's not every year like your statement seems to insinuate.
- "the only time people had major problems with flooding was 2007". Yes exactly my point in fact that "if people have built wisely to be above the natural springtime floods that happen when the snowpack melts, then this project should have no impact on them"
- This is not what is appears. They have been trying to sell this since 2006, have dragged their heels on a basket of renewable energy options.
- Would people's properties be effected? YEC: Yes our research shows over the last 10 years, tells us approx. 57 properties would be affected by groundwater that last longer on the property, and about 69 shoreline properties that would experience increased erosion.
- [REDACTED].. totally unrelated to the project.. mother nature is going to once again flood peoples homes just as it did in 2007. And with Climate change, natural floods are likely to occur more and more frequently.
- It seems like YE could be held responsible for flood damage during the fall when they are holding water at levels way above what they would be normally. But they are not responsible for flooding during midsummer when they are not hold anything back.
- [REDACTED] unfortunately people think that they natural "midsummer" as you can it (end august) flooding is project related. Mother nature is gonna get em with or without the project.
- A further thought is YE needs to be implementing a long term hydro solution that will carry the load for the next 30 years and quit band aiding its system.
- [REDACTED] we need this too but NIMBYs are stopping a lot of potential other hydro projects.
- [REDACTED], [REDACTED] you should get the facts and not fall into Yukon Energy's misleading information campaign that deliberately leaves out many of the important facts that will affect the southern lakes. I'm more than happy to fill in their gaps if your interested.
- [REDACTED], Sure I'm always interested in being better informed.
- [REDACTED] I see in an earlier post you took a swipe at Whistle Benders and mining. Yes, many of the homes in Whistle Bend are on electric. Most of the are also Super Green, and don't require the energy it takes to keep ones like your warm.
- I'm not take a swipe at anyone, I have always supported responsible mining and development, my point is that Yukon Energy has done very little in the last 30 years to deal with our current power shortage and Yukon's growth.



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- A lot of lip-biting will have to be done by all residents. Fish lips, otter lips, swan lips, frog lips, invertebrate lips, etc. and of course people lips. But hoping for the best will not carry the day. More information needed!
- <https://www.cbc.ca/news/canada/ottawa/opg-flood-review-1.5376942> Just like we saw in 2007, even with a no go project, these are the headlines we'll be seeing. The point I'm trying to communicate is that a no-go project scenario, there will be floods...
- Liking a utility is very 2019. Power to the people!
- Natural gas capped not to far from town!!! Scrubbing plant and we could have cheaper heating and electricity!! Just saying!!!
- We have rivers and valleys for dam, and we also get fresh water this could be wise to save, just in case all of the glaciers melt.
- Not where we come from White man. NWT already all that came North.
- I am so happy this project has the blessing of the experts to argue the merits as being indisputable. Brings a sense of relief. Oppps then again maybe not... <https://www.cato.org/policy-report/septemberoctober-2010/era-expert-failure>
- Sounds good to me
- Given the failure of the rains and the other dams, I really hope the residents around the big lakes can bite their lip and support this. And if something does go awry, then I hope YEC would cough up some dough to put it right. Its way cheaper than burning fracked gas or having brown outs or burning diesel. more environmentally friendly too.
- The people in Southern Lakes who will suffer by higher water already have electricity.. Get a new plan
- you are misinformed. Lake levels wouldn't rise more than they naturally do during summer peaks
- [REDACTED] I read the material. A corporation selling their opinion doesn't make it true. you can push you opinion all you want yet people have the right to a different opinion. I see by your responses to other queries that you consider yourself an expert on the matter while others are misinformed or idiots. very juvenile for someone older than 40 years old
- How much will Yukoners pay BC each year for the water use?
- you really need to do something as the power outages are unacceptable
- If you don't like the quality of the electric power then go off-grid and generate your own
- [REDACTED] I live in Whitehorse and rent. There is no "off-grid" solution for me
- [REDACTED] unfortunately this will do nothing to prevent power outages
- At least 90 properties will take 10 million dollars to remediate so lets get to doing that first so that this plan can even be proposed. The damage already occurring to unoccupied shoreline can also be addressed first.
- With or without the project the watershed is going to flood the homes in question. IN the next hundred year there are going to be many 2007 (or greater sized) floods. In a no-project scenario, will the 10million dollars you quote to 'remediate' come to the 90 affected property owners?
- Well look at all these engineers
- Really how about everyone get a clue and stop using electric heat to heat your homes. The push to use electric heat in new homes is a joke and honestly looks like a sales push from the energy provided themselves. The biggest solution is to use other means for heat and also energy conservation.



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- Right now I use oil. Is that better? using renewable electricity to heat my home would be much better no? The City of Whitehorse just declared a climate change emergency. I'm confused by your comment.
- Count diesel generators in the winter that Yukon Energy uses this is due to over demand from people thinking that electric heat is the best. Either you bur oil or burn oil and charge you. At this point it doesn't matter.
- We should be building more renewable electrical capacity for years. It's unfortunate the utility didn't keep up to the need. We have known for years demand was going to be increasing. JK: you are miss informed on how things work. go to the public open house.
- The ClimatCult activists are the ones pushing for more electric heat beyond the YE winter capacity to provide it. It's ironic because their myopia has caused even more LNG and diesel to be burned.
- [REDACTED] you are misinformed about "the push to use electric heat in new homes is a joke and honestly looks like a sales push from the energy provided themselves" Show us proof of your opinion. Builders choose electric heat because its cheaper.
- I heard there was supposed to be a meeting about Yukon electricity generation options this coming Monday, November 18 from 1900 to 2100 at the Westmark Inn. Yukon Energy and Yukon Government are suppose to be there. I heard that the Wind Energy expert...
- I saw it on YEC FB page and also YG's FB page. Just before I emailed the link.
- "making the most of what we have" like no power on Halloween night for the trick or treaters? And for the 'storing more water in fall' questions, hasn't there been numerous meetings over the last say 10 years about this and Tagish is resounding NO, but you are doing it anyway
- what is the cost to the Whitehorse Yukon River watershed over the next 100 years? Are 500 homes worth the loss
- with or without the project the watershed is going to flood the homes in question. In the next hundred years there are going to be many 2007 (or greater sized) floods.
- I agree
- how is holding the same a mount of water back for a longer period of time going to create more electricity? The only way to have more hydro is to have more water. Which means high lake water. Which most of us do not want.
- [REDACTED] this doesn't make me look foolish. This is what the article says. It is misleading. I live at Marsh Lake and was greatly affected by the flood in 07. Due mostly to weather but also the levy being closed too early for the weather.
- [REDACTED] have you ever been to marsh lake and talked to any of the residents about this issue. I would be more than happy to fill you in about the real truth about mark lake water levels
- [REDACTED], educate yourself. This project will hold MORE water for a longer period. Go to one of the information presentation or at least look at the links provided. This is a perfect example of the willfully uninformed NIMBYs that are stalling this project.
- Whatever we do, this has to stop being a Band-Aid effect. Bite the bullet and let's get this done Yukon Energy. If we are going to try and get off non renewable energy (oil & gas & propane) then the only other option is electric. Will that mean another dam? I don't know, I'm not an expert on that but I do wonder where our carbon tax \$\$ will be going? Funny how that question never got answered by the Fed Gov



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- These amazing lakes are not just "a bit tank of fuel" powering the generating station in Whitehorse. They are living systems with unique shorelines, wetlands and inflowing rivers and streams
- I'm fully supportive of this project
- Mark, where do you currently live?
- The follow info was sent to my by [REDACTED]: This first photo is where the water levels are now, the one photos is where they want to move it too. The pictures with waves going over my 5ft breakwater is on a windy Day. It's the new more westerly winds that Yukon Energy's has not studies. These winds happen in September, October, November until freeze up.
- It only takes ONE windmill according to appendix. 5.9 of the YEC 20 year plan. Let's do that. Then add more as demand grows.
- how many MW of wind generating capacity will generate the equivalent amount of electricity (6.5 gown). Afterall, each watt generated or saved leaves the equivalent amount of water in the reservoir for future use.
- Wind and solar will never be able to power an industrialized society. That's a myth. They require huge amounts of resources and produce huge amounts of toxic pollution for every kWh generated. Most importantly they only last about a decade before they..
- Who is said the lake levels wouldn't rise more than they naturally do during summer peaks. Is this rise going to be high during the winter as well which is not normal. Who are these persons that know more than we the ones who actually live here and see the signs?
- you haven't a clue as to how the lake levels are managed by the flood control dam.
- you are so sad
- go play with your crystals and leave energy decisions to the experts.
- I have read the comments and here's mine - there will be flooding along the southern lakes banks no question, it will change how the water flow and other changes will happen. I don't know when your studies were done or who did them but instead of
- Just another question, if we will not exceed the summer high water level then why is there going to be extensive infrastructure upgrades to over 90 properties when they currently do not need upgrades reaching these levels in the summer but require them at the same level for a part of the winter? RG: The answer to your question is this (I think). The peak water levels normally reached in the summer required no mitigation because that period is relatively short. holding the levels at that point for additional months will undoubtedly results in increased erosion at the lake edge.
- [REDACTED]. The flood in 2007 was natural. Pretty sure there were some mitigation measures required i.e.. houses were under water, septic fields flooded. The thing to realize is that if YEC walked from the project, the mitigation measure would still be r...
- [REDACTED] your comment is true.. but in reality, only under some conditions.. that could occur also under a "no project" scenario. So into the weeds we go.
- [REDACTED] taking every dollar they offer...? me think they have a way of getting back.. every month.. and then some..
- [REDACTED]. True. but please keep in mind.. YEC Is a crown corporation.. they make no profit. it's the law. it our asset... all Yukoners own it.. oil companies who we feed cash to non stop, not so much! I have no idea why people bitch about YEC.. oil companies, who we give way more cash to, are not accountable to anyone!



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- [REDACTED] I'm pretty sure that when, not if another year like 2007 occurs, YEC will shrug and tell landowners that they are absolved in the case of abnormally.
- [REDACTED] I'm not sure what you mean. If another flood did happen next year, like 2007, it 10)% would not be fault of YEC. Of course they should shrug and be absolved of any liability. These people live on a natural flood plane, and drum roll.
- Is the downstream water flow (town) will be under average during the fall and rise during the winter (and more peak follow)? Does it mean that the river will even have more open water and less ice?
- Fully supportive of this project
- Is the downstream water flow (town) will be under average during the fall and rise during the winter (and more peak follow)? Does it mean that the river will even have more open water and less ice?
- According to the concept diagram, the proposed increase of 10cm at the bottom end is outside "natural lake levels". Is that because the baseline is post-dam, because of how the water management is currently licensed? The water in the river this past spring was very low. Did it get down to the proposed level?
- How much land do you plan on flooding?
- Hi [REDACTED], no land will be flooded by this project. Lake levels wouldn't rise any more than they naturally do during summer peaks.
- What is the plan if the water is not going to be any higher how are you going to have more?
- Hi [REDACTED], here's a diagram on our website that shows the amount of water we are hoping to use
- is the downstream water flow (town) will be under average during the fall and rise during the winter (and more peak flow)? does it mean that the river will even have more open water and less ice?
- Yukon Energy according to the concept diagram the proposed increased of 10 cm at the bottom end is outside "natural lake levels". Is that because the baseline is post-dam because of how the water management is currently license? The water in the river this past spring was very low. Did it get down to the proposed level?
- [REDACTED] sorry for the delayed response. The Southern Lakes Enhanced Storage Project would allow for more water to be stored in the Southern Lakes for winter renewable electricity production. Having more water available would not increase.
- [REDACTED], Hi [REDACTED]. Our existing water license prescribes that Yukon Energy not allow the water level to drop below the specified 'low supply level' (LSL). The project engineers expect that the 'natural' sill elevation of the Marsh Lake outlet ism...
- As someone who lives on the shore of Tagish Lake, I have been wondering what was happening with this initiative. It seemed to fall of the face of the earth after much initial consultation. Is new information being presented at the information sessions or is this simply a reiteration of previously presented materials?
- HI [REDACTED], apologies for the delayed response. At the upcoming information sessions, we'll be speaking about the proposed project, possible impacts of the project in some of the Southern Lake regions, our proposed mitigation solutions.
- Yukon Energy this statement is very misleading AGAIN, what Yukon Energy doesn't tell you is that right now it only rises to that level for 3 out of ten years, not every year and when it gets to that level it only stays there for less than 30 days.
- I find it is hard on the properties, like at Swan Haven where the high water is eroding the land and houses. One of my friends has to move her house now.



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- The people in Southern Lakes who will suffer by higher water already have electricity. Get a new plan.
- We should have been building more renewable electrical capacity for years. It's unfortunate the utility didn't keep up to the need. We have known for years that demand was increasing.
- Really how about everyone get a clue and stop using electric heat to heat your homes. The push to use electric heat in new homes is a joke and honestly looks like a sales push from the energy provider themselves. The biggest solution is to use other means for heat and also energy conservation.
- As a resident of the Southern Lakes the level will not be raised, only held at the full supply level for a longer period. I am a waterfront owner with wind being a bigger than issue than water. If you want to know more about Yukon Energy's proposal attend one of the information sessions.
- I wonder how many homes would be powered with a submerg auger style generator?
- It's entirely impractical in northern rivers because of ice.
- How about a nice little nuclear plant...they are clean and will fit the Yukon's needs forever.
- This is the best idea yet, too bad stupid misinformed people are blocking it.
- "Making the most of what we have" is great and all but we should honestly think about opening up talks with other bands in the Yukon and get another hydro facility the size of Whitehorse's up and running. We have grown far beyond what the current Whitehorse Rapids can provide.
- Will there be any move towards a "Bulk Water for Export" Project if the Southern Lakes Enhanced Storage enormously exceeds the amount required for "more renewable electricity each winter" and "enough to power 500 homes"?
- Wind! Solar! Better insulation and windows! Conservation of power by everyone on the grid around Whitehorse will be better for all of our Southern Lakes ecosystems.
- [REDACTED], do you have what the minimum codes are for building here, and the costs for building per sqft. Most people without a government job can't afford anymore.
- When we moved here 30 years ago we sometimes visited people in Takhini, in those old govt houses. One evening in midwinter remember noticing that the furnace was running the whole time we were there. Those houses were built when fuel was cheap. Most of those duplexes have been retrofitted because fuel and electric is expensive. It makes sense to retrofit or to build new with energy saving in mind.
- Wind and solar are expensive toys that don't provide energy when we need it in the winter. More importantly they don't last long as conventional energy sources and leave a toxic mess to clean up when they fail in a decade or so.
- We were on our own power for 12 years and really learned to be conservative. Power and water as we had water delivery as well. But the system was very old although with two older solar panels we could go all summer without running the generator.
- Cheap Chinese solar panels in Australia are only lasting 3 to 9 years. The 20 year solar panels were made in Europe, Japan and North America and were of course more expensive. You get what you pay for. Read your 25 year guarantee very carefully; you will be surprised at the actual terms; and good luck collecting on it in 10 years when the installers and manufacturers are out of business. The community of Old Crow receives much greater subsidies and grants than the average YEC customer in Whitehorse. They're also displacing extremely expensive airlifted diesel fuel. Both factors change the economics significantly as any well versed technical person knows. In the summer you're



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selling excess solar for 0.21\$/kwh while YE spills water that could have generated 0.07\$/kwh electricity. Who do you think is paying for that 0.14\$ difference. How long do you think that will continue? Of course the intent is to harvest subsidies then the economic as much different. Like what Warren Buffet said. "Windmills don't run on wind. They run on subsidies" . "I will do anything basically covered by the law to reduce Berkshire's tax [...]. We get a tax credit if we build a lot of wind farms. The only reason to build them. They don't make sense without the tax credit".

- [REDACTED] Hi you have no idea what you are talking about when it comes to wind energy in the North. Wind energy has been working to heat homes in Alaska since 2012, ask [REDACTED], of Kongigniak. We just get off of fossil fuels and we must get a more diverse source of renewable energy to meet all of our energy needs.
- [REDACTED], Agreed. That's why nobody bothers to dispute your tropes above PV and wind any more.
- [REDACTED] I checked. 25 years look at Solvest Inc. Many large and small installations across the North.
- [REDACTED]. That the expected lifetime, most solar panels provided rated output for only half that number of years.
- [REDACTED] But I will stop trying to convince you as you seem to be living in the 19th century. Actually automobiles and airplanes were considered expensive toys in those days and.... whoops.
- Following wetlands and Army Beach is not an "Enhancement". Try refurbishing or replacing your 40+ year old Whitehorse hydro turbines with more efficient ones, that would be hydro enhancement. How about investing in energy storage in everyone's homes instead of flooding our wilderness? How about wind farms that bring the winter energy that our hydro system is so challenged by? This so-called cheap fix hydro has been batted around by YEC for years. Why should the ratepayer be on the hook for future flooding liability when YEC has not invested in other renewable energy sources to meet the winter demand? Now yet another public engagement process, the ratepayers once again pay for some outside contractor to find the social license that YEC lost when it invested in LNG.
- Well it might take a fraction of drive down from Aishihik Lake. Not enough. 3 turbine at Aishihik was too much for the lake to handle. Give them an inch they take a mile.
- I have read the comments and here's mine- there will be flooding along the southern lakes banks no question, it will change how the waters flow and other changes will happen. I don't know when your studies were done or who did them but instead of brining companies up from "down south" try talking to people who live here and know what we are talking about. Some people may have been informed, but was the information given properly?
- Yukon Energy must bear the costs of ALL relocated and above ground septic fields, buying out residents where impossible to remediate and repairing and maintaining all damage to shoreline. It's absurd to offer less and promise less as the power is for mines not for citizens. High water flows reek havoc with lakes and rivers that don't freeze and affect ice bridges and safe travel on ice. Time to rethink when solar better answer February through June for residents. YE needs to provisions to fully deal with this and not just say these are normal fluctuations when existing fields are swamped, fail to work and cannot be rebuild. All said, this project is still much cheaper and more tolerable than damming other river systems like the Pelly or the Stewart.
- Yukon Energy is doing a good job education people about this, however there will always be those who remain willfully ignorant and ruled by their misinformed belief, not facts. This storage



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enhancement project is much more efficient than any wind or solar and will provide far more energy in the winter when we need it. This simple project is long overdue, will cost very little to implement and should be done as soon as possible.



APPENDIX G

LAC Meeting Notes



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Appendix G LAC Meeting Notes

Appendix G LAC MEETING NOTES

No.	LAC	Participant Comment / Question	Yukon Energy Response
1	South Klondike	How will the YBS work with so many people who have no land line?	
2	South Klondike	Did anyone other than Stantec or Yukon Energy have input into the survey questions?	No.
3	South Klondike	Will the project have impacts on Bennett Beach?	Level of the beach varies significantly based on the water levels outside the control of YEC.
4	South Klondike	Will this project lead to lower electricity rates?	No. May lead to fewer increases in the future.
5	South Klondike	How are the lake levels monitored in Bennett Lake?	
6	South Klondike	How much of the current LNG use will be replaced by this project?	
7	South Klondike	So many new homes are being developed with only electricity. Is this something that Yukon Energy tracks?	Yes. This type of consideration is carefully considered in the Resource Planning.
8	South Klondike	How will the new battery be used? Will be part of the overall Yukon Energy portfolio.	Yukon Energy is still working this out. There are a few options.
9	Marsh Lake	Concern about winter de-watering of wetlands.	Studies have been done into the impacts on wetlands; do not know of any issues specifically related to de-watering.
10	Marsh Lake	Questions about how wave action impacts were studied and the validity of the results.	
11	Marsh Lake	Concern that wind speeds and directions have been changing in Marsh Lake over the course of this project. Has wind information been collected continuously?	Weather stations have been in operation. Will see if there have been any changes noted.
12	Marsh Lake	Is it possible to add a wind station part way down the lake?	
13	Marsh Lake	Concern about storms in October and November; winds and waves at the higher level will damage properties.	Studies have been done to investigate the impact of storms at increased water levels and mitigation has been planned.
14	Marsh Lake	Relic Road area residents preferred the groin option. Resident have not see a concept plan of what this would look like and would like to.	Concept plan has been completed. Will go over this with residents if the project goes ahead.
15	Marsh Lake	How is the 'Natural' level of the lake determined, especially when the system has been managed for the last 50 years and there is significant annual variation.	We can provide more information on this at the community session.
16	Marsh Lake	Would like to see maps of impacted areas.	



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No.	LAC	Participant Comment / Question	Yukon Energy Response
17	Marsh Lake	Would like to see information about previous public input provided at the next meeting.	
18	Marsh Lake	Will slowing velocity mean that more sediment will be deposited and lake depths will change?	We can provide more information on this at the community session.
19	Marsh Lake	Flood maps are available for most areas in Canada. Do we have flood maps for the Southern Lakes.	Yukon Energy has not need or used flood mapping, because they do not plan to see water levels go to that level.
20	Tagish	From John Strieker: my job to inform people about the project, and represent what the community think; thinks that they're going to have problems whether they raise the levels as they can, he will try to attend as many events as he can	
21	Tagish	This is one of a number of various projects, adding a bit of context, help us understand what percentage of future needs this project will create, this is important from cost benefit perspective, meet 6% vs 65% of future needs, give broader context in the future	Tthis is opportunity to notify Tagish about the plans and how we're proceeding
22	Tagish	Have you engaged with the RRC?	Have engaged with them previously, not 100% sure on when they were last engaged, most likely during the studies. Last few years have been spent with the First Nations. CTFN with the RRC conducted studies recently.
23	Tagish	There seems to be less water coming in to Bennet and Tagish Lakes from Glaciers. How has global warming been factoring in to this project?	Comment from John Strieker: Northern climate work with YEC to look at fossil water - glacier system melting back but doesn't mean that the volume of water going through the system is less. Might just mean more variability. This year, low snow load and low water. But some years, more precipitation. Generally, precipitation is suppose to go up. Studies show larger swings, but not less water. Maybe more 2007 type floods. Some years with high snow, high rain and hot.
24	Tagish	Ongoing mitigation plans, looking at extended use, example, can run boats longer?	Expect to run boats the same amount of time as they do now and there will be cover on the lake when we start pulling it down (draw down happens after lake is frozen)
25	Tagish	What is annual budget for adaptive management and monitoring? Where are we at with the planning of these programs? Where are we at with consultation with the first nation?	Meetings with first nations have gone well and have agreed to continue to YESAA proposal stage; in preliminary forms, what we would monitor and where, details would come in next stage of planning
26	Tagish	have you thought about training opportunities for locals and/or first nation?	Training started in 2010 - to include first nation members or to assist on technical level as field assistant. Taken up on varying degrees. Heritage work done collaboratively with First Nation departments. Options for first nations to carry out



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No.	LAC	Participant Comment / Question	Yukon Energy Response
			monitoring on their own or hire technical consultant and help/learn. Hydro is our fuel, more than 90% hydro company - always considering climate change and water balance. Study done on Southern Lake on how water flows into the system through the system and the timing of the participation, etc.
27	Tagish	Who will be doing the monitoring?	Jointly selected independent monitoring consultant; review with stakeholders and First Nations; compare as to where it fits within adaptive management plan; review of results by YEC
28	Tagish	Will first nations be involved in future monitoring, studies, etc.?	if the project is to proceed, define scope of work and put out for tender, and decide with YEC, First Nations, and stakeholders to ensure everyone is comfortable with the consultant involved
29	Tagish	What will be outlined in the Water License to monitor? What thresholds will there be?	Will be developed throughout the YESAA proposal stage; specific parameters might not be defined until we get to the Water License stage; committed to working collaboratively with stakeholders and first nations; technically and economically feasible, costs included during the planning phase and post project; compare to previous predictions; ex. effectiveness and durability of the groundwater and erosion will be monitored and kept up as long as the project is in place
30	Tagish	Who did the wildlife studies? How were they selected?	a series of different consultant groups, majority of studies done by AECOM, subconsultant company out of Smithers; and EDI out of Whitehorse. RFP sent, out competitively tendered.
31	Tagish	Battery project announced, have you been given thought to this project with/without the battery?	change how the system operates with battery on the grid. All planned projects are contributing to the overall energy plan.
32	Tagish	How is YESAB involved?	to get amendment to water license need to put in YESAB proposal, at the Designated Office level
33	Tagish	Why isn't it head office assessment?	regulations that determine where tells where projects get assessed - just a change in operating range, no new infrastructure. All renewals would be assessed at the local level as well
34	Tagish	1M saved LNG/diesels costs, is that saved after the project is in place?	Yes, these costs will be offset throughout the implementation of the project



APPENDIX H

Yukon Bureau of Statistics Survey Report





2019 Southern Lakes Energy Survey Report

Prepared by
Yukon Bureau of Statistics
for
Yukon Energy Corporation

This report was prepared by Rachel Westfall, Senior Statistician, Yukon Bureau of Statistics,
Department of Finance, Government of Yukon.

2019 Southern Lakes Energy Survey Report

Background

In November and December of 2019, the Yukon Bureau of Statistics (YBS) conducted a census of households in the Southern Lakes region (Carcross, Marsh Lake and Tagish), as well as a sample survey of all other Yukon households. This survey was undertaken on behalf of the Yukon Energy Corporation. The purpose of the survey was to get Yukon residents' opinions on storing additional water in Marsh, Tagish and Bennett Lakes in the fall and early winter so that it can be used to generate more renewable power during the winter.

Methodology

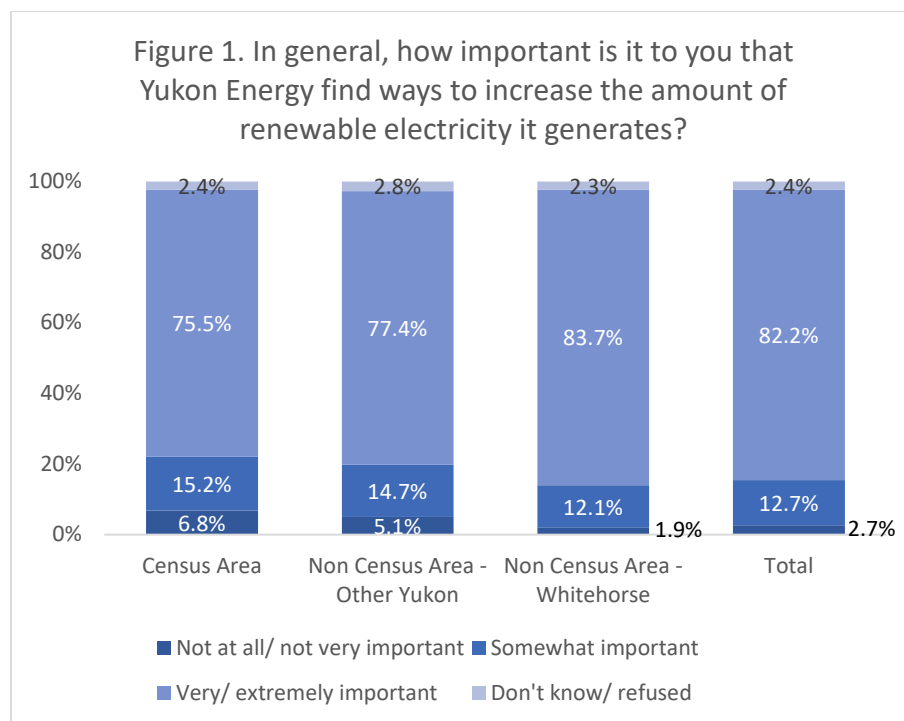
The Yukon Bureau of Statistics used its household survey frame to identify households in the Southern Lakes area. In addition, a stratified random sample was drawn from all Yukon households outside the census area. One adult was randomly selected from each household for both the census and the survey. From the total sample drawn, the Bureau identified 701 eligible respondents from the census area and 862 eligible respondents from other parts of the territory. Those with invalid or incorrect contact information who could not be traced were removed from the samples. Respondents were contacted via emails or mails and provided with unique codes to complete the survey online. This was followed by a non-response follow-up by phone.

Analytical weights were applied to the responses to correct for non-response. The unweighted response rate was 76.3% for households in the census area, and 60.3% for the sampled households outside the census area. The refusal rate was 6.6% for the census area, and 10.2% for the remaining sample. The responses to completed surveys have been weighted so that the overall results can be generalized to represent the adult Yukon population.

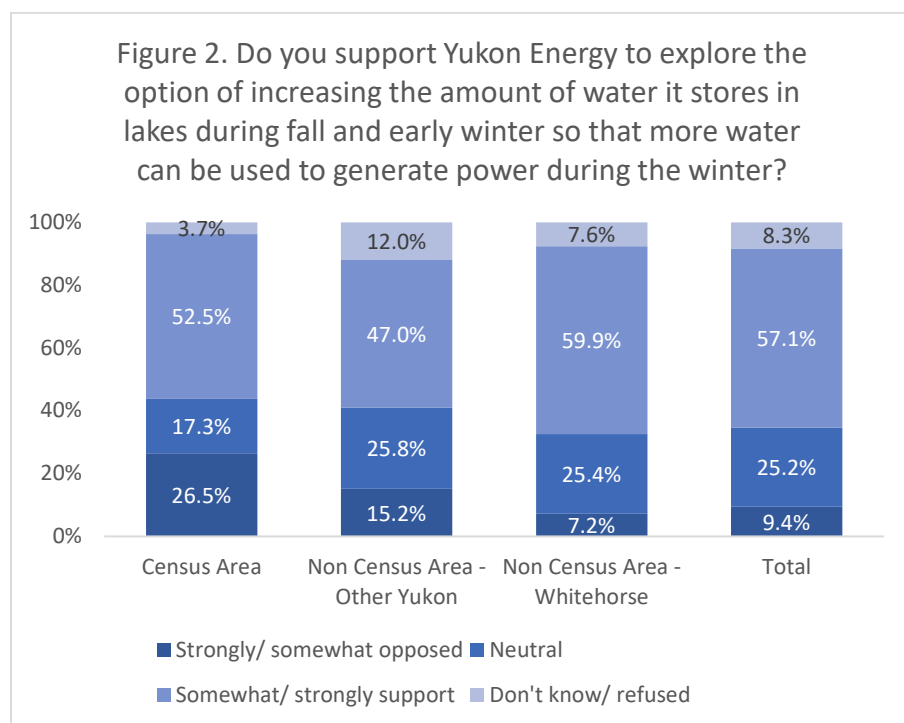
Survey Results

The survey identified 707 resident property owners in Tagish, Marsh Lake and Carcross, as well as 525 vacation property owners. There was some overlap (area residents who also owned vacation property in the area). In total, the census area included 1169 adult residents.

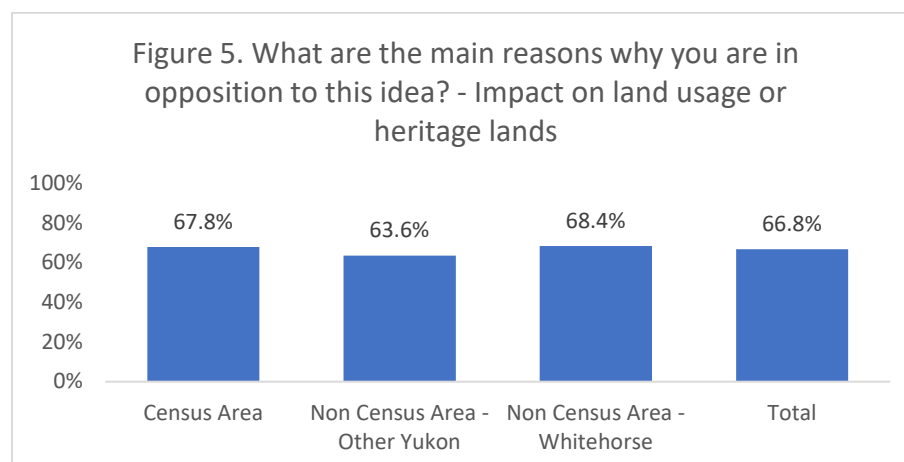
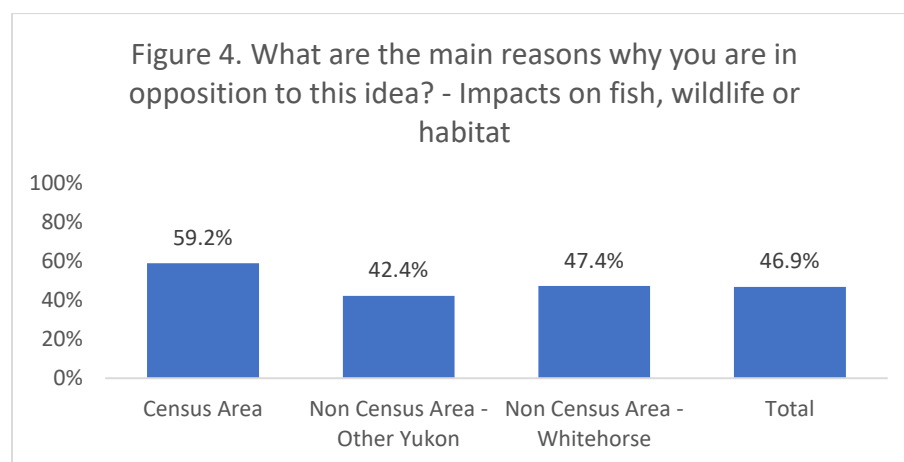
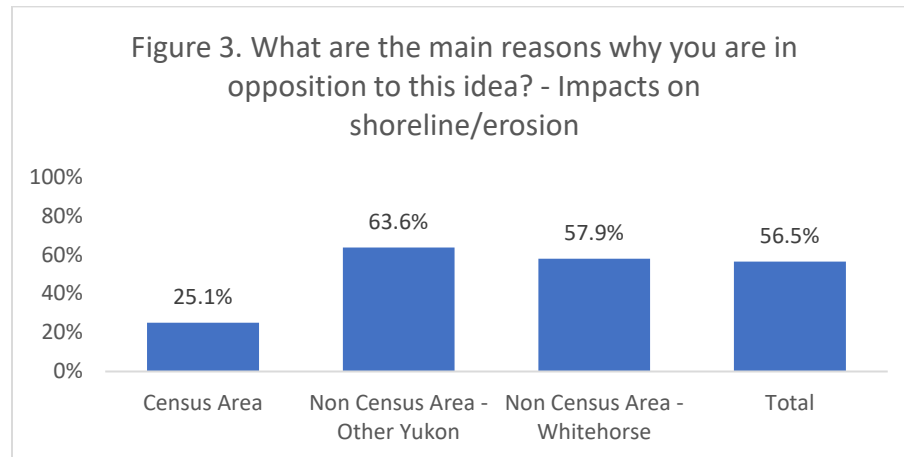
The majority of respondents (82%) agreed that it was important that Yukon Energy find ways to increase the amount of renewable electricity it generates (Figure 1).

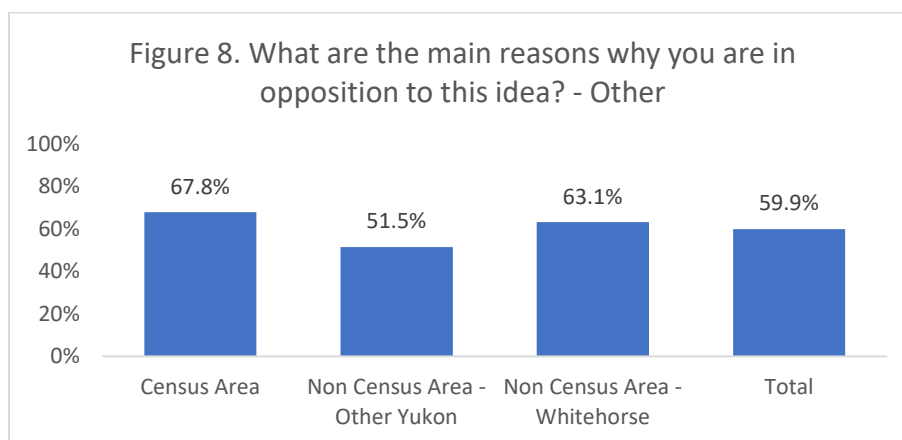
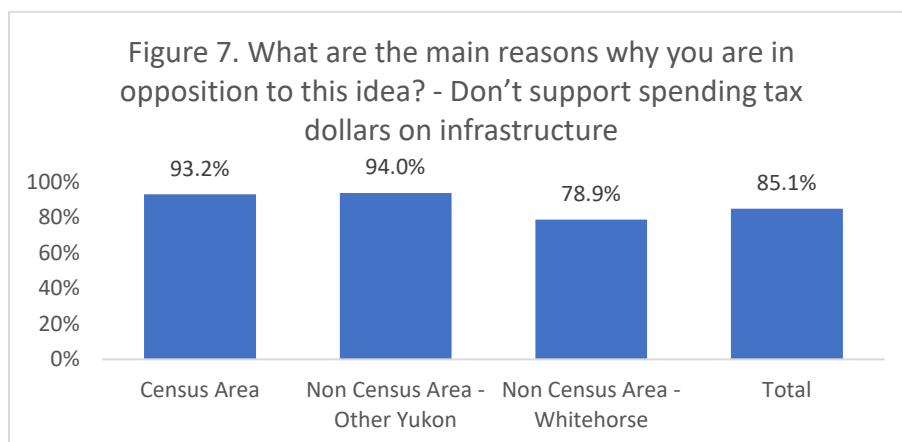
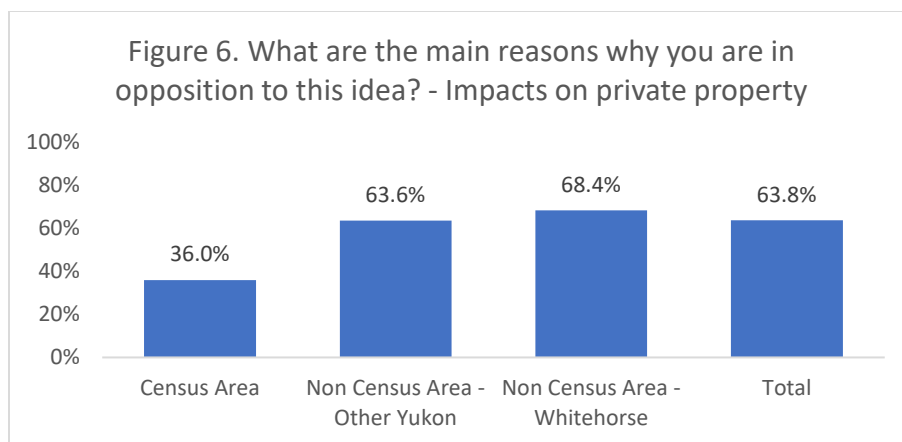


A smaller majority of respondents (57%) agreed that they support Yukon Energy in exploring the option of increasing the amount of water it stores in lakes during fall and early winter so that more water can be used to generate power during the winter. Twenty-seven percent of census area residents opposed this option, as compared with 7% of Whitehorse residents and 15% of residents of other Yukon communities (Figure 2).



Of those who opposed this idea, census area residents were more likely to cite concerns about the impact on land usage or heritage lands, or on fish, wildlife or habitat. A large majority of those respondents said they do not support spending tax dollars on infrastructure. Other Yukon residents were more likely than census area residents to cite concerns about impacts on shoreline and erosion or impacts on private property (Figure 3 – Figure 8).





A large majority of respondents agreed that Yukon Energy should place high importance on impacts on:

- fish, wildlife, waterfowl and wetlands (87%);
- heritage resources and traditional land use (73%);
- shoreline erosion (69%);
- and Septic tanks and sumps below ground and basements and crawl spaces near the shoreline (69%).

See Figure 9 – Figure 12.

Figure 9. How much importance should Yukon Energy place on the following impacts? - Fish, wildlife, waterfowl and wetlands

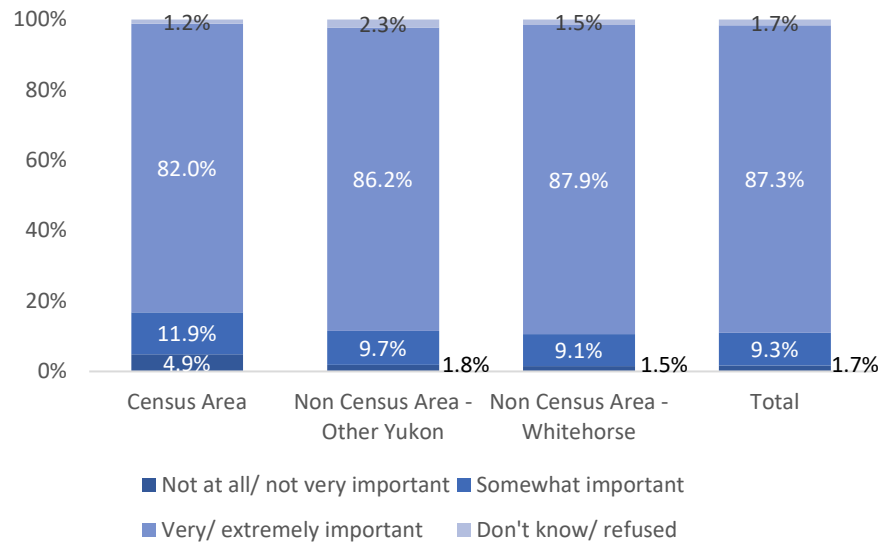
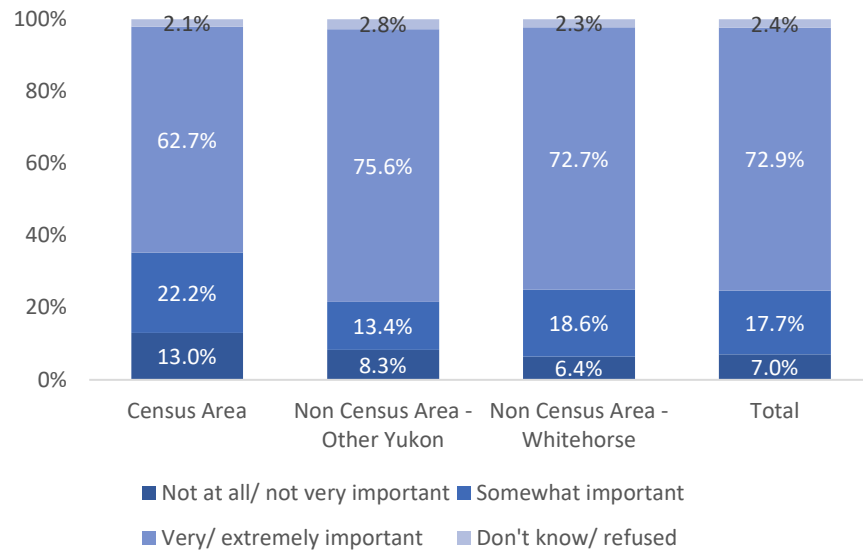
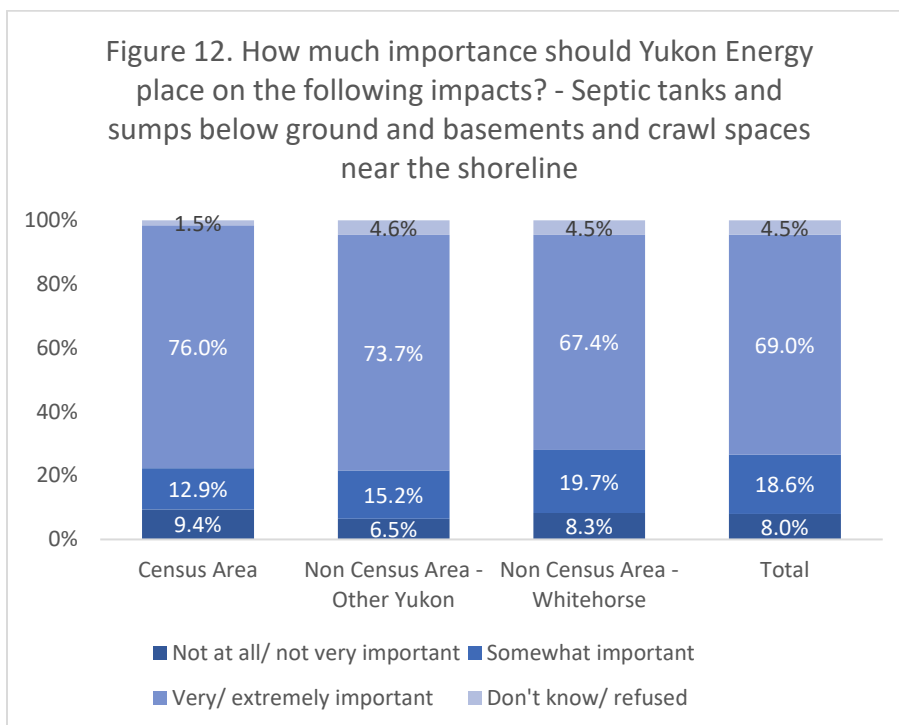
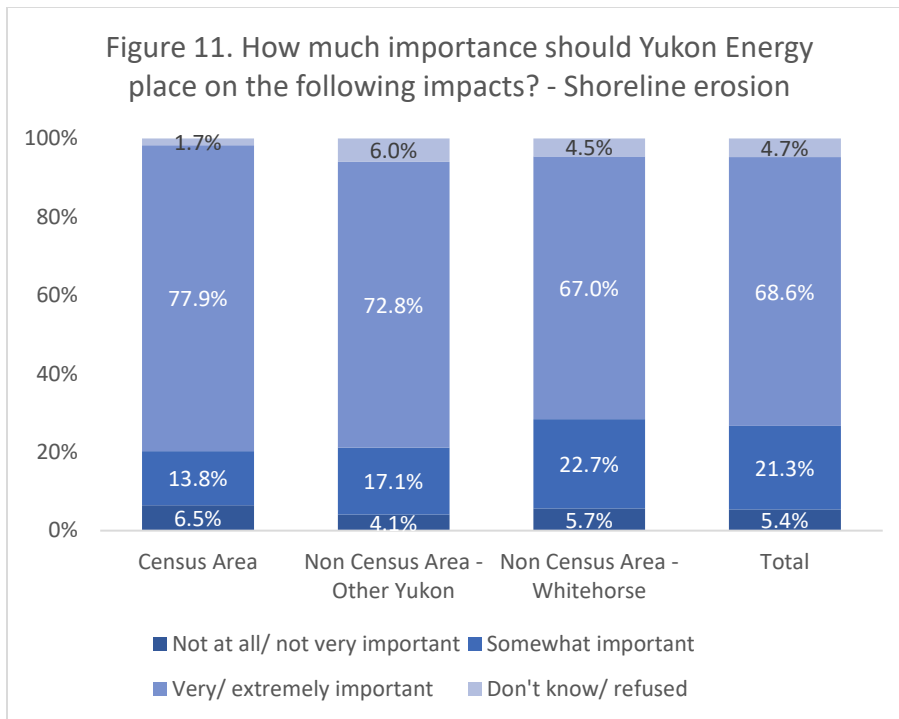
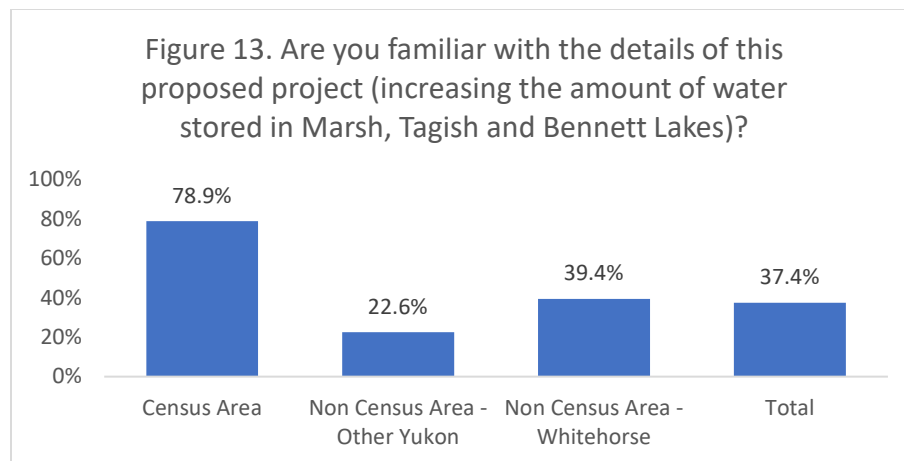


Figure 10. How much importance should Yukon Energy place on the following impacts? - Heritage resources and traditional land use

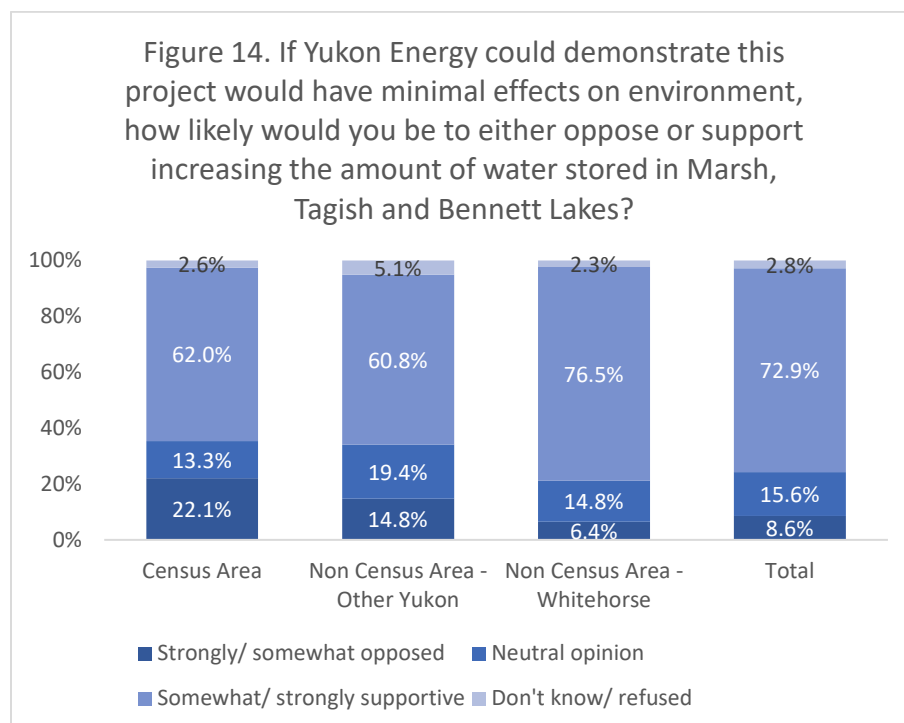




While 79% of census area residents said they are familiar with the details of the proposed project, this was the case for 39% of Whitehorse residents and 23% of residents of other Yukon communities (Figure 13).

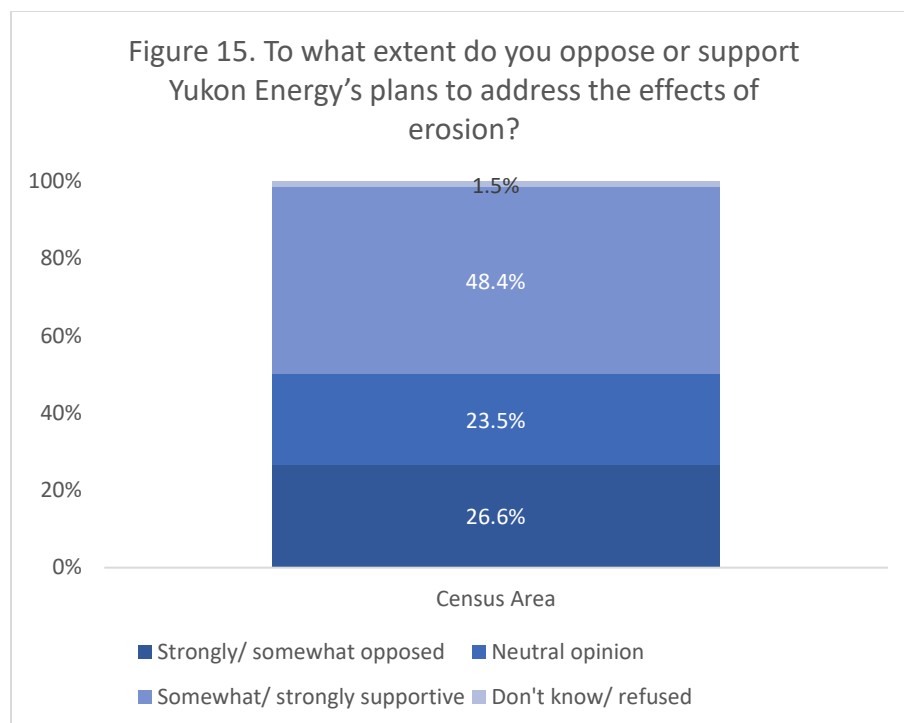


If Yukon Energy could demonstrate this project would have minimal effects on environment, 62% of census area residents said they would support the project, as compared with 77% of Whitehorse residents, and 61% of residents of other Yukon communities (Figure 14).

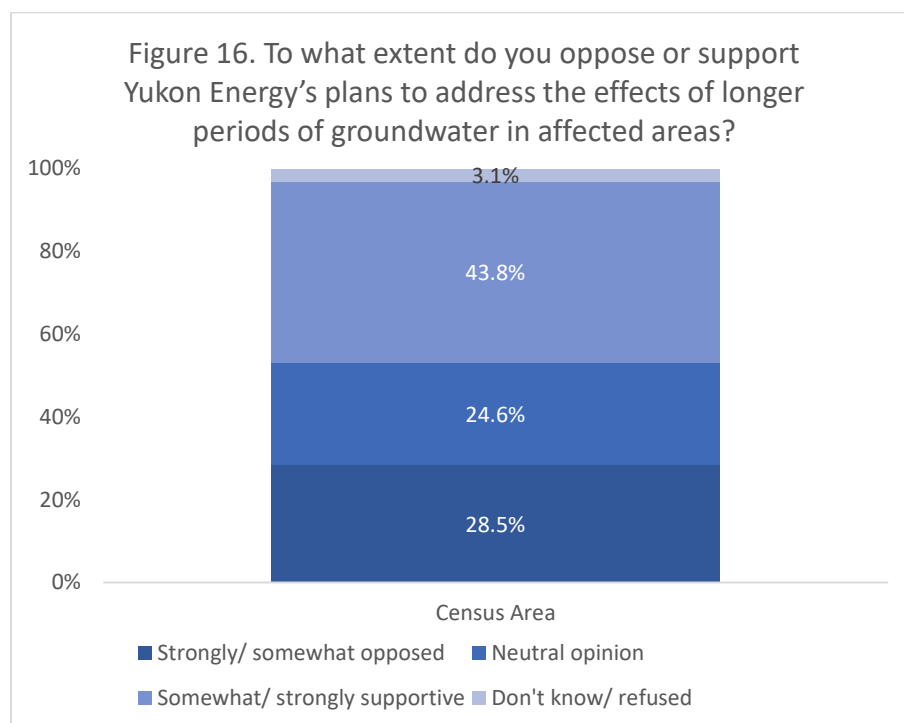


The following part of the analysis are based on the responses to the questions asked only to respondents in the census area.

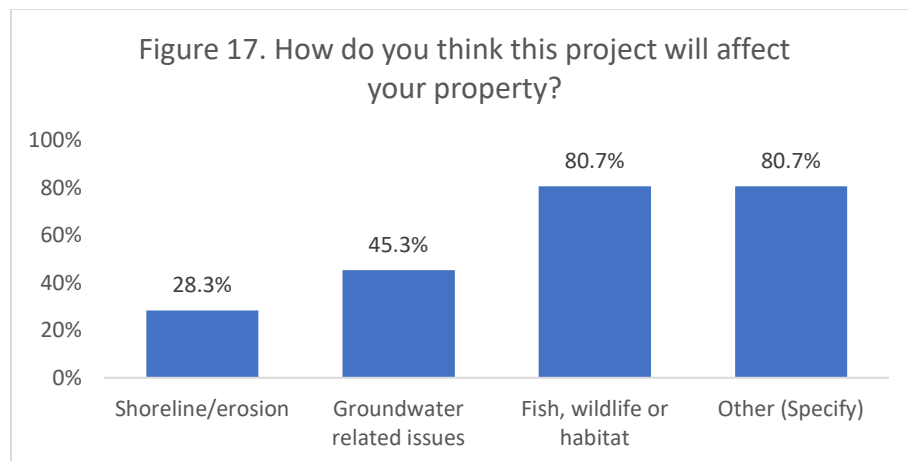
Forty-five percent of the census area residents said they are aware of Yukon Energy's plans to address the effects of erosion in affected areas as a result of this project. Of those residents, just under half (48%) said they support those plans (Figure 15).



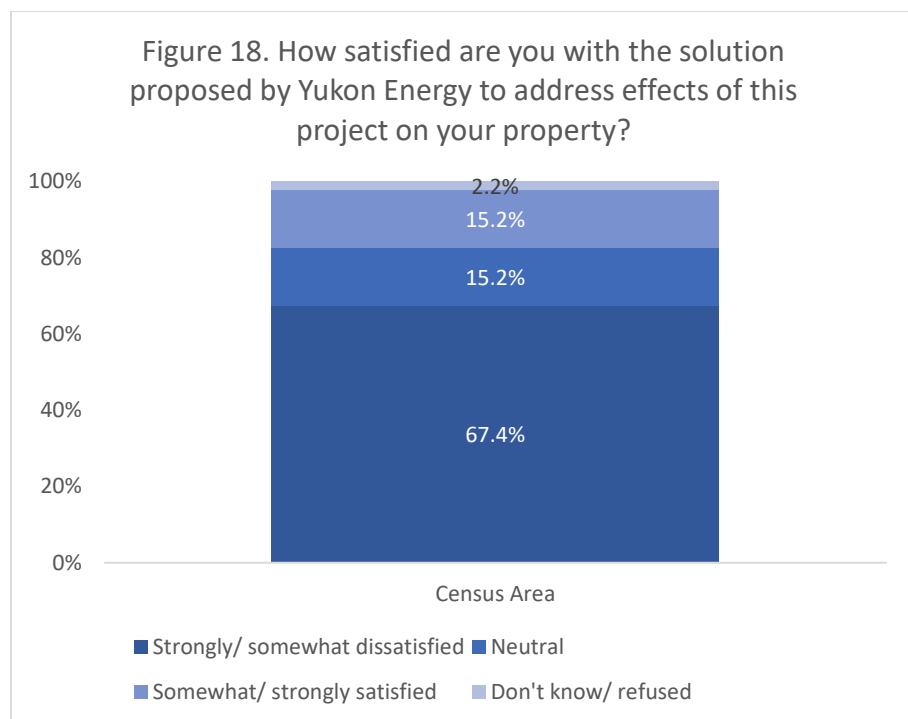
Thirty-three percent of census area residents said they are aware of Yukon Energy's plans to address the effects of longer periods of groundwater in affected areas as a result of this project. Of those residents, 44% said they support those plans (Figure 16).



Twenty-six percent of census area residents said they feel their property will be negatively affected by this project. Of those residents, most (81%) said they thought it would affect fish, wildlife or habitat, or they specified some other reason¹ (Figure 17).



Eight percent of census area residents said they have been contacted by Yukon Energy about the proposed solution to address the effects of this project on your property. Of those respondents, 15% said they were satisfied with the proposed solution, while 67% were dissatisfied (Figure 18).



¹ Multiple responses were allowed for the question, "How do you think this project will affect your property?".

Appendix 1. Data tables

Responses are weighted to represent the Yukon population, age 18+.

Q1. Do you own property in Tagish, Marsh Lake or Carcross that you use as a full-time home or residence?

	Frequency (Yes)	Percent
Census Area (n=1169)	707	60.48%
Non Census Area - Other Yukon (n=6655)	0	0.00%
Non Census Area - Whitehorse (n=25963)	0	0.00%
Total (n=33787)	707	2.09%

Q2. Do you own property in Tagish, Marsh Lake or Carcross that you use as a vacation property? (n=33787)

	Frequency (Yes)	Percent
Census Area	525	44.91%
Non Census Area - Other Yukon	0	0.00%
Non Census Area - Whitehorse	0	0.00%
Total	525	1.55%

Q3. In general, how important is it to you that Yukon Energy find ways to increase the amount of renewable electricity it generates?

	Frequency				Percent			
	Not at all/ not very important	Somewhat important	Very/ extremely important	Don't know/ refused	Not at all/ not very important	Somewhat important	Very/ extremely important	Don't know/ refused
Census Area	80	178	883	28	6.84%	15.23%	75.53%	2.40%
Non Census Area - Other Yukon	337	981	5152	184	5.06%	14.74%	77.42%	2.76%
Non Census Area - Whitehorse	492	3147	21734	590	1.90%	12.12%	83.71%	2.27%
Total	909	4306	27769	803	2.69%	12.74%	82.19%	2.38%

Q4. Do you support Yukon Energy to explore the option of increasing the amount of water it stores in lakes during fall and early winter so that more water can be used to generate power during the winter?

	Frequency				Percent			
	Strongly/ somewhat opposed	Neutral	Some- what/ strongly support	Don't know/ refused	Strongly/ somewhat opposed	Neutral	Somewhat / strongly support	Don't know/ refused
Census Area	310	202	614	43	26.52%	17.28%	52.52%	3.68%
Non Census Area - Other Yukon	1012	1717	3128	797	15.21%	25.80%	47.00%	11.98%
Non Census Area - Whitehorse	1868	6589	15539	1967	7.19%	25.38%	59.85%	7.58%
Total	3191	8509	19279	2807	9.44%	25.18%	57.06%	8.31%

Q5.1. What are the main reasons why you are in opposition to this idea? - Impacts on shoreline/erosion

	Frequency (Yes)	Percent
Census Area	78	25.08%
Non Census Area - Other Yukon	644	63.64%
Non Census Area - Whitehorse	1082	57.89%
Total	1803	56.50%

Q5.2. What are the main reasons why you are in opposition to this idea? - Impacts on fish, wildlife or habitat

	Frequency (Yes)	Percent
Census Area	184	59.16%
Non Census Area - Other Yukon	429	42.39%
Non Census Area - Whitehorse	885	47.35%
Total	1498	46.94%

Q5.3. What are the main reasons why you are in opposition to this idea? - Impact on land usage or heritage lands

	Frequency (Yes)	Percent
Census Area	211	67.85%
Non Census Area - Other Yukon	644	63.64%
Non Census Area - Whitehorse	1278	68.38%
Total	2133	66.84%

Q5.4. What are the main reasons why you are in opposition to this idea? - Impacts on private property

	Frequency (Yes)	Percent
Census Area	112	36.01%
Non Census Area - Other Yukon	644	63.64%
Non Census Area - Whitehorse	1278	68.38%
Total	2035	63.77%

Q5.5. What are the main reasons why you are in opposition to this idea? - Don't support spending tax dollars on infrastructure

	Frequency (Yes)	Percent
Census Area	290	93.25%
Non Census Area - Other Yukon	951	93.97%
Non Census Area - Whitehorse	1475	78.92%
Total	2716	85.11%

Q5.6. What are the main reasons why you are in opposition to this idea? - Other (Specify)

	Frequency (Yes)	Percent
Census Area	211	67.85%
Non Census Area - Other Yukon	521	51.48%
Non Census Area - Whitehorse	1180	63.14%
Total	1912	59.92%

Q6A. How much importance should Yukon Energy place on the following impacts? - Fish, wildlife, waterfowl and wetlands

	Frequency				Percent			
	Not at all/ not very important	Some- what important	Very/ extremely important	Don't know/ refused	Not at all/ not very important	Somewhat important	Very/ extremely important	Don't know/ refused
Census Area	57	139	958	14	4.88%	11.89%	81.95%	1.20%
Non Census Area - Other Yukon	123	644	5735	154	1.85%	9.68%	86.18%	2.31%
Non Census Area - Whitehorse	393	2360	22816	393	1.51%	9.09%	87.88%	1.51%
Total	573	3143	29510	561	1.70%	9.30%	87.34%	1.66%

Q6B. How much importance should Yukon Energy place on the following impacts? - Heritage resources and traditional land use

	Frequency				Percent			
	Not at all/ not very important	Some- what important	Very/ extremely important	Don't know/ refused	Not at all/ not very important	Somewhat important	Very/ extremely important	Don't know/ refused
Census Area	152	260	733	24	13.00%	22.24%	62.70%	2.05%
Non Census Area - Other Yukon	552	889	5030	184	8.29%	13.36%	75.58%	2.76%
Non Census Area - Whitehorse	1671	4819	18883	590	6.44%	18.56%	72.73%	2.27%
Total	2376	5968	24646	798	7.03%	17.66%	72.95%	2.36%

Q6C. How much importance should Yukon Energy place on the following impacts? - Shoreline erosion

	Frequency				Percent			
	Not at all/ not very important	Some- what important	Very/ extremely important	Don't know/ refused	Not at all/ not very important	Somewhat important	Very/ extremely important	Don't know/ refused
Census Area	76	161	911	20	6.50%	13.77%	77.93%	1.71%
Non Census Area - Other Yukon	276	1135	4846	399	4.15%	17.05%	72.82%	6.00%
Non Census Area - Whitehorse	1475	5901	17407	1180	5.68%	22.73%	67.05%	4.54%
Total	1826	7197	23164	1599	5.40%	21.30%	68.56%	4.73%

Q6D. How much importance should Yukon Energy place on the following impacts? - Septic tanks and sumps below ground and, basements and crawl spaces near the shoreline

	Frequency				Percent			
	Not at all/ not very important	Some- what important	Very/ extremely important	Don't know/ refused	Not at all/ not very important	Somewhat important	Very/ extremely important	Don't know/ refused
Census Area	110	151	889	18	9.41%	12.92%	76.05%	1.54%
Non Census Area - Other Yukon	430	1012	4907	307	6.46%	15.21%	73.73%	4.61%
Non Census Area - Whitehorse	2163	5114	17506	1180	8.33%	19.70%	67.43%	4.54%
Total	2703	6277	23302	1505	8.00%	18.58%	68.97%	4.45%

Q7. Are you familiar with the details of this proposed project? - increase the amount of water it stores in Marsh, Tagish and Bennett Lakes every fall and early winter

	Frequency (Yes)	Percent
Census Area	922	78.87%
Non Census Area - Other Yukon	1503	22.58%
Non Census Area - Whitehorse	10228	39.39%
Total	12652	37.45%

Q8. If Yukon Energy could demonstrate this project would have minimal effects on environment, how likely would you be to either oppose or support increasing the amount of water stored in Marsh, Tagish and Bennett Lakes?

	Frequency				Percent			
	Strongly/ somewhat opposed	Neutral opinion	Somewhat/ strongly supportive	Don't know/ refused	Strongly/ somewhat opposed	Neutral opinion	Somewhat/ strongly supportive	Don't know/ refused
Census Area	258	155	725	30	22.07%	13.26%	62.02%	2.57%
Non Census Area - Other Yukon	982	1288	4048	338	14.76%	19.35%	60.83%	5.08%
Non Census Area - Whitehorse	1672	3835	19865	590	6.44%	14.77%	76.51%	2.27%
Total	2911	5279	24639	958	8.62%	15.62%	72.92%	2.84%

Q9. Are you aware of Yukon Energy’s plans to address the effects of erosion in affected areas as a result of this project?

	Frequency (Yes)	Percent
Census Area	523	44.74%
Total	523	44.74%

Q10. To what extent do you oppose or support Yukon Energy’s plans to address the effects of erosion?

	Frequency				Percent			
	Strongly/ somewhat opposed	Neutral opinion	Somewhat/ strongly supportive	Don't know/ refused	Strongly/ somewhat opposed	Neutral opinion	Somewhat/ strongly supportive	Don't know/ refused
Census Area	139	123	253	8	26.58%	23.52%	48.37%	1.53%
Total	139	123	253	8	26.58%	23.52%	48.37%	1.53%

Q11. Are you aware of Yukon Energy’s plans to address the effects of longer periods of groundwater in affected areas as a result of this project?

	Frequency (Yes)	Percent
Census Area	390	33.36%
Total	390	33.36%

Q12. To what extent do you oppose or support Yukon Energy’s plans to address the effects of longer periods of groundwater in affected areas?

	Frequency				Percent			
	Strongly/ somewhat opposed	Neutral opinion	Somewhat/ strongly supportive	Don't know/ refused	Strongly/ somewhat opposed	Neutral opinion	Somewhat/ strongly supportive	Don't know/ refused
Census Area	111	96	171	12	28.46%	24.62%	43.85%	3.08%
Total	111	96	171	12	28.46%	24.62%	43.85%	3.08%

Q13. Do you feel that your property will be negatively affected by this project?

	Frequency (Yes)	Percent
Census Area	311	26.60%
Total	311	26.60%

Q14. How do you think this project will affect your property?

	Frequency (Yes)	Percent
Shoreline/erosion	88	28.30%
Groundwater related issues	141	45.34%
Fish, wildlife or habitat	251	80.71%
Other (Specify)	251	80.71%

Q15. Have you been contacted by Yukon Energy about the proposed solution to address the effects of this project on your property?

	Frequency (Yes)	Percent
Census Area	92	7.87%
Total	92	7.87%

Q16. How satisfied are you with the solution proposed by Yukon Energy to address effects of this project on your property?

	Frequency				Percent			
	Strongly/ somewhat dissatisfied	Neutral	Somewhat/ strongly satisfied	Don't know	Strongly/ somewhat dissatisfied	Neutral	Somewhat/ strongly satisfied	Don't know/ refused
Census Area	62	14	14	2	67.39%	15.22%	15.22%	2.17%
Total	62	14	14	2	67.39%	15.22%	15.22%	2.17%

Q17. Are you a member or citizen of a Yukon First Nation or a transboundary First Nation (British Columbia, Northwest Territories)?

	Frequency (Yes)	Percent
Census Area	76	6.50%
Non Census Area - Other Yukon	1840	27.65%
Non Census Area - Whitehorse	3147	12.12%
Total	5063	14.99%

Appendix 2. “Other” responses

Q5.6. What are the main reasons why you are in opposition to this idea? - Other (Specify)

- Impacts on ground water; impact on docks; impact on licence of occupation for foreshore on which both rent and property taxes are paid; lack of serious exploration of other options such as wind, geothermal, or biomass fuel. Hate that a Yukon Energy thinks that increasing groundwater that impacts basements and septic systems is okay and that homeowners should be expected to deal with wet basements with sump pumps. Disrespectful
- The water licence for the 4th wheel raised the water table causing the current flooding under the Army Beach properties.
- groundwater effects
- having extra water in lake system in fall takes away the natural ability to attenuate other high water times
- other ways that they can do this
- I think there are different ways to generate renewable electricity like solar.
- I know they have put in millions of studies on this idea and I don't believe it will be a good idea. How are they going to prove that it won't cause problems??
- expanding ice when the water is high causes more damage than high water
- We are right on the water front and I don't have any info on this
- I think they are looking at only one solution only. They should look at other solutions.
- I think they have other options they can look at-Micro hydro, wind
- Yukon Energy supporting the in-town (Whitehorse) people being more important than the people living right on the lake who will be affected and not see the benefits.
- Docks, floats, anchors, trails, shoreline recreational areas, heritage areas
- impact on ecology of vast watershed
- I live in Prince George, but have property.
- Ground water impacts on vegetation
- Deception & Lack of Transparency
- damaging a few hundred properties and shorelines for a quick fix by raising water to support a few hundred homes with energy is not a long term solution
- I like to use the lake but I can't use it when they're messing around with the water level. It's way too low in the spring. It's difficult to launch a boat until at least August. I used to pump water from the lake around the end of June and now it's end of July or first of August before water can be pumped. In the wintertime when draining the water out, the lake turns into a big bowl and it gets overflow and you can't use it. Previously for 20 years you could drive on the lake in winter and now it's very difficult.
- better alternatives, concern about water levels in upper Yukon River watershed
- there are other power solutions, and idea has not been researched and presented properly
- don't support subsidies for mines
- increasing sustained water levels will flood Tagish Creek. This will reduce natural drainage rates for my property in Tagish Estates. Poor long term planning by YE and YG doesn't mean holding more water in southern lakes is the only solution. Pick another valley to sacrifice for impoundment and damming.
- don't feel it is necessary
- increase in supply by raising licence limits does not address the overall shortage of hydro supply in Yukon
- The cost is not shared by big mining companies using the energy but by us individuals and government doesn't pay their fair share either
- groundwater and soil saturation on low lying lots
- I don't know what they are going to do to prove this
- The water licence for the 4th wheel raised the water table causing the current flooding under the Army Beach properties.
- Because of the costs associated with this mainly costs with stabilizing the shoreline and ongoing consultation and environmental assessment and the cost of compensation to be paid to the First Nation. The impact on climate change - water levels are down naturally and withholding water could further affect the water levels and affects the salmon habitat and water temperature.
- I need more info before I support this
- impact on insurance coverage because of rise of water level because of potential of flooding. Groundwater is an issue too.
- ground water impacts
- they didn't do enough research to do this to the lakes
- Ground Saturation
- Migratory birds use the river and lakes, how is this going to impact them? Will wetlands suffer from increased water levels into the winter?
- focused on southern lakes but should be looking at other hydro options
- Think you should be investigating other sources of generating electricity. The damage especially in winds is more than you make it appear
- There are easier ways to generate power

- impacts on environment
- We should rely more on other renewable sources i.e. geothermal, wind and solar, maybe contemplating having a water meter for big business i.e. mining; and have more implements to conserve energy - maybe limit # of lights people use i.e. Christmas. Also the voltage the government uses for highway and why do they need so many i.e. Carcross Corner or lights at MacRae. They considered raising the lake to a certain level (6 inches) and now they say it's a 12 inches. Also there's no talk about affecting some houses but how about impact on the swans and other wildlife. Maybe Yukon Energy could upgrade their infrastructure at the dam for pretty efficiency for the flow of water to generate the energy.
- They are selling electricity that they don't have, to the mining companies!!
- It is not clean energy
- impacts on all related ecosystems --wetlands, streams and river mouths, beaches and the resident and migratory inhabitants
- They have not put into place other options i.e. biomass, run of the river, solar and wind power, geothermal. High winds in fall. High level of ice in winter. Lack of studies. They haven't been forthcoming with studies. Initially when they started this they only went to the end of Six Mile River. They haven't done extensive studies on Taku Arm, Bennett, Narrs, Windy Arm, and Tagish Lake. At certain times of the year it all becomes the same level.
- think about other ways for power
- Not just holdback, also including greater drawdown. No!
- I've read the literature you have put out there and talked to people about it and they have all completely missed the fact you propose to draw down 10cm lower than historical levels. My view of how the material is presented is deliberately misleading. As a manager in the private sector I have never seen such poor communication. It is no wonder that YG generally can't draw a crowd unless it is a lynch mob. This is so insulting. So I have completed your survey and there has not been one other spot to give you real feedback. My answers only faintly reflect what I would have to say in regards to this project. This is the worst YG survey I can ever remember. If this is as far as consultation goes it will be a sad comment on this process. Unknown impacts on fish, fish habitat
- Hydro power is not renewable if you have to increase water levels
- many other measures should be supported first.
- Modifying water system in the past has proven to be detrimental to every ecosystem.
- This is so old school. They need to find other ways to protect the environment.
- It's all about money - it costs more to use gas and diesel
- I don't know what research has been done. Water birds, flora, fauna.
- we need to have other forms of renewable energy sources
- I have people who live on the highways outside Dawson and they are trying to get power for 30 years and Yukon Power told them it would cost them \$250,000. Other neighbours got power for \$10,000.
- It might cause floods again like it did a few years ago.
- have enough electricity already
- I think there are other ways to get power
- They should try windmills and solar power
- opposed to using water to generate energy because of impact on waterways
- other options to create power such as windmills
- Ashiak Lake is my prime examples of the reason
- I live off grid
- Added demand based on industrial uses should be addressed by the industrial user rather than moving this to the residential tax payer and increased pressure on the environment (lakes and fish)
- there are other ways to consider renewable energy
- don't know enough about the consequences of holding back the water
- other ways of using renewable resources
- No cohesive plan
- more needs to be done to decrease demand
- don't trust they can fine tune their process enough to ensure private residences aren't damaged
- downstream river soils sediments and groundwater impacts

Q14. How do you think this project will affect your property? – Other (Specify)

- Damage to dock, stairs etc on my licence of occupation. I called Yukon Energy out to see my property concerns and the people that came out just said, no, it's not a problem even when I showed pictures of wind driven wave/water level during lower than their proposed new level.
- This project will flood a third to a half of my property if they hold the water to the proposed level.
- destruction of existing retaining walls
- my house is right at the shoreline. If anything happens, who's going to pay for it?
- holding water back might affect the permafrost and no studies have been done regarding that
- if anything goes wrong there's going to be a flood.
- loss of property
- Access to beach

- loss of septic field, loss of valuable waterfront land, flooding, more ground water so more bugs, will lose trees, loss enjoyment of beach, can't walk on beach to neighbours
- I am opposed to lowering water levels an additional 10 cm which affects my water pump use gas.
- decreased recreational enjoyment
- Vegetation - all trees that hole water; and shoreline. We had a flood about 5 years ago and we are still feeling the effects of that. All the questions are leading question. My responses may not be used properly in tabulating survey results. The electrical generating infrastructure i.e. turbines; emphasis on upgrading the generating infrastructure should take priority over any other option they are considering.
- enjoyment of lake
- Lowering lake level will also affect launching boats at Tagish, it was August when I could launch, with lowering lake levels it might not even be possible
- and everything else!!
- Is there going to be financial support if I have to build up if there is another flood? I'm concerned about it all.
- This project will flood a third to a half of my property if they hold the water to the proposed level.
- insurance issues, resale value issues
- loss of insurance coverage
- safety concerns
- access to the lake
- she co owns this property with a friend who was the one that talked with Yukon Electric about the solutions
- The wildlife will be walking more in our yard that on the shore. The jewel we have in Army Beach will be unusable because it will be under water. The sandy point will also be under water. The swans and migration of waterfowl will be affected.
- I don't care! If anything happens it's not going to be my fault.
- Between environmental concerns and tampering with the environment the properties are becoming more restrictive all the time. I don't want to see a change to the environment and my ability to use the land.
- He is protecting crown land that he is paying for out of his own pocket. He has been waiting for over 2 years for a reply with info but they never get back to him. Very frustrated!!
- building is also in jeopardy
- Less water in the Spring
- Home Insurance increases, land enjoyment and utility loss

Appendix 3. Survey Questionnaire

Introduction

Hello, my name is _____. I am calling from the Yukon Bureau of Statistics in Whitehorse. May I speak to _____?

- ☐ No: We are conducting the Southern Lakes Energy Survey. When is a good time to call back? _____ -
END SURVEY
- ☐ Yes: (continue with introduction)

We are conducting the Southern Lakes Energy Survey on behalf of the Yukon Energy Corporation. The purpose of the survey is to get Yukoners’ opinions on storing additional water in Marsh, Tagish & Bennett Lakes in the fall and early winter so that it can be used to generate more renewable power during the winter.

Participation in this survey is voluntary and your responses are confidential. Information collected through this survey is protected in accordance with Yukon’s Statistics Act. Your individual responses will remain anonymous when reporting results. The survey should only take 5-7 minutes to complete. Is now a good time to begin?

- ☐ YES: (Go to Q1)
- ☐ NO: When is a good time to call back?

- Do you own property in Tagish, Marsh Lake or Carcross that you use as a full-time home or residence?
 - ☐ Yes
 - ☐ No
- Do you own property in Tagish, Marsh Lake or Carcross that you use as a vacation property?
 - ☐ Yes
 - ☐ No

[IF Q1 AND Q2 = 2 AND in SL RESIDENT SAMPLE, SKIP TO INT03 – “Not a SL resident”]

- In general, how important is it to you that Yukon Energy find ways to increase the amount of renewable electricity it generates? Please use a scale from 1 to 5, where 1 is “Not at all important” and 5 is “Extremely important”.
 - ☐ 1 – Not at all important
 - ☐ 2
 - ☐ 3 – Somewhat important
 - ☐ 4
 - ☐ 5 – Extremely important
- Demand for power is highest during winter months. However, this is also when the supply of water to generate electricity is the lowest. This means Yukon Energy must burn liquefied natural gas or diesel to generate enough electricity during the winter. Yukon Energy is exploring the option of increasing the amount of water it stores in lakes during fall and early winter months so that more water can be used to generate power during the winter. Using a scale from 1 to 5, where 1 is “Strongly opposed” and 5 is “Strongly support”, to what extent do you oppose or support this option?
 - ☐ 1 – Strongly opposed
 - ☐ 2
 - ☐ 3 – Neutral
 - ☐ 4
 - ☐ 5 – Strongly support
- [IF Q4 = 1 OR Q4 = 2] What are the main reasons why you are in opposition to this idea? (unprompted, do not read options. Check all that apply:)
 - ☐ Impacts on shoreline/erosion
 - ☐ Impacts on fish, wildlife or habitat
 - ☐ Impact on land usage or heritage lands
 - ☐ Impacts on private property
 - ☐ Don’t support spending tax dollars on infrastructure
 - ☐ Other: _____
- Storing additional water in lakes for electricity generation has both positive and negative effects. Using a scale from 1 to 5, where 1 is “Not at all important” and 5 is “Extremely important”, how much importance should Yukon Energy place on the following impacts, whether positive or negative, when evaluating these types of projects?

- a. Fish, wildlife, waterfowl and wetlands
 - o 1 – Not at all important
 - o 2
 - o 3 – Somewhat important
 - o 4
 - o 5 – Extremely important
- b. Heritage resources and traditional land use
 - o 1 – Not at all important
 - o 2
 - o 3 – Somewhat important
 - o 4
 - o 5 – Extremely important
- c. Shoreline erosion
 - o 1 – Not at all important
 - o 2
 - o 3 – Somewhat important
 - o 4
 - o 5 – Extremely important
- d. Septic tanks and sumps below ground and basements and crawl spaces near the shoreline
 - o 1 – Not at all important
 - o 2
 - o 3 – Somewhat important
 - o 4
 - o 5 – Extremely important

7. One specific project Yukon Energy is looking at is to increase the amount of water it stores in Marsh, Tagish and Bennett Lakes every fall and early winter. Are you familiar with the details of this proposed project?
- o Yes
 - o No
8. Research has been done over the last 10 years into the likely outcomes from storing more water in Marsh, Tagish and Bennett lakes. If Yukon Energy could demonstrate that this project would have minimal effects on fish, wildlife, waterfowl and wetlands and that shoreline erosion and groundwater impacts to surrounding areas could be mitigated, how likely would you be to either oppose or support increasing the amount of water stored in Marsh, Tagish and Bennett Lakes?
- o 1 – I would likely be strongly opposed
 - o 2
 - o 3 – I would likely have a neutral opinion about this project
 - o 4
 - o 5 – I would likely be strongly supportive

[Q9 TO Q16: SHOW IF Q1 OR Q2 = 1]

9. Are you aware of Yukon Energy's plans to address the effects of erosion in affected areas as a result of this project?
- o Yes
 - o No
10. Using a scale from 1 to 5, where 1 is "Strongly opposed" and 5 is "Strongly support", to what extent do you oppose or support Yukon Energy's plans to address the effects of erosion?
- o 1 – Strongly opposed
 - o 2
 - o 3 – Neutral
 - o 4
 - o 5 – Strongly support
11. Are you aware of Yukon Energy's plans to address the effects of longer periods of groundwater in affected areas as a result of this project?
- o Yes
 - o No

12. Using a scale from 1 to 5, where 1 is “Strongly opposed” and 5 is “Strongly support”, to what extent do you oppose or support Yukon Energy’s plans to address the effects of longer periods of groundwater in affected areas?
- ☐ 1 – Strongly opposed
 - ☐ 2
 - ☐ 3 – Neutral
 - ☐ 4
 - ☐ 5 – Strongly support
13. Do you feel that your property will be negatively affected by this project?
- ☐ Yes
 - ☐ No
 - ☐ Not sure
14. [IF Q13 = 1] How do you think this project will affect your property?
- ☐ Shoreline/erosion
 - ☐ Groundwater related issues
 - ☐ Fish, wildlife or habitat
 - ☐ Other: _____
15. [IF Q13 = 1] Have you been contacted by Yukon Energy about the proposed solution to address the effects of this project on your property?
- ☐ Yes
 - ☐ No
 - ☐ Not sure
16. [IF Q15 = 1] Using a scale from 1 to 5, where 1 is “Strongly satisfied” and 5 is “Strongly dissatisfied”, how satisfied are you with the solution proposed by Yukon Energy to address effects of this project on your property?
- ☐ 1 – Strongly satisfied
 - ☐ 2
 - ☐ 3 – Neutral
 - ☐ 4
 - ☐ 5 – Strongly dissatisfied

Demographic Questions

17. Are you a member or citizen of a Yukon First Nation or a transboundary First Nation (British Columbia, Northwest Territories)?
- ☐ Yes
 - ☐ No
 - ☐ Prefer not to say

THANK YOU

Thank you for taking the time to participate in this survey. Your opinion is important to us. If you would like to request follow-up contact by Yukon Energy or would like to provide additional feedback, please contact Yukon Energy’s Community Engagement Team at communications@yec.yk.ca or 867-393-5333.

Appendix I SLWLC ENGAGEMENT FINDINGS

APPENDIX I

Southern Lakes Water Level Committee Engagement Findings



SOUTHERN LAKES PUBLIC INPUT RESULTS

SLWLC contracted with Market North Promotion Systems to develop a website for the committee to post information. One of the tools of the website was an online poll. This poll was open to anyone to complete through October 2014. During that time, the Committee also conducted door-to-door meetings with residents and asked those residents the same questions. In January, those interviews were entered into the website tool.

The data produced includes all completed polls, and also separates them into the open poll vs. the door-to-door meetings. Therefore, the results presented in the data tables reflect neither a random nor a representative sample process. This is not a survey of Marsh Lake residents. It is merely a report on public input received.

Total Input	Survey Type	
Non random sample	Opened to anyone	Southern Lakes Residents only
91 100%	22 100%	69 100%

1. Which of the following have you recently attended:

		Total Input	Survey Type	
		Non random sample	Opened to anyone	Southern Lakes Residents only
		A	B	C
	Base	90 100%	22 100%	68 100%
	Both a Kitchen Table discussion and a Public Meeting	19 21%	3 14% **	16 24%
	Just a Kitchen Table discussion	7 8%	2 9% **	5 7%
	Just a Public Meeting	28 31%	5 23% **	23 34%
	Neither	36 40%	12 55% **	24 35%

2. How aware of the Yukon Energy's, Southern Lakes Enhancement Concept do you think you are?

		Total Input	Survey Type	
		Non random sample	Opened to anyone	Southern Lakes Residents only
		A	B	C
	Base	90 100%	22 100%	68 100%
	Not at all aware	2 2%	1 5% **	1 1%
	Not very	9 10%	2 9% **	7 10%
	Somewhat	37 41%	10 45% **	27 40%
	Very	29 32%	4 18% **	25 37%
	Extremely	13 14%	5 23% **	8 12%

3. What is your general understanding of the plan Yukon Energy currently has for water levels in the Southern Lakes?

Understanding Of Plan Text
Yukon Energy wants to keep more water in the Southern Lakes in the winter to use it to generate electricity when it's needed.
Hold the reservoir 30cm above the current YEC license level fall through spring and allowing the water to drop lower in the spring. Thus greater capacity to the hydro power to the grid.
FSL to be increased by 30 cm resulting in the water levels in the Southern Lakes, excluding Atlin Lake, being held at a higher level over a much longer time in the Fall. Drawdown to be 10 cm lower
Hold water higher than their current license in the Fall through to Spring.
They plan to raise water levels in the fall and lower them in the spring. But the raising will still mean higher water levels in the spring than is now the case.
Maintaining higher water levels throughout the winter
The gates at the Lewes control structure will be closed slightly earlier in the year in order to hold back additional water in the Southern Lakes.
The plan appears to be to hold back more water in the lakes, thereby raising the water levels for most of the year.
Raise water levels and increase soil erosion and damage to property owners' land so that they can, at no cost to themselves, increase power generation and profits.
That any purposeful rise in lake water level will put my property back into the lake.

Understanding Of Plan Text
hold fall water levels 0.3m higher than currently
To raise the water so more electricity can be made without diesel use. When raising the water will it cover the area that birds feed when they are moving north or south, so there would be no food?
Higher levels in fall lower in spring
YE would like to raise the maximum allowable water level in the summer and hold the water longer in the fall.
Raise level of the lakes in the Fall so the extra water can be used in the winter, to make up for the low amount of water normally entering the lake (from streams, snow melt, etc.)
Raise water levels to increase power savings
raise water levels, keep water levels high into the Fall
They want to hold water level in the system to generate 6mw electricity.
YEC will keep water levels in the Southern Lakes higher than previous FSL to ensure more power is available in winter.
extremely aware
Hold in fall with a licensed height increase.
Hold water high and let flooding continue
Very good
Yes
yes
good
moderate to below moderate
I have heard from neighbours YEC will raise level regardless of how it affects residents. They are saying they are going to mitigate but we don't know to what extent, how long it will take or how much damage there will be. Will levels be raised before mitigation or after? As for studies in question 4 below, I feel there is no hurry and inadequate studies have been done.
Raise & Lower levels to extended & earlier times of year
YEC wants to hold the water higher in Fall & let it drop lower in Spring
Wanted to Flood it one time (Frobisher Plan) Hold water high in Fall & lower in Spring.
Hold back existing water
Raise water level
Plan to store more water and raise levels
We're aware that Y. Energy wants to raise lake levels.
Not up to date.
Increase them for more hydrogenation.
To raise the water level despite opposition from residents.
I understand they intend to hold more water in the lake in the fall.
Raise water level 1/3 metre & hold until Late Fall.
Late Summer, Close Lewes Dam to hold back water for use during winter months.
Raise 30cm, hold high through freeze up then drain during winter for hydro use. In spring may drain down up to 10cm lower than current level
YEC is proposing to raise the controlled maximum level by 30cm and to lower supply level by 10cm In my opinion less invasive renewable sources of energy should be used.
informed
30cm rise in water held till late winter

Understanding Of Plan Text
maintain usable levels
Raise lake level
They plan to raise the lake to higher levels in the fall and draw down to lower levels as required over the winter.
raise level to create more power
Raise level 1'
Hold water longer and have better control of it.
Very good understanding as I was used as consultant for YEC
Raise the lake about 1ft
Good
Full concept per YEC
Retaining water 1 foot higher through freeze up.
Raise full supply 1.0' from existing water license.
Big damage!!! Very costly!! Piss me off!! They cannot have more water level!! No Way!!
30cm is nothing compared to 2007 height. Feels ice will float on the water.
Raise the lake to create more power
Propose to hold levels 1' higher
Hold it longer for control
Maintain higher water in the southern lakes in order to save water for hydroelectric generation downstream at Whitehorse
holding back the water levels
To raise the levels a little bit
increase storage and draw down by raising water levels over summer -- Fall by 30cm & drawing down over winter -- Spring an add'l 10cm below existing license
apply for new water license to increase FSL by 30cm and decrease LSL by 10cm
Change water license to hold 30cm higher in FALL and lower 10cm in Spring

4. Do you feel that the issue has been:

		Total Input	Survey Type	
		Non random sample	Opened to anyone	Southern Lakes Residents only
		A	B	C
	Base	80 100%	21 100%	59 100%
	Studied enough – time for decisions	26 32%	4 19% **	22 37%
	Some more studies are needed – but quickly	28 35%	8 38% **	20 34%
	Much more study is needed	26 32%	9 43% **	17 29%

5. Do you feel that consultation with the community has been:

		Total Input	Survey Type	
		Non random sample	Opened to anyone	Southern Lakes Residents only
		A	B	C
Base		87 100%	20 100%	67 100%
	Completed – time to move on	33 38%	6 30% **	27 40%
	Still in progress, needs more time, but not much	25 29%	6 30% **	19 28%
	Much more consultation is needed	29 33%	8 40% **	21 31%

6. One of the options proposed by Yukon Energy is to “hold the water high” in Marsh Lake. Rate you strongly oppose or support this option:

		Total Input	Survey Type	
		Non random sample	Opened to anyone	Southern Lakes Residents only
		A	B	C
Base		90 100%	22 100%	68 100%
	I strongly oppose it	46 51%	8 36% **	38 56%
	I somewhat oppose it	21 23%	4 18% **	17 25%
	Neither support or oppose	5 6%	3 14% **	2 3%
	I somewhat support it	13 14%	4 18% **	9 13%
	I strongly support it	5 6%	3 14% **	2 3%

One of the options proposed by Yukon Energy is to “hold the water high” in Marsh Lake. Rate you strongly oppose or support this option:

I strongly oppose it→ What are your concerns?

Reason Strongly Oppose
Risk to the intact comprehensive eco system, wetlands
Flooding & erosion in fall when winds are greatest.
It is not natural. Many species have adapted to, and rely on natural hydrologic regimes.
It also raises the water in Tagish Lake
My property floods already at the current allowable height
My house is on the shore of Marsh Lake. The lake is high enough and there are years when it is much too high.
Concern regarding shoreline erosion
Current ground water level already threatens my home.
Increased rate of erosion
Damage to shoreline thru erosion, and to nearby dwellings
soil saturation, property loss, our cabin may fall down or the foundations may continue to move as has been the case every time water levels have been high. Ground water precludes our reasonable access to the beach.
Prevailing winds in N. M'Clintock shores have already caused extensive erosion and cost long term residents a considerable amount of money and labour in efforts to preserve their property.
Communities are at risk
return of 2007
get off the pot, find alternatives, go elsewhere
Concerns are mitigation and year round lifestyle (boating and ice conditions), swans and whitefish.
Erosion of waterfront properties in the whole water system. Marsh Lake, Tagish Carcross
Erosion, not only that but washing away the bank and trees, destroy docks, (already washed away trees and soil)
A lot more study is needed.
We don't need higher water here.
It will raise water levels in Southern Lakes to unsafe levels.
Erosion of property, lake becomes shallower.
Too risky as too many unpredictable weather events will happen now as governments refuse to deal with negative effects of burning fossil fuels.
Erosion & Wildlife concerns.
YEC is being old school and refused to face need to change how it sources energy though I also recognize regulations need to be changed for YEC to change
only raise if sure it won't affect habitat of wildlife and not sure this has been adequately assessed
My concerns centre around the erosion caused by the combination of higher water & wind & the effect this would have on aquatic life, wildlife, wetlands and ecosystems in general.
not good
flooding destroying animal habitat
Mitigation and life style
net gain not worth the risk
Shut the door and forget about it

Reason Strongly Oppose
Risk and damage
Sacred headwaters that should not be touched.
Damage land, erosion, fish habitat, damage property waterfront, costly, septic, Ducks geese are losing their eggs nests, confuse where to build nest. fur habitat, less fish/minnows.
Climate change in general. Water regimes and wind regimes may be more unpredictable in the future and I see increased erosion as a huge concern. While I first felt that raised water levels would be a good source of green energy, now I feel that efforts would be better spent on other smaller sites
flooding of critical habitat areas, exposure of critical habitats
Unknown changes to lake ecosystem – extensive damage caused by attempts to mitigate. – effects on marine life unknown. – too great a risk to “experiment”-experts not sure. – damage caused by high water ice.- Wind and high water in fall will cause increase in erosion even if mitigated. –Will ongoing mitigation be a YEC responsibility. YEC not concerned about lake effects in BC (Taku Arm etc)
Huge ecosystem, destruction of shoreline, spawning areas, river mouths, plant growth – under water – feeds Swans and provides for other creatures (beavers, muskrats etc.) Loss of land, shoreline due to erosion, pollution in Bennett from White Pass rail bed, creosote etc. Starvation of Swans in Tagish River in Spring

One of the options proposed by Yukon Energy is to “hold the water high” in Marsh Lake. Rate you strongly oppose or support this option:

I somewhat oppose it → What are your concerns?

Reason Somewhat Oppose
Firstly, the statement above should refer to Marsh, Tagish, Nares and Bennett Lakes. My main concern is the fact that this concept will increase the erosion of the bank in front of my property
because I have seen the damage done on Lake Bennett with higher levels
More shoreline is lost with every high wind storm we have, raising levels will only increase this loss of shoreline.
erosion
property damage, environmental concerns
flooding & erosion
erosion of my bank and land saturation
Property Damage
flooding for residents
Access to my property could be affected. Environmental impact.
don't believe they can control or properly mitigate
if they can prove they can control it
Erosion
concerns include ecosystem

One of the options proposed by Yukon Energy is to “hold the water high” in Marsh Lake. Rate you strongly oppose or support this option:

Neither support or oppose→ What are your concerns?

Reason Neither Support Oppose
Depends on results of data re: support or oppose
Don't know what the higher levels will do to birds and fish.
Unknown Concerns
Too many unknowns yet. doesn't affect me much

One of the options proposed by Yukon Energy is to “hold the water high” in Marsh Lake. Rate you strongly oppose or support this option:

I somewhat support it. Why do you support it?

Reason Somewhat Support
the water level is below the current high water levels
Better than Ing
It's required
Depending on the height of water.
I really like electricity
reasonable usage
We do need more power subject to proper mitigate it
We need power
Believe natural erosion is going to increase so this would be a way to mitigate it. Without adequate mitigation I would not support it.
Subject to appropriate mitigation.

One of the options proposed by Yukon Energy is to “hold the water high” in Marsh Lake. Rate you strongly oppose or support this option:

I strongly support it. Why do you support it?

Reason Strongly Support
The elevation that water is 'held' is lower than the actual ordinary high water mark.
the option is to support fracking and oil and gas dev. in the territory
Low impact way to generate lots of clean energy - responsible thing to do.
Prefers electricity from water than from fossil fuels. Why don't they update technology eg better turbines.

7. Please check each of the following areas where you are concerned, due to changing water levels.

		Total Input	Survey Type	
		Non random sample	Opened to anyone	Southern Lakes Residents only
		A	B	C
Base		87 100%	21 100%	66 100%
Erosion		68 78%	14 67% **	54 82%
Groundwater		63 72%	11 52% **	52 79%
Septic		59 68%	10 48% **	49 74%
Hydrology		58 67%	9 43% **	49 74%
Wildlife		53 61%	11 52% **	42 64%
Wetlands		48 55%	13 62% **	35 53%
Aquatic		42 48%	7 33% **	35 53%
IceConditions		39 45%	7 33% **	32 48%
Mitigation		34 39%	4 19% **	30 45%
ClimateChange		30 34%	5 24% **	25 38%
Lifestyle		31 36%	2 10% **	29 44%
TraditionalUse		31 36%	3 14% **	28 42%
PublicUse		28 32%	2 10% **	26 39%
CommercialUse		15 17%	- - **	15 23%
NONE		5 6%	3 14% **	2 3%

8. Do you have any other areas of concern?

		Total Input	Survey Type	
		Non random sample	Opened to anyone	Southern Lakes Residents only
		A	B	C
	Base	85 100%	20 100%	65 100%
	Yes	42 49%	7 35% **	35 54%
	No	43 51%	13 65% **	30 46%

Do you have any other areas of concern?

☐ Yes - Explain _____

Any Other Areas Concern Text
Sedimentary load at the Lewes control structure and swamping due to reduced reservoir capacity.
A change in the regulated levels will an alternative "natural boundary" in cases where property is bounded by the lake OHWM. This is significant for the settlement lands, and will impact some private properties along Army Beach.
Travel conditions on the Tagish River
Yukon Power wants to cause damage to one area solely for their own financial gain
ongoing development of residences on what are technically sandbars and flood zones but have high dollar values
Roadways surrounding my property are too high, they trap spring melt onto my property.
Use of large rocks (riprap) and other methods to control erosion causes as much damage to the shoreline as erosion does
Freeze up condition and permafrost
Property values
Our cost \$8000 so far, what's next with more erosion?
Property Values
Groundwater locked behind property creating swamp in spring
Lost faith in YEC - using energy solution based approach only.
How many license change increases have been approved? What was the license level in 1956
structural damage to my residence
Litigation from First Nations and Conservation Groups. Post experience shows there are always problems.
Animals will move or die, otters, muskrats
Drinking Wells, Water Wells
Railway grade on Lake Bennett
Around Carcross
What happens when we have heavy wet summers again?
Hydro companies need to demand reduction of usage rather than mindless continued expansion.
Damage to Property & Compensation
Will the higher water affect the swan feeding during fall / spring migration

Any Other Areas Concern Text
I think we need to look at the bigger picture and realize that entire ecosystems will suffer from these proposed changes.
fish
water
continued development on flood plain areas
Are you listening to the people living out here?
What will happen if high water levels occur naturally/affect
Concern for waterfowl and how changing water levels could affect them.
Cultural
Mitigation and we need to study specific property by property mitigation.
HIGH RISK water (dirty, pollution, less clean)
Trucks and fossil fuel use
private property
A general concern that the potential risk greatly outweighs the benefits
There is a lack of information as to how this project fits in with Yukon Energy medium - long term plan. For example YE states this will save \$\$ by offsetting diesel. But we also heard the same in spades with respect to LNG , This SPIN is not appreciated
Lack of baseline data
Need conservation programs for power. Need YTG & YE to work together to reduce demand for power. Conserve and not always demand more & more. This is one of the largest intact fresh watersheds left in North America. Do not destroy further with damage.

9. Which of the following do you feel might be put at risk if the water level is higher?

		Total Input	Survey Type	
		Non random sample	Opened to anyone	Southern Lakes Residents only
		A	B	C
	Base	89 100%	22 100%	67 100%
	The trees/plants in/near the lake	70 79%	15 68% **	55 82%
	The fish/wildlife in/near the lake	63 71%	12 55% **	51 76%
	My personal property	48 54%	10 45% **	38 57%
	My neighbours property	56 63%	8 36% **	48 72%
	My neighbours safety	24 27%	1 5% **	23 34%
	My personal safety	17 19%	2 9% **	15 22%
	None of these	11 12%	6 27% **	5 7%

10. Are there any other risks you perceive?

		Total Input	Survey Type	
		Non random sample	Opened to anyone	Southern Lakes Residents only
		A	B	C
	Base	79 100%	18 100%	61 100%
	Yes	37 47%	6 33% **	31 51%
	No	42 53%	12 67% **	30 49%

Are there any other risks you perceive?

Yes - Explain

Any Other Risks Text
Integrity of an intact eco system
the water table may change impacting some septic systems
increased sedimentation, bridges, culverts, infrastruaction, uncertainties, streams, water quality
recreational use of the beaches will be affected
increased risk of flooding
That those properties that were permitted to build on flood/high water zones will be after public money to rebuild and upgrade.
Probably more risks than I care to think about
property
unintended consequences, divisiveness within community, YTG & YEC roles, property owners left out to dry after further negative effects, lack of leadership, communication and the uncertainty
Property, trees, wetlands behind dying
see above
Our neighbour fell through a crack in the ice caused when levels dropped
Highways impacted by ground water. Losing aboriginal and current heritage sites.
more mosquitoes with we areas, flooding
Not for me but for friends who have bad flooding. Costs more each month to get septic pumped out. A lot of garbage will go in the river. Backflow of river water.
Flooding
White Pass Rail Line washes out again.
One cannot mitigate for unknown conditions that are starting to negatively affect our planet elsewhere & soon very likely that we may experience.
degradation of riparian habitat; swans and feeding habitat
large ecosystems are at risk

Any Other Risks Text
road closure
Existing structures/culverts /bridges
west wind
Continued erosion at extreme would affect my house.
I gather food so it all depends on what I can eat.
Existing structures, buildings and culverts.
High Risk water, - pollution, dirty, less clean
Make sure look after spawning areas for fish eg Brook Trout Sanctuary; Manitoba/Quebec experience with huge dams is important as comparison eg lead levels etc in fish
Deteriorating relationship between YG and First Nations
while I didn't mention personal safety above, I suppose that ice levels dropping could affect
Changes in water levels may not just be limited to Marsh, Tagish, Bennett --there could be changes in other water bodies sharing same aquifer. Storm surges will make high water situations more perilous.
Not enough known about effects, long term effects on aquatic life, wetlands, not worth the risk. No long term baseline data, no good monitoring system. Too late once everything is destroyed or killed off.

11. Can you please explain specifically the risks you perceive?

(IF ANY RISKS ARE CHECKED). Can you please explain specifically the risks you perceive?

Perceive Risk Text
Water level changes could affect erosion of lands that people now own and are valuable property. The Southern Lakes have been a managed water system for decades.
Flood caused erosion, swamping, shoreline vegetation, nesting and breeding grounds, melting permafrost, highway culvert realignment, spawning creeks and tributary damage, increased methane and carbon dioxide emissions, plus the ever increasing knowledge of additional ripple effect damage.
wildlife habitat damage, water quality, erosion, sedimentation build up, flooding wetlands
Other than effects on current shore/wetland use by veg, fish & wildlife, a major concern is ground water level changes
Higher water levels affects the beach front and trails along the beaches.
Already stated.
There are no risks to perceive, the proposed water levels are LOWER than the ordinary high water mark (and seasonally high water levels).
My front yard is very susceptible to erosion, even in regular water level years. I don't want to lose my property, and I don't see any gov. efforts to prevent continuous erosion in my area. Everything that has been done has been done at my expense.
Presently the current groundwater level is already within 15-20 inches of my house and garage foundations. I'd would show this to anyone who would care to see.
no, because I don't know what can happen.
Everything you do to mitigate/manage effects something else
The sand shoreline is very sensitive to high water. In the short term damage to shoreline and homes. In long term major loss of the entire beach area.
Lost property & vegetation; risk of damage to structures if not abated.
Property and wetlands damage
see above
Risks and values are much greater than benefits of concept proposed
Flooding, erosion, lifestyle
Risks as noted
see above
Public Safety Risk
same as above
Question Below "Not at all" NO WHO ARE THEY TRYING TO KID?
Erosion, Flooding
Depending on the Water Level
Roads eroding
High Water Level
High water causes erosion which cannot be controlled.
The higher water will freeze in November for the whole winter. We may be vulnerable if we have extremely high

Perceive Risk Text
water levels combined with freak storms from the North.
Bad for wildlife. Please leave things as they are.
Road is close to the lake
Safety in winter due to overflow and draw down
Property loss happening now!! They have to prove mitigation will work. What happens if it doesn't
We gone over it may times and said NO!! We have water pooling in our yard when it rains now. Army Beach was at least twice as big 50 yrs ago.
Don't have any personally. I am far enough back
The main control structure may need some work
Habitat damage caused by flooding and erosion
Cannot evaluate project without evaluating mitigation. Want to see the range of mitigation measures. Feel owners should have input into design.
Things should stay as they are and we need to determine alternate ways (energy).
Mitigation being handled properly with full concerns of property owners.
fish habitat, fur habitat, land damage property damage, water damage, septic damage....Duck geese are losing their eggs, nest, confused where to build nest.
YEC has to prove with certain
Relations to First Nations (ie. CTFN) who has not been adequately consulted on this proposal
Effects on groundwater levels & how this will affect water bodies (ponds, lakes, streams) in close proximity to the impounded areas.
Not enough known about effects, long term effects on aquatic life, wetlands, not worth the risk. No long term baseline data, no good monitoring system. Too late once everything is destroyed or killed off.

12. Do you think the risks can be mitigated/reduced/managed:

		Total Input	Survey Type	
		Non random sample	Opened to anyone	Southern Lakes Residents only
		A	B	C
	Base	89 100%	20 100%	69 100%
	Not at all	15 17%	5 25% **	10 14%
	A few of them	32 36%	7 35% **	25 36%
	Some of them	19 21%	2 10% **	17 25%
	Most of them	15 17%	3 15% **	12 17%
	All of them	8 9%	3 15% **	5 7%

13. Have you or anyone you know been personally impacted by changes - when the upper control structure was first built in early 1900's?

		Total Input	Survey Type	
		Non random sample	Opened to anyone	Southern Lakes Residents only
		A	B	C
	Base	85 100%	20 100%	65 100%
	Yes	23 27%	4 20% **	19 29%
	No	62 73%	16 80% **	46 71%

Have you or anyone you know been personally impacted by changes:

a. when the upper control structure was first built in early 1900's? Yes Explain

Built1900ImpactText
I have heard about changes that this made to the lakes particularly around Carcross
Disappearance of wildlife critical to culture and sustainability.
traditional territory and cultural and heritage sites
Muskrat trappers

Built1900ImpactText
Flooding
My husband built our cabin 1955. Since then we have lost over 100 ft. of shoreline
loss of aboriginal rights, impact on hunting and trapping.
Oil, Stuff from White Pass went in the river & killed fish, destroyed drinking water.
Flooding in the past
High water coming in some of the houses in Carcross
I live along Nares River in Carcross and dealt with the flood of 2007
first nations locally
first nations
Look at Army Beach now! Half as big
my ancestors
1/2 of what was Army Beach is gone from early 50's
Impacts have not been summarized enough to really know.
Known FN elders have described the loss of salmon and all muskrats on lake system. Loss of "Gathering Places"
Elders have described loss of muskrats, land flooded, First Nations affected.

14. Have you or anyone you know been personally impacted by changes -when the dam was build in 1958?

		Total Input	Survey Type	
		Non random sample	Opened to anyone	Southern Lakes Residents only
		A	B	C
	Base	81 100%	20 100%	61 100%
	Yes	34 42%	5 25% **	29 48%
	No	47 58%	15 75% **	32 52%

b. When the dam was build in 1958? Yes - Explain

Changes 1958 Text
I think it created Schwatka.
Ctfn kdfn
wildlife depletion and habitat damage
First Nations have spoken of the impact.
Salmon fishermen.
Flooding
Flooding and erosion of near shore area.
As above, we are the longest residents of N. M'Clintock except for Johnnie Joe

Changes 1958 Text
Neighbours have lived here since 1955.
Family Clans First Nations and Early Pioneers, loss of salmon & traditional areas.
land eroded, animals die off (drown, freeze)
Fish, Salmon areas destroyed.
Flood 2007
Again Carcross People Removed
I can remember 3 floods at the north end of Marsh Lake since 1958. People should not build on flood plains.
wildlife species such as salmon and otter adversely affected/ thus also first nations locally
first nations
Wiped out the spawning salmon in M'clintock river
Remember Army Beach with road out front and trees on south side
NO salmon in M'Clintock
Hunting and fishing
I have heard stories from long time residents.
my ancestors
army beach
Those that used fish camps @ mouth of McClintock River.
increase in levels of erosion on lake shore
Salmon smoking camps at mouth of McClintock River destroyed. Wetlands Destroyed

15. Have you or anyone you know been personally impacted by changes - in recent years due to high water or wind events?

		Total Input	Survey Type	
		Non random sample	Opened to anyone	Southern Lakes Residents only
		A	B	C
	Base	91 100%	22 100%	69 100%
	Yes	81 89%	17 77% **	64 93%
	No	10 11%	5 23% **	5 7%

c. In recent years due to high water or wind events? Yes - ☐ Explain

Changes Water Wind Text
The summer flood of 2007 impacted properties around Marsh Lake
Our shoreline willow berm almost eliminated, shoreline now ever greater losses, mature spruce have died and fallen or stand black from flooding.
high water during wind events significantly increase the erosion long the silty banks on Tagish Lake, including areas in front of private land.
shoreline vegetation dead, erosion
Flooding at marsh lake a few times. Flooding near Tagish.
Flooding of property on Marsh Lake.
Lose of property and flooding
We lost a house to the 2007 flood. Having rebuilt with a huge new mortgage, we do not wish to lose anger one.
2007 flood
house flooded in 2008
being allowed to build on flood zones and sand bars
The flood that occurred peaked right at my property level, killed half of my trees.
Summer flooding and wind erosion - in summer time natural flooding - not fall time.
Flooding of property, septic, loss of docks etc
property damage at Marsh Lake
As Above
Damage to shoreline and homes. At Marsh Lake, septic system flooding and contamination.
erosion, lost vegetation
High water saturates the soil on our property at Tagish causing the Foundations of our cabin to move.
high water flooding low areas and property
We have raised our sauna, move it back, deck required constant change and have been raised 5-6 ft
Tagish & Carcross flood
Yes, dam has created problems, causing ice problems
flooding since 2007

Changes Water Wind Text
Built moat 2007, sandbags, pumping 24/7, garage flooded
historic tree stumps are huge indication no flooding, now shoreline trees are dying
all my neighbours have completed some mitigation for risk reduction
bank erosion, more damage due to land saturation
Flood in 2007 and wind damage annually.
Erosion of traditional territory changes in ice patterns and loss of salmon and traditional gathering areas.
Neighbour flooded out completely, our house had to be lifted, gravity pad put down.
Friends flooded, Bank erodes
Flooding, Erosion
Flooding
Flooding
Tree blown over in my front yard
Road access was limited
House in Carcross Flooded
On the river side
High water in 2007 prevented residents from using one of the best beaches in Yukon
Yukon Energy Redoing the Road Grade last year along Nares River?
Erosion (Shore)
Damage to shoreline on California Beach
Flood of 2007 but I believe the flood was not caused by man made changes. Shoreline erosion has occurred.
shoreline property owners
army beach & old constabulary residents
Eroded shoreline resulting from high water and high winds.
lot holders who built on flood areas
washouts, road, basements
Extensively in 2007 flood
2007 flood dilemma
Erosion/property loss/ septic problems
2007 flood
Lost cabin completely. Had to rebuild on stilts
Lots of trees dying due to high water levels still after flood
Shoreline vegetation including trees
Erosion on mine and 4 neighbouring properties.
Lost cabin in 2007 flood.
Property damage, erosion, less and less minnows, change of landscape and swamp and piss me off more than before.
When property flooded various years
flooding
1/2 dozen all around
2007
Folks at S. McIntock and Army Beach effected by flooding
I think both 1900s and 1958 structures have resulted in increased erosion over the years, impacting numerous

Changes Water Wind Text
residents that I know
Flooding
flooding at Judas Creek & Army Beach residential properties
loss of property, loss of beach sand, loss of boats
Lots of property damaged – many, many, areas around lakes and rivers. Swans starve to death when water raised and freezes higher

16. How would you say those changes have affected the Southern Lakes area?

		Total Input	Survey Type	
		Non random sample	Opened to anyone	Southern Lakes Residents only
		A	B	C
	Base	88 100%	19 100%	69 100%
	Very Negative impacts	37 42%	5 26% **	32 46%
	Somewhat Negative	35 40%	8 42% **	27 39%
	Neither Negative or Positive	15 17%	5 26% **	10 14%
	Somewhat Positive	- -	- - **	- -
	Very Positive impacts	1 1%	1 5% **	- -

17. Have you personally invested to protect your property, others property, habitats or the environment?

		Total Input	Survey Type	
		Non random sample	Opened to anyone	Southern Lakes Residents only
		A	B	C
	Base	89 100%	22 100%	67 100%
	I have spent a great deal of money	20 22%	3 14% **	17 25%
	I have spent some money	15 17%	3 14% **	12 18%
	I have spent time	30 34%	5 23% **	25 37%
	None of these	24 27%	11 50% **	13 19%

(IF any) Did this include work on your own property?

		Total Input	Survey Type	
		Non random sample	Opened to anyone	Southern Lakes Residents only
		A	B	C
	Base	91 100%	22 100%	69 100%
	Yes	49 54%	8 36% **	41 59%
	No	42 46%	14 64% **	28 41%

(IF any) Did this include work on your own property? Yes - Explain

Work On Own Property Text
Construction of rock berm
I constructed an erosion control structure along the bank in front of my property - took several years of manual work and some money
development of a rock barrier
New house. Rock on shoreline at personal expense.
put some rocks on my shore line

Work On Own Property Text
Install pump system to empty basement sump, repair foundation, replace destroyed electronics
I annually pump groundwater melt off into 45 gallon drums and haul away.
Sand Bagging
Above question - I checked both 'I have spent money and I have spent time' it won't register two clicks. Work includes cleanup work & some efforts to reduce erosion. - Significantly more work / investment required.
Leveling the foundations of our cabin several times in response to high water levels, clearing trees that have fallen due to high water levels. Cleaning extensive debris from beach at Tagish during high water levels
retaining the bank from erosion
Dock repair, filling shoreline with rock, raising and relocating sauna.
YES
No choice
Mitigation to get water under control to this point.
yes
Bio stabilization staking willows protection against further erosion from high water, winds and waves.
Great deal of money and time on a bioengineering project.
I have spent a great deal of time and money. Had to lift house, pump property, Had to move to a trailer for a few months.
Sand Bagged top of walk near river
Rip Rap
Protected the bank with major rocks/boulders
Clean up of branches etc.
Sand Bagging
Others
Most of the Neighbors along Nares River and lake. Build Dikes around several homes.
MY PUMPHOUSE FLOODED AND I HAD TO MOVE THE PUMP
protective log wall
Rip Rap
Major bank reclamation project
Backfill
shore line rebuilding
Rebuild dwelling
Rock break wall
I have hand placed rip rap and protected trees from beavers.
I have spent some money and time.
Lots of sandbags, rock, try to save land and erosion, not time for fun, fishing, -- always working!! Always checking water level, worry there're less minnow (small fish) now than before. More trees falling off.
filled and humped sandbags
I have spent time: Filling sandbags; not own property
n high water years we have had to clear debris & shovel back ridges
sandbagging to protect lake frontage
Sand bagged and helped neighbour fill bags, replaced docks and water lines. Helped a lady find a new house when hers was destroyed by flood. Support neighbours, Seniors, stressed by thoughts of YE raising water every year.

Please explain what you have done to protect your property, others property, habitats or the environment.

What Done To Protect Property Text
Sand bagged, built rock berm
Explained above building an erosion control structure. One concern is that my neighbours are doing nothing which will eventually impact the bank in front of my property
rock barrier to uprush
Helped sandbagging.
AS stated previously
As Stated.
Fire smart paid personally, erosion prevention work, as approved by environment (rock on shoreline and around dock)
bioengineering project on 4 properties for property, habitats, and the environment.
Pumps, sandbag, loads of earth, lifted house, had to have cement floor put down. Have no septic system now. Pay for pump out frequently -- expensive.
Redid the dock, made it higher 11 years ago. Quite a few docks washed down the river.
Rip Rap Erosion Protection
Sand Bagging
Sand Bagged, Pumped
Built breakwater to reduce erosion of banks.
Live staking and gabien baskets
Backfill
Increased height of berm
Shoreline rock barrier
Want mitigation
I have spent a great deal of money and time, worry, problem sleep from WORRY!
More help with flood response

18. Do you foresee or plan on any costs in the future that you will do to protect your property, others property, habitats or the environment?

		Total Input	Survey Type	
		Non random sample	Opened to anyone	Southern Lakes Residents only
		A	B	C
	Base	81 100%	19 100%	62 100%
	Yes	45 56%	9 47% **	36 58%
	No	36 44%	10 53% **	26 42%

Do you foresee or plan on any costs in the future that you will do to protect your property, others property, habitats or the environment? Yes -☑ Explain

Explain Costs In Future Text
Blast rock support to shoreline erosion
Further erosion control work
additional shoreline protection
Sandbags for my cabin property. Provide box habitat for birds to breed.
change in climate and ground water flows and perm frost melting affecting non water front structures as well
SELL!!! To Yukon Energy if they go ahead and raise the water level.
Erosion control works
If higher water levels are allowed in the Fall, then armouring of ALL of Tagish Beach will be required, particularly near the 'point' at the start of the river.r.
Depending on soil saturation, our cabin's foundations may fail, the beach may become submerged. We could lose the beach entirely.
High water may cause flooding in the future and the need to control it
Our property has been sole owned for 60 years. I want my children and their children to continue enjoying their heritage.
Overdue
major changes are required to protect shorelines
Can't wait for YEC & YTG. Contracting work to be done.
more bank reclamation
raise by backfill foundation
It will affect us if YEC raises the water. The cement pad has cracks now. Can't have a garden, too wet.
Protect bank, grew trees down by water
more rock, large
Don't know
Yes, if you raise it, it will Flood!
Additional work will be needed to reduce erosion.
Shoreline berm but all adjacent properties need to do the same.
More live staking and gabions
Backfill
septic
want mitigation to cover it
If it get higher than 1ft then I will have a problem
Shoreline
Planning significant rip rap protection.
Backfill
shore erosion protection
Septic system if we have more high water. Ground saturates much quicker, water always accumulating
Likely at a minimum filling more sandbags, possibly helping neighbours fortify their lakeshore properties
continue same but with greater frequency

Explain Costs In Future Text
Depends if this concept becomes reality.
If needed. Should fight against Y.E. doing this every year

19. Do you think that alternate energy options are needed to either supplement or change the planned concept?

		Total Input	Survey Type	
		Non random sample	Opened to anyone	Southern Lakes Residents only
		A	B	C
	Base	78 100%	19 100%	59 100%
	Nothing is needed	7 9%	5 26% **	2 3%
	Minor changes are needed	19 24%	2 11% **	17 29%
	Major changes are needed	52 67%	12 63% **	40 68%

Do you think that alternate energy options are needed to either supplement or change the planned concept?

Minor changes are needed ☐ Explain

Minor Changes Needed Text
More re-newables would be great.
Minor use of Fossil fuels; Wind and Solar
offer incentives re: alternate energy options
We need a plan from YEC
effective dialogue
look at option, reduce community anxiety
explore all options
Try wind and solar
keep water level the same
Need no longer there as mining and litigation have stopped need for more power
Not sure what to do
Demand is no longer great as mining has been low so don't need any immediate need once LNG plant is completed. Should supplement with alternates.

Do you think that alternate energy options are needed to either supplement or change the planned concept?

Major changes are needed ☑ Explain

Major Changes Needed Text
Research adaptable best available energy options to rural small population communities
Alternative energy sources will always be needed to supplement the planned concept
small populations need leading edge technology in energy alternatives within rural communities
Since groundwater impacts cannot be mitigated, find other power production option
we need to explore wind and other alternatives
Wind turbines.
alternate energy, solar, wind, etc.
Yukon Energy knows what the other options are better I. My favorite would be to hook into BC grid.
Efficiencies in existing infrastructure.
not sure
Individuals putting wind, solar on own properties not relying on big utilities to do large projects. Micro-hydro
Dam systems (such as the Whrse. Dam) are VERY problematic particularly near developed areas. Should consider alternate sources such as wind, geo-thermal, solar, in-channel generators, etc.
Territory is out of power, viable options must be explored
micro hydro
wind, solar
would have to be major to change the plan
reduce use supplement b u grid
Rather than mess around with the water level use other energy options
Program to reduce consumption. Use wind, solar.
Alternate ways to produce power must be brought in. Reduce waste of power.
go to green power : water / wind / solar
Public education to lower demand on electrical use.
Solar and wind power have not been fully explored.
Wind Solar small hydro NOT MORE FOSSIL FUEL ENERGY GENERATION
Change in attitude re wind, solar generating other hydro projects.
More hydro development.
see question 6: regulations governing YEC need to be changed so it can be managed in ways that reflect the need to prioritize renewable energy and reducing environmental footprint
I actually think that Yukon Energy should conduct a major campaign to promote conservation to help reduce the need for hydro energy.
alternate sources to generator use
Would have to be major to change plan
Have to get FN on board
bigger Hydro no enough power here
Ask experts
Wind, mini hydro, solar and other alternate options to take us off the grid and reduce power outages. We need

Major Changes Needed Text
community programs to do this.
Need to start having more option eg bulbs.
Have to set First Nations on board
We've known for years that Mt Sumanik would make a great place for a wind farm, possibly also Ferry Hill. Let's start with Sumanik
this project has the potential to negatively impact a huge area due to size of the water basin
a whole shift away from this concept to other renewable energy
Small scale, green energy, micro-systems. Conservation, Education, Reward Program.

20. Do you think there is anything the residents need or should do to support alternate energy options?

		Total Input	Survey Type	
		Non random sample	Opened to anyone	Southern Lakes Residents only
		A	B	C
	Base	74 100%	17 100%	57 100%
	Yes	59 80%	12 71% **	47 82%
	No	15 20%	5 29% **	10 18%

Do you think there is anything the residents need or should do to support alternate energy options?

Yes - Explain

Explain Residents Alt Energy Text
Support in selecting viable alternative energy options for small demand communities.
WE need to support any energy project that is sustainable and has an environmental impact that can be tolerated. WE need to accept the fact that nothing is perfect so something has to give.
education, funding
Support groups calling for energy production options
public education about alternatives; public protests
invest in solar panels or photo-vonatics, and water turbines for rivers, streams, or small wind turbines.
Support clean HYDRO projects.
With financial support we could try solar and wind options.
move away from the low water areas
See previous comment. Press the government to put in incentives and look for alternatives. Put in their own when they can.
Add'l research needed to make these sources more viable, such as electrical storage.
Interested user groups need to be funded to explore all options
Help in preventing erosion, environmentally suitable rock is very expensive.

Explain Residents Alt Energy Text
Overdue
Dialogue with affected parties
energy reduction, micro hydro dams, 2-mile river Atlin & Tagish
education and research
reduce use & consumption, more efficient use of power
Use sustainable methods such as wind and solar
Should try to get a government that will shift to sustainable, green, power
Rebates
Vote responsibly for Greener Energy. Personally reduce power use.
Financial incentives for seniors to switch to solar / wind power. Meetings about viable options.
Cut back on power use & perhaps personally invest in other power sources.
Fight Yukon Energy About This!
Full -- expert driven support for WIND, SOLAR & small hydro generation.
reduce demand
Find out realistic way to get YEC to change its culture
Become better educated in options
Lobby our government to promote research & development into less invasive renewable energy & lobby our government to promote conservation of energy.
don't build on water's edge
education
advocate for development
failure of hydro availability
Education and research
Become less reliant on the grid
Let MLA know
Not sure what though
Reduce energy needs or supplement
Residents should explore wind to power community and sell power back to the grid.
Community campus, funding, education, curriculum and programs.
Let MLA know.
Wind, build new Hydro dam, throw out the L.N.G., use diesel generator for back up.
Reduce cost of power as much as possible.
reduce reliance on it
Do it
If there is some kind of alternate energy options, these options should be very cleared laid out to all residents of the southern lakes, and should proceed only with a consensus from the majority
Geo-Thermo
Make their voices heard in surveys like this
energy conservation, variable rates/day, solar, wind, -- need some visible community demonstration projects where entire communities are on green energy (no fossil fuel)
elect a new government
VOTE FOR A PARTY WHO WILL SUPPORT REDUCTION, CONSERVATION, AND GREEN ENERGY. Protest against uncontrolled use and development of endless, cheap, power

21. Looking ahead, how would you most like to see the Yukon's energy needs being met?

		Total Input	Survey Type	
		Non random sample	Opened to anyone	Southern Lakes Residents only
		A	B	C
	Base	86 100%	21 100%	65 100%
	Wind	59 69%	16 76% **	43 66%
	Hydro	57 66%	14 67% **	43 66%
	Solar	55 64%	12 57% **	43 66%
	Other	28 33%	4 19% **	24 37%
	Natural Gas (LP)	19 22%	6 29% **	13 20%
	Diesel	7 8%	2 10% **	5 8%

22. Is there anything you would like to see planned now that would help in the future?

		Total Input	Survey Type	
		Non random sample	Opened to anyone	Southern Lakes Residents only
		A	B	C
	Base	77 100%	19 100%	58 100%
	Yes	59 77%	15 79% **	44 76%
	No	18 23%	4 21% **	14 24%

Is there anything you would like to see planned now that would help in the future? Yes

Explain Future Help Text
Immediate planning for alternate energy options
Need to look at run of river hydro projects and possibly partnering with First Nations
micro hydro local generation throughout Yukon
Smart grid with home heat storage and timed electricity use.

Explain Future Help Text
The government investing in all sorts of renewable energy such as geo-thermal, solar and wind energy.
Keep water levels low
Enhanced storage in Marsh Lake and the Southern Lakes.
Integration with BC. If Washington state can do it, we can do it.
dams
Stop the LNG conversion and subsequent fracking development that is driving the changes in energy production.
Ration power consumption to curtail the excessive life-styles of urbanites infesting the river valleys
Again, increase the efficiency of existing infrastructure.
More hydro dams
Atlin storage
Reducing our requirements for energy by retrofitting buildings
new hydro development and more investment in wind power
Expansion of high efficiency generators, solar and wind options.
Again, additional research into some of the above sources. If only 10% of the investment currently placed into research on sucking out the last remnants of oil in the ground, we'd have these problems solved.
Discussions with government on options to protect property & vegetation without infringing on current legislative requirement / limitations.
Power purchase from Skagway
STOP changing water levels, clean up consultation process, start being honest from the get go.
Consult with J.P. Pinard
Need a viable plan for future success
Alternatives
Mitigation with 'best practices' discussion, YTG experts working directly with residents NOW on effective OPTIONS
Long term stability of system and energy
Alternatives, build on every solution suitable to rural needs and local resources.
forgivable loans, grants
More research and development on alternate energy because this is a band aid fix in a highly populated area.
all options including small nuclear plants, run of river & micro hydro
Skagway - Buy power for us in the winter; sell it to them in the summer. Work out an agreement.
Program to reduce power consumption initiated.
Thermal Energy, Conservation, wind, other forms of power
More presentations on a homeowner's do-it-yourself installation of solar/wind/water options.
micro dams
Wind Turbine in Southern Lakes
Get rid of LNG, do run of river, and other alternative sources of energy
carefully administered studies that are fully reported, comprehensive; change to incentives for YEC and other potential energy producers that may come on board in the future
We need to envision a fossil free energy world & thus investment & research needs to be done to come up with new renewable sources of energy of the least invasive.
barricade around low lying properties
get rid of Pasloski and Yukon Party; facilitate commonsense resource and power development
underground wires

Explain Future Help Text
explore nuclear concepts
Nuclear research
Satisfy the demand as cost effectively as possible
Big Hydro as long term option.
Coordinated effort to get communities on board
Utilize small hydrokinetic units. Long term macrohydro and other options for short term.
Education and we need to make the rubber hit the ground.
Long term hydro is the best option. Thermal storage is another option.
Some road in Whitehorse, like Hamilton street, HWY, 2 mile Hill, should cut down lights to 50% during late night to save more energy use.
Small to medium hydro projects that have less effect on watersheds.
Update the energy plan & give the real goods on economics -- need to revisit the big picture again since we don't know now how this project fits with other initiatives such as LNG, the next major hydro plant, renewable plans for wind etc.
A shift away from the use of fossil fuels to reduce effects on climate change
Education, Rewards instituted NOW!! (Yesterday!)

23. Do you have any additional comments to add?

Do you have any additional comments to add?

Any Comments To Add
We have to say no to any alterations to our Southern Lakes eco system and watershed. NO. The community has no confidence in YEC from recent energy planning failures technically and fiscally. The southern lakes has far too great an impact on the Yukon to overlook any potential risks or damage caused by short term needs for power. NO. To best guesses and incomplete studies. Leave the system to Mother Nature..Come hell or high water.
Although I would not like to see the concept go ahead, I think we need to sacrifice some things in order to provide energy sources to support our way of life. IF YEC provided adequate erosion control mitigation and other mitigation measures where needed (e.g. septic systems, compensation for lost land), I would reluctantly support the project. I think the First Nations will be the big players in saying whether this project will proceed or not; have not heard much from their governments.
No to changes the storage level, YES to reducing high storage levels in the Fall with new innovative drainage options to alleviate flooding & erosion.
Thank you for doing this work. It is vital.
Yes. -- To the question "Do you think the risks can be mitigated/reduced/managed?" I answer "A few of them BUT would be VERY difficult and expensive."
The risks to us and our property are significantly concerning. These risks greatly outweigh the stated benefits of the plan. We may lose our property and the ability to enjoy our property for a minimal rise in power generation - why are the views of those who will be impacted by the plan not being properly considered by our Government? What reparations will be offered regarding the damage that will be caused to our property, and who will decide this?
We want the consultative process to be honest and believable. Personal safety - erosion undercuts the banks

Any Comments To Add
and walking anywhere near the lake is hazardous (M'Clintock) is precipitous. There is a win, maybe we can control the water to some extent. I do not understand the current draft where 'lakeside residential' is suggested in the land use plan.
Talk to JP Pinard
Problems are well known by YUB and YEC, Water Board next, very undecided, too many unknowns, need all options detailed and studied before proceeding
More consultation with our local residents, the property behind us is impacted, filled land, everything is dead, swamp. Major changes are required to protect shorelines and already impacted areas. We need something other than this concept.
We contacted Harvey Brooks, EMR with land holder problems in support of our neighbours initially with suggestions and were told it's the land owner's problem.
Our experience with YTG engineering: Mitigation Test Ditch pumping 24/7, no prior consideration to elevations in and outflow. This has been the best solution to date. Failed. We are not confident in YEC mitigation and we haven't received or seen any viable or acceptable options presented.
We need an independent study on all potential risks and damage resulting from the Concept. YEC control needs to be studied and all impacts associated with holding water higher and lower in spring. We need an assessment of resources available from within each community. Design energy system to meet the needs.
We will eventually have to have an efficient hydro project in Yukon to support future generations.
Do Not Do This
Move to use more wind, solar, green energy. Don't raise the water in the Southern Lakes.
Been here for over 40 years, seen a lot. Don't want this project to go ahead. Let's not spoil our last great environment -- our rivers and lakes, our grandchildren's future.
Incentives to Conserve. Any Alternative to Non Renewable energy.
Since I have lived in my lakefront property (1980) I have witnessed 20 - 35feet of shore erosion. Raising the level of the lake will only cause more erosion which must affect the depth of the lake as it fills up with shore erosion.
I don't understand why Yukon Energy did not access our energy needs years ago and meet the demand with another hydro project.
Same comment of needing to change old style centralized profit-maximizing corporate organization of YEC to being about lowering emissions, and making changes to reduce consumption , store energy, use technologies like ETS that require storage of capacity i.e. so how do we change our grid to store as this needs
When using hydro have existing developments only and possibly new micro-projects.
if it ain't broke, don't fix it
Another source of energy for Yukon future energy needs: Small newtech nuke power plant
Make sure YEC does due diligence and that affected property owners are compensated
Current erosion is a big concern because you cannot reverse the consequences.
By hydro I mean mini hydro projects not macro.
Make sure YEC does their due diligence and that affected property owners get their fair say.
Deb re-entered this survey because there were no comments on it.
Yes, I'm sorry to say but the best thing is to build a new Hydro Dam. I know during construction will damage more and less but after is done, everything will come green in many years, more people will get the job permanent in long run make sure you build a new dam. Far away from any town, do not sell any pieces of land to people where the dam and surrounding water level, trapper can use it to build cabin only to living trapline. No outfitter cause they build for money!! Unless they build only wall tent. The Hydro Dam is very better than the fucking L.N.G.! We don't need L.N.G.!! You need a meeting about build new Hydro Dam to explain us and our suggestions, idea to you guys!! I have some good ideas!! The native people have some good idea too!! The way

Any Comments To Add
they built the Hydro dam in Whitehorse is a really bad place, bad design, unsafe, too much damage, water, land, fish etc. etc.... VERY OLD Turbine!! Hard to shut down long term to fix up, upgrade, etc.....like I said, You need meeting about new Hydro dam!!! Thanks! Thanks! Machiso! Merci!, Gracias!
YEC wants to make \$ and sell power. Don't truck it in. YEC should mitigate; thinks they will try to raise it again in future as per Quebec- should do it once only. Why do they (YEC) only study things they want and skip what they don't. Fish species and their survival/safety need to be studied. Every time raise water say will do study and maybe don't, i.e. try to get away from chores that don't want to do. Talked to YEC one time and thinks it is bad to truck in fuel from outside, feels trucks are very big risk.
A sane policy on powering mines and other major industrial consumers. This policy should not compel the public to provide power, should encourage industrial consumers to invest in renewables for their operations (which could be then absorbed by the public) and to have a demand side management plan in place. There should be demand side management programs for residential and other commercial users too
Allow individual and/or group energy production efforts (solar/wind) to be tied to the grid so t hat excess production can be used territory-wide or at least on a local level. Provide incentives for individuals or groups to construct power projects! Grants and/or interest-free loans
How good is the ecological baseline so that if this project proceeds impacts can be monitored -- where are the critical habitats for fish and wildlife and have they been inventoried? - What risks do flooded areas pose - exposed permafrost areas, flooded forests, exposed cut banks, etc.? Wind / storms will exacerbate these. --what impacts will there be on access into streams for spring spawners such as grayling? Potential siltation in Fall (high water) -- impact fall spawners eg. lake trout. -- the dynamic range in water levels will have negative effects on shore - dwelling wildlife - nesting, over wintering habitat (eg. beaver, muskrat) critical staging / feeding areas (eg. swans) -- what is the impact monitoring plan??
This concept should NOT be implemented.
DO NOT MOVE AHEAD WITH THIS PLAN. Reduce, Conserve, Reward, Micro-hydro, -- Skagway Connection