# Whitehorse Power Centres

# Project Description

June 2025

yukon energy

the power of yukon

# 1 EXECUTIVE SUMMARY

Demand for electricity in the Yukon has increased at a rapid rate and shows no signs of slowing down. Currently, during the winter months, Yukon homes and businesses connected to the main grid (excluding mines) use about 80% of the electricity that is available at a single point in time. As an isolated electricity system that is not connected to another province or territory, this leaves the Yukon vulnerable to extreme weather conditions, emergencies, and droughts.

Yukon Energy is a publicly owned electrical utility and the main generator and transmitter of electricity in the Yukon. Today, it generates approximately 97% of the total electricity available on the grid. During the winter of 2024/2025, Yukon Energy rented nearly 40 megawatts (MW) of diesel power and located the 22 units in Whitehorse, Faro, and Mayo. Based on current forecasts, by 2035, Yukon Energy will need a further 60 MW of dependable winter capacity system wide to meet peak demands for the power system and to protect against emergencies. By 2040, an additional 20 MW system wide is expected to be needed.

Simply put, demands for electricity in the Yukon are increasing faster than firm sources of renewable electricity can be built. The Yukon's population is growing and, with it, the demand for electricity. As Yukoners continue to transition away from fossil fuels for heating and transportation, that demand will only rise.

In the next five years, Yukon Energy will focus on increasing the supply of dependable winter power to meet growing demands and build a stronger, more resilient power system. This work will meet the needs of Yukoners today and set the Yukon up for the next generation of community renewable energy projects. Most importantly, it will ensure that Yukon Energy can provide an adequate and dependable supply of electricity in the winter, and a robust transmission and distribution system to deliver that electricity to Yukoners.

Demand for power is expected to grow the fastest in the Yukon's major load centre – Whitehorse. As a result, Yukon Energy will be increasing thermal resources in the short term and adding critical pieces of infrastructure to our grid, primarily in and around Whitehorse, as Yukoners need dependable capacity now. Thermal resources are the fastest and most cost-effective solution to meet current needs, and Yukon Energy is firmly committed to providing Yukoners with electricity they can count on today to fuel their homes, businesses, hobbies, and interests. At the same time, Yukon Energy is championing renewables by reinvesting in existing hydro resources and strengthening the grid to support the next generation of community renewables.

Yukon Energy will build two new thermal power centres and one new substation in the Whitehorse area to meet electricity needs until 2040. A site for a potential third thermal power centre, to be used as contingency, will also be assessed. Collectively, these four sites and each of their respective transmission connections to the Yukon grid make up the scope of this project hereon in referred to as the "Whitehorse Power Centres" or "the Project".

The new Whitehorse Power Centres will serve three main purposes:

1. Increase the size of the Yukon's electricity system and provide additional sources of dependable capacity that Yukoners can rely on during the winter to keep homes warm and lights lit on the coldest of days, in drought years, and when intermittent renewable resources are not available.
2. Reduce Yukon Energy's reliance on rental diesels. Renting diesel units each winter, while cost-effective over a short period of time, comes with risks such as limited supply chain, lower reliability, and reliance on an external contractor for maintenance. The capacity installed at these new power centres will account for the capacity that rental diesels provide us each winter, plus additional capacity needed to address growing demands for power.
3. Provide the substation and transmission infrastructure needed to support the increased power Yukon Energy is expecting in each of these regions, and the potential for additional batteries to enhance grid stability and flexibility as more intermittent renewable resources are added to the grid.

These Whitehorse Power Centres are needed to meet the needs of Yukoners, now and in the long run. While it might seem counterintuitive, thermal resources will play a crucial role in providing the stability needed to safely integrate more community solar and wind resources to the Yukon grid. Intermittent renewable resources need dependable capacity such as hydro and diesel in the background to support sudden fluctuations in their electricity production, as well as to prevent power outages when the wind is not blowing, or the sun is not shining. As part of the Yukon's resilient energy future, balancing resources like diesel generators and battery storage systems will help to stabilize the frequency of the power supply and provide power when other resources are not available.

The power centres will be built in three completion phases through to winter 2035 – each of which will have its own design, procurement, construction, and operation activities. No decommissioning or closure activities are planned for any development phase. This approach ensures that dependable sources of winter power are available to Yukoners when needed while at the same time providing flexibility for Yukon Energy to respond to changes in climate policy targets, market conditions, electrical demand, and the advancement of emerging technologies, local renewable projects and potential interties with other jurisdictions.

For these same reasons, Yukon Energy will be assessing each of the three thermal power centre sites for a higher level of thermal generation capacity than what is expected to be installed by 2040. This approach allows Yukon Energy to respond quickly to changing electricity load forecasts and keep electricity flowing should renewable or other projects be delayed.

The south power centre site will be assessed for up to 30 MW of thermal generation. The two north sites (i.e., the primary and contingency site) will be assessed for up to 60 MW thermal generation at each site. Installation of more than 30 MW of thermal capacity at any site will include redundancy design as required to ensure that a new capacity planning risk (N-1) is not created.

| Completion Phase | Description | Expected In-Service Date |
|---|---|---|
| **Phase 1:**<br>South Power Centre Build | - Construct south power centre with 15 MW of capacity. | Winter 2027 |
| **Phase 2:**<br>North Power Centre Build | - Construct one north power centre with 30 MW of thermal generation.<br>- Construct substation and transmission infrastructure.<br>- Add incremental capacity to the south power centre as needed (up to an additional 15 MW) to meet load growth in the Whitehorse area while the north power centre is being built.<br>- Review load forecasts and availability of generation supply. If required, determine feasibility of adding generation capacity to existing north power centre. | Winter 2030 |
| **Phase 3:**<br>Expand Power Centres | - Add incremental capacity to the north power centre as needed and/or construct second north power centre if expansion of existing north power centre built in Phase 2 is not feasible or demand for power is expected to exceed capacity limits at the north site. | Winter 2035 |

All sites for the Whitehorse Power Centres are located within the Traditional Territories of Kwanlin Dün First Nation and Ta'an Kwäch'än Council, and the Municipality of Whitehorse or within rural areas directly adjacent to Whitehorse municipal boundaries. Yukon Energy has identified ten potential sites for the three generation centres and one site for the substation.

More work is required to select the three generation sites and one substation site that will be presented in the Project Proposal. Yukon Energy is considering multiple criteria for site selection, including but not limited to, technical feasibility, impacts on nearby residents and sensitive receptors, environmental impacts, and life cycle costs. Yukon Energy must also secure needed agreements/approvals for site ownership or lease. The sites are planned to be selected by Fall 2025 in order to enable completion of site assessment activities required for the Project Proposal submission by late 2025 or early 2026.

Project sites being considered are grouped into three areas:

1. North Thermal Sites – Sites located between kilometre 1,428 of the Alaska Highway (Whitehorse Waste Management Facility) and kilometre 232 of the North Klondike Highway (Deep Creek area).
2. South Thermal Sites – Sites located between kilometre 1,420 of the Alaska Highway (South Access) to kilometre 1,413 of the Alaksa Highway (McRae area); and
3. Substation Site – Long Lake Road near the Whitehorse Lagoon.

North and south thermal sites are in proximity to major highways, are previously developed sites or adjacent to developed sites, and are at least 200 m away from waterbodies (i.e., a large buffer that protects riparian values). Major project components include generation and transformation infrastructure needed to operate thermal generation at each thermal generation site, and transformation infrastructure at the site identified for the substation.

The Project requires up to three principal authorizations for each generation site:

1. Air emissions permit;
2. Fuel storage tank permit; and
3. LNG Facility Permit (if LNG fuel is selected).

The capacity of each proposed generating station is greater than 5 MW and will trigger an Executive Committee screening.

The Project will provide thermal generation and associated assets with assumed operating lives of 40 years and potential to extend their working life for decades beyond that, if required. For assessment purposes, the temporal scale of the Project is assumed to be 40 years without any planned decommissioning. Air Emission Permits that must be renewed every 10 years (i.e., the current duration of these types of permits) provide Yukon Energy with the flexibility to be able to respond to the Yukon's electricity needs and integrate emerging technologies as they become available. If Yukon Energy reaches a point where these thermal assets are no longer required, Yukon Energy will stop using them.

# TABLE OF CONTENTS

## LIST OF TABLES



## LIST OF FIGURES

## APPENDICES

# 2 GENERAL INFORMATION AND CONTACTS

## 2.1 Project Name

The name of the proposed project is Whitehorse Power Centres (the Project).

## 2.2 Proponent Name and Contact Information

The Project proponent is the Yukon Energy Corporation (Yukon Energy). The contact for the Assessment is listed below:

Amy McClintock
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Whitehorse, Yukon  Y1A 6S7
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# 3 PROJECT OVERVIEW

A description of the Project is provided in Section 3.

## 3.1 Project Activities and Component

The following sections describe the Project activities and components.

### 3.1.1 Description of the Project

The project need and project description are provided below.

#### PROJECT NEED

Demand for electricity in the Yukon is growing faster than firm sources of renewable electricity can be built. Between 2015 and 2020, peak demands for electricity from Yukon homes and businesses (excluding mines) increased by 25%. This upward trend shows no signs of slowing, with non-industrial peak demand projected to rise by 40% by 2030, and 50% by 2035 compared to 2020.

Electrification of home heating and transportation plus population growth is driving higher winter peak demands for power. For example, a home that converts from a propane or diesel heating source to electric heat requires approximately three times the amount of electricity as before.

For these reasons, demand for power in the Yukon is highest during the winter. In fact, it is nearly three times higher in winter than in summer. While the Yukon provides an abundance of hydro resources in the summer, which

has allowed Yukon Energy to generate on average of more than 90% renewable electricity over the last 25 years, there is not enough hydropower to meet peak demands in the middle of winter.

About 75% of the Yukon's total electricity demand is concentrated in and around the Whitehorse area. Yukon Energy is in urgent need of electricity projects in the Whitehorse area that can reliably provide capacity during the winter. The Yukon's electricity system is unique compared to other parts of southern Canada. It is isolated from the larger North American electricity grid meaning Yukon Energy cannot import electricity when needed or export power to other jurisdictions when there is a surplus. Yukon Energy itself must ensure there is enough firm and dependable sources of electricity located and installed in the Yukon to meet the needs of Yukoners year-round and during emergencies.

For planning purposes, Yukon Energy defines an emergency as the loss of the Aishihik Generating Station, its largest source of winter power. During the winter of 2024/2025, Yukon Energy rented 22 diesel units (nearly 40 MW) to meet capacity requirements in an emergency. These units were located in Whitehorse, Faro, and Mayo. Based on current forecasts, without any new dependable generation, by 2035 Yukon Energy will need to double the number of rented diesel units during the winter to meet peak demands for power and prevent prolonged outages during emergencies and drought years. A site to connect these additional units does not presently exist. Most of the large renewable capacity and energy projects identified in Yukon Energy's 2016 and 2020 resource plans have not progressed, demonstrating the complexity and length of time required for large renewable projects. While feasibility work for a grid connection between B.C. and the Yukon is under way, the earliest completion of the project is about 10 to 15 years away. In the meantime, we must depend on upgrading the electricity system we have today.

Building the Whitehorse Power Centres is necessary to meet the immediate needs of Yukoners and provides the energy security required while alternative, more renewable sources of firm power can be built or connected.

## PROJECT DESCRIPTION

The proposed Whitehorse Power Centres project is a new project. There are no previous assessments or permits for this project.

In 2019 Yukon Energy proposed to build a 20 MW thermal plant in the Whitehorse area. Given both projects involve thermal generation in the Whitehorse area, much of what Yukon Energy learned during the pre-feasibility, feasibility and public engagement stages in 2019 regarding the then proposed 20 MW thermal plant can be applied to the Whitehorse Power Centres project. More information can be found in Section 6.

The Project's main objective is to build the dependable winter capacity resources and system upgrades needed in the Whitehorse area to meet electricity needs until at least 2040. The Project will construct and operate the following:

- Two power centres, and possibly a third if required, in and around the Whitehorse area;
- One substation and related transmission connection to the grid; and
- Upgrades and expansion of the 138 kV and 34.5 kV transmission network near the Whitehorse Power Centres to connect the additional generation capacity to the grid and make it available to Yukoners.

The total capacity installed by 2040 will depend on load growth driven by population growth and the pace of electrification; availability of our existing generation assets including climate change impacts on our hydroelectric reservoirs; market conditions; and the capacity value and timeline of renewable generation resources and potential interties. For reliability reasons, spreading generation across two sites in the north may be necessary to avoid a single large contingency.

The Project is assessing the following:

1. One Site in the south of Whitehorse for up to 30 MW of thermal capacity;
2. One primary site and one contingency site (for a total of two sites) in north Whitehorse for up to 60 MW of thermal capacity at each; and
3. One site in north Whitehorse for a substation and associated transmission line.

Yukon Energy has identified ten potential thermal sites and one substation site for the required infrastructure though only three thermal sites are needed. The four sites will be selected and proposed in the Project Proposal.

As part of this Project, Yukon Energy is purposefully assessing more thermal generation capacity than what is anticipated to be required to meet forecasted load growth as a strategy to ensure Yukon Energy can meet growing demands for electricity reliably, have flexibility to respond to the changing energy landscape, and move efficiently through assessment and permitting processes should demands for electricity exceed current forecasts. Yukon Energy will assess the need for building the second north power centre after 2030 and will only build it if necessary to ensure reliable delivery of electricity.

Yukon Energy conducted a technical assessment of potential fuel sources for the power centres. The study considered diesel, liquefied natural gas (LNG), and renewable diesel, among other fuel types. The study considered multiple criteria including availability and reliability of fuel delivery, storage requirements, cost, and greenhouse gas emissions. Diesel and LNG were identified as the two preferred fuel types given their established supply chains. More work is required to select the fuel type and to determine whether both fuels or a blend of fuels (i.e. bi- or dual fuel) is feasible. The selected fuel(s) will be provided in the Project Proposal.

### 3.1.2 Project Activities

The proposed Project is categorized under the utilities sector as electric power generation, transmission, and distribution.

The activities set out in Schedule 3 of the *Yukon Environmental and Socio-economic Assessment Act* (YESAA) *Assessable Activities, Exceptions and Executive Committee Projects Regulations* that triggers an Executive Committee screening are listed below (these include provision for LNG thermal generation as well as diesel thermal generation as activities considered for inclusion in the proposed Project):

- **15** – Construction of a plant for the liquefaction of natural gas or re-gasification of liquefied natural gas with processing capacity of more than 3,000 t/day;
- **16** – Construction of a plant for the storage of natural gas with storage capacity of more than 50,000 t;
- **26 –** Construction of a fossil fuel-fired electrical generating station with a production capacity of 5 MW or more; and
- **52** – The construction and operation of a storage tank system for petroleum products that has a capacity that is more than 250,000,000 L.

Other related activities set out in Schedule 1 of YESAA Assessable Activities, Exceptions and Executive Committee Projects Regulations are listed below:

- Construction, installation, operation, modification of a power line;
- Construction, installation, operation, modification that is in, on, over, under or through navigable water; and
- On Crown land or settlement land, cutting >1,000 $m^3$ standing or fallen trees or removing fallen or cut trees.

Activities involved in the proposed Project to construct and operate the diesel or LNG generation facilities and associated infrastructure will consist of the following:

- Civil works: finish grading and surface preparation, installation of granular and/or concrete foundations for generator and fuel tank area, fencing, and access road upgrades;
- Construction of substation infrastructure at each generation site;
- Installation of fossil fuel-fired electricity generators;
- Cabling and interconnection to existing transmission infrastructure;
- Construction and operation of fuel tank and containment systems, fuel storage, fuel conveyances, and connections; and
- Construction of one new substation only site.

### 3.1.3 Project Phases

The proposed Project will have three completion phases through to winter 2035, each of which will have its own design, procurement, construction, and operation activities. No decommissioning or closure activity is planned for any of these development phases.

The Project phases are according to site build out. The south site is most feasible to develop first as existing transformers in the area have room to add new generation supply. Yukon Energy intends to install capacity at the south Whitehorse Power Centre starting in winter 2027.

One north power centre will be constructed by 2030 with an initial build-out of 30 MW. As the north power centre is being built, Yukon Energy will add incremental capacity to the south power centre to meet peak demands for electricity, as needed.

Once the north power centre is in-service, Yukon Energy will contemplate whether a second north power centre is needed to meet load growth to 2040. By winter 2035, as much as 75 MW of thermal generation may be installed between the two north power centres. A description and general timeline for each phase is provided in Table 3.1-1, below:

**Table 3.1-1: Proposed Project Completion Phases**

| Completion Phase | Description | Expected In-Service Date |
|---|---|---|
| **Phase 1:**<br>South Power Centre Build | - Construct south power centre with 15 MW of capacity. | Winter 2027 |
| **Phase 2:**<br>North Power Centre Build | - Construct one north power centre with 30 MW of thermal generation.<br>- Construct substation and transmission infrastructure.<br>- Add incremental capacity to the south power centre as needed (up to an additional 15 MW) to meet load growth in the Whitehorse area while the north power centre is being built.<br>- Review load forecasts and availability of generation supply. If required, determine feasibility of adding generation capacity to existing north power centre. | Winter 2030 |
| **Phase 3:**<br>Expand Power Centres | - Add incremental capacity to the first north power centre as needed and/or construct second north power centre if expansion of existing north power centre built in Phase 2 is not feasible. | Winter 2035 |

### 3.1.4 Project Scale

The scale of the project footprint is up to three thermal generation sites (two at 60 MW each and one at 30 MW) and one substation site in and around the City of Whitehorse. Yukon Energy estimates land size as shown in Table 3.1-2, below:

**Table 3.1-2: Land Requirement by Site Type**

| Site Type | 60 MW Power Centre | 30 MW Power Centre | Substation Only |
|---|---|---|---|
| Land Requirement (ha) | 3.5 | 1.5 | 0.75 |

The generation sites include land to house generators, a warehouse, fuel storage, substation infrastructure, and a control building switchgear for generating units.

The Project is to build thermal generation and associated assets with assumed operating lives of 40 years. For assessment purposes, the temporal scale of the projects is 40 years. The justification for this approach is provided below:

1. Aligns with the reasonable operational life of thermal generation assets and provides certainty that Yukon Energy's investment in the power centres is secure for the reasonable life of the asset should the dependable capacity provided by the centre be required to meet electricity demand;
2. Allows Yukon Energy to build-out the power centres to ensure that demands for electricity in the long-term can be met while managing uncertainty in the following: (1) load growth, (2) timelines to build new dependable sources of renewable generation or possible transmission interties, and (3) market uncertainties;
3. Aligns with Yukon Energy's responsibility to provide a dependable and adequate supply of electricity to Yukoners. It provides certainty that future electricity needs of Yukoners can be met; and
4. Provides for a more efficient assessment and permitting process. The maximum amount of potential thermal generation required can be assessed now in one Executive Committee screening process, instead of multiple lengthy and costly processes in the future as incremental generation is needed.

The assessment term allows for up to four Air Emission Permit renewals (10 years each). At each of these 10-year milestones, Yukon Energy will reassess load forecasts and the availability of dependable capacity to meet forecasted demands for power. Should the capacity provided by one or more of the power centres not be required (because of being offset by renewables), renewal of the applicable Air Emissions Permit will not be sought.

### 3.1.5 Project Components

The major Project components include generation and transformation infrastructure needed to operate thermal (diesel, LNG, or dual or bi fuel) generation at:

- One site in south Whitehorse;
- One site in north Whitehorse;
- A second contingency site in north Whitehorse if expansion of the initial north site is not feasible or additional capacity is required to meet updated load forecasts; and
- A substation only site in Whitehorse in the Long Lake Road area.

The south Whitehorse site will be assessed for 30 MW of thermal generation. In north Whitehorse, both the primary and second contingency site will be assessed for 60 MW of thermal generation each. Yukon Energy is purposefully assessing more thermal generation than what will initially be installed at each of the Whitehorse sites. This approach allows Yukon Energy to assess and develop mitigations for the greatest potential environmental and socio-economic impacts of the project. It also helps Yukon Energy respond quickly to changing market conditions that influence the demand for and supply of electricity (e.g., population growth, pace of heating and transportation electrification, status of emerging technologies, timelines for the development of new renewables and interties, future climate targets, etc.)

Installation of more than 30 MW of thermal capacity at any site will include redundancy design as required to ensure that a new N-1 risk is not created.

The major Project components for each site are provided in Table 3.1-3, below.

**Table 3.1-3: Major Project Components by Site**

| Site | Whitehorse South Site | Whitehorse North Site(s) | Substation Site |
|---|---|---|---|
| **Generator Components** | - Up to 30 MW of thermal generation at one site | - Up to 60 MW of thermal generation at each site (2 total) | - None |
| **Transformation Components** | - 6.9 kV - 34.5 kV step-up transformers<br>- 6.9 kV switchgear<br>- 34.5 kV circuit breakers | - 6.9 kV - 34.5 kV step-up transformers or 6.9 kV – 138 kV (site dependent)<br>- 138-34.5 kV power transformer<br>- 6.9 kV switchgear | - 138-34.5 kV power transformer<br>- 138 & 34.5 kV circuit breakers |

| Site | Whitehorse South Site | Whitehorse North Site(s) | Substation Site |
|---|---|---|---|
| | | - 138 & 34.5 kV circuit breakers | |
| **Fuel Storage** | - Yes | - Yes | - None |
| **Site Components** | - Access road upgrades<br>- Electrical connection tie-in to nearest transmission line<br>- Clearing and grubbing and site grading<br>- Facilities for staff including office and washroom | - Access road upgrades<br>- Electrical connection tie-in to nearest transmission line<br>- Clearing and grubbing and site grading<br>- Facilities for staff including office and washroom | - Access road upgrades<br>- Electrical connection tie-in to nearest transmission line<br>- Clearing and grubbing and site grading |
| **Transmission** | - New transmission line and tie-in to grid at the Alaska Highway<br>- Use of existing power line rights-of-way as much as possible | - Alaska Highway sites: transmission lines following the Alaska Highway corridor and/or existing rights-of-way, with short new rights-of-way to be constructed.<br>- North Klondike Highway sites: new transmission line along the highway from the generation station to the existing Takhini substation. | - Small sections of new transmission lines to allow for the connection of the substation to the existing power lines near Long Lake Road.<br>- A new transmission line between the substation and the Whistle Bend subdivision.<br>- Existing power line rights-of-way will be used. |

### 3.1.6 Access and Transportation

Project works may require land clearing and grubbing, levelling and grade works, construction and infrastructure installation along with parking access within the site parcels. Specific construction activities are detailed in Section 3.1.8.1.

Access to the selected sites will be from existing public roads and highways. Yukon Energy anticipates that each selected site will require construction of road access through a highway or road right of way. For certain sites, construction of an onsite access road may be required. Yukon Energy will identify supporting transportation infrastructure needed (such as acceleration or deceleration lanes, signage, or other safety measures) for each of the selected sites. Construction of temporary roads or access points is not anticipated.

During construction, transportation of construction materials to the site will follow existing public roads and highways. Construction of temporary roads or access points is not anticipated. While each generation site is in operation, fuel will be delivered to the storage tanks on-site on a regular basis. During operational periods, b-train fuel truck deliveries will occur on a regular basis, depending on electricity demand on the system. During operations, transportation of fuel will follow established dangerous goods routes.

Site access will be restricted to Yukon Energy personnel and approved contractors. Public access will not be permitted, and all sites will be fenced and gated to limit access.

When the proposed thermal plants are operational (typically between October and April), Yukon Energy staff will be on-site full-time and fuel deliveries will occur when required. Access to the site will mostly occur during regular working hours; though fuel deliveries and access for repairs, maintenance, or operations may occur outside these times as needed. During summer months, the frequency of access will be reduced, and occur most frequently during regular working hours.

### 3.1.7 Workforce

The Project will require a *construction period* workforce of skilled contractors, some unskilled labour, and oversight from Yukon Energy. Peak labour requirements per site are expected during construction at approximately 10-15 workers (assumes no overlap of peak requirements among the sites), with post-construction workforce consisting of Yukon Energy Whitehorse Operations Staff of two to three workers. Yukon Energy will seek opportunities to hire local First Nation and non-First Nation contractors to complete the required works. Any out-of-territory workers used during the construction period will be flown in on the local airline and rent local transportation vehicles to mobilize to the Project site. Contractors will use locally available commercial accommodations (e.g., hotels, house rentals). No project-specific accommodation requirements, such as a camp, are required for this Project.

The Project workforce will include a site superintendent with cross-shift to manage project compliance, with support from Yukon Energy plant operators on site.

Yukon Energy has begun design of the necessary generation and substation infrastructure. At this time, the detailed workforce and timelines to construct the generation plants, substation, and related infrastructure is not defined, but will be provided in the Project Proposal.

### 3.1.8 Project Resource Requirements

The Project consists of two key resource activities for each site: construction and operations. Decommissioning and closure are not part of the Project. The Project resource requirements by activity stage are provided in the sections below.

#### 3.1.8.1 Construction

Resource requirements for construction include labour and materials to construct up to three thermal generation sites, one substation site, and the transmission line to Whistle Bend. Any building materials and fill will be sourced locally, where possible. The Project will attempt to source concrete locally from the Whitehorse area. Local First Nation and non-First Nation contractors and trades will be retained where possible. Transportation for each construction activity will be arranged through a Yukon-based contractor, and fuel storage tank delivery will be coordinated to the Project site by a certified fuel system provider.

Other required resources are listed below:

- Building materials – local suppliers;
- Site fill material – local engineered and supplied granular materials;
- Site construction trailer with temporary power;
- Equipment/Machine Fueling/Service – equipment and passenger vehicles will be fueled from local suppliers in the area and on site from pickup truck mounted slip tanks; and
- Water Use – for both construction and operations, domestic water for human use will be provided by bottled water. Domestic wastewater will be collected and stored with portable toilets, serviced by a local service provider. Concrete cleanup and dust control will use a mobile tote.

#### 3.1.8.2 Operations

The operations stage includes operating the thermal generation sites to generate electricity, mostly between the months of September to May and to maintain operations of the substation and transmission line when developed. The main operational activities include thermal generation, transmission of electricity, maintenance of equipment, and fuel storage and delivery. This generation will be connected to the Yukon Integrated System to supply electricity to the Whitehorse and surrounding area.

Yukon Energy will operate and maintain all system components proposed. The power centres will be monitored and operated similarly to Yukon Energy's existing generation and substation assets – remotely 24/7 via Yukon Energy's system control centre (SCC). Depending on the fuel type(s) selected for the sites, either local fuel suppliers will deliver diesel to the sites, and/or a non-local supplier will deliver LNG to the sites from BC and/or Alberta.

#### 3.1.8.3 Decommissioning and Closure

For assessment purposes, the temporal scope of the Project is assumed to be 40 years without any planned decommissioning and closure at this time. Should decommissioning of one or more of the site(s) be an option before the temporal scope expires because winter capacity requirements later become met with renewables, emerging technologies, or power sourced from an intertie, Yukon Energy will submit a Project Proposal for the

planned decommissioning and closure of the applicable site(s). Should continued operation of one or more of the site(s) be required beyond the temporal scope of 40 years, a new Project Proposal will be submitted for the site(s) for assessment.

### 3.1.9 Project Emissions, Discharge of Wastes, and Disturbances

The following sections describe emissions, discharge of wastes, and potential disturbances. Depending on the sites selected, site clearing disturbances may also occur. Related estimates will be determined once the final sites are selected and included in the Project Proposal.

#### 3.1.9.1 Air Emissions

The primary air emissions associated with the Project are expected from fuel combustion emissions associated with diesel or LNG thermal generators. To a lesser extent, air emissions are expected from the temporary increase of diesel and gasoline combustion associated with construction, heavy equipment and site vehicles. Some minor dust disturbances could arise from temporarily increasing access road traffic during construction or disturbed ground from construction activities such as stockpiling soils or site grading.

A detailed air quality impact assessment will be completed in 2025 at the preferred thermal generation sites. Results from these assessments will inform design and be incorporated into the Project Proposal.

#### 3.1.9.2 Noise

A temporary increase in localized site noise is expected during the construction phase, with a permanent intermittent increase in localized site noise from baseline/current conditions during future operations. The generator engines will operate to a permissible sound level relative to nearby residential receptors.

Baseline ambient noise measurements will be made at the preferred sites and at several nearby receptors. This information will be used with engine data to conduct a noise impact assessment, which will be included in the Project Proposal. Minimal noise is expected at the substation site or along the new transmission line once it is constructed and in service.

#### 3.1.9.3 Water Discharge

A limited amount of wastewater is anticipated for the Project related primarily to concrete usage for foundation construction. While the concrete will be mixed offsite and trucked to the Project location there will be residual concrete wash-water from cleaning concrete truck chutes and hoses that will be contained. Any concrete wash-water will be directed to a sump area within the Yukon Energy land parcel and left to cure and evaporate prior to backfilling or removal.

#### 3.1.9.4 Erosion and Sediment

During construction, the Project will include earthworks that could result in localized erosion and sediment transport onto adjacent parcels of land if loose soils are not properly managed during rain or wind events. Mitigation measures will be proposed to avoid any significant adverse effects in this regard.

#### 3.1.9.5 Waste Management

Wastes anticipated from the Project include construction materials (e.g., wood, metal, material packaging), residual concrete, waste oil and coolants, and site worker generated domestic waste. All construction and hazardous materials waste will be sorted and disposed at the appropriate facility. All domestic waste will be contained within a secured temporary construction office and/or portable toilets and hauled off-site to the Whitehorse landfill and domestic wastewater treatment facility, as appropriate. Hazardous wastes (e.g., waste oil) will be stored and disposed of pursuant to Yukon Energy's special waste permit.

### 3.1.10 Third Party Project Activities

A Prime Contractor will be responsible for engineering, procurement, construction, commissioning, and final tie-in of all Project components. This contractor will complete civil design and engineering. This contractor along with additional third Parties directed by the Project Prime Contractor will be responsible for activities including site preparation and gravel pad and/or concrete construction, the generator provider, electrical contractor, concrete provider, and fuel tank supplier.

## 3.2 Project Location

The following sections describe the Project location.

### 3.2.1 Project Location and Maps

Yukon Energy has identified one substation site and several options for the generation stations. Yukon Energy plans to select the south Whitehorse site and the two north Whitehorse sites (i.e., the primary and contingency site) in Fall 2025. This timeline is necessary to enable completion of site assessment activities required for the Project Proposal submission by late 2025/early 2026.

All identified Project sites are located within the Yukon Territory, within the Municipality of Whitehorse or within rural areas directly adjacent to Whitehorse municipal boundaries. All sites are within the Traditional Territories of the Kwanlin Dün First Nation (KDFN) and Ta'an Kwäch'än Council (TKC). Four of the potential sites are on First Nation's Settlement Land. The Project sites are grouped into the following three areas:

1. North Thermal Sites – Sites located between kilometre 1,428 of the Alaska Highway (Whitehorse Waste Management Facility) and kilometre 232 of the North Klondike Highway (Deep Creek area);

2. South Thermal Sites – Sites located between kilometre 1,420 of the Alaska Highway (South Access) to kilometre 1,413 of the Alaksa Highway (McRae area).
3. Long Lake Substation Site – Long Lake Road near Whitehorse Lagoon.

The north and south thermal sites all share similar characteristics, such as proximity to major highways, being previously developed sites or adjacent to developed sites, and being at least 200 m away from waterbodies (i.e., a large buffer that protects riparian values).

Five sites are identified as potential options for the two north generation sites, five sites for the south generation site, and one site for the substation site. Yukon Energy is considering multiple criteria to select sites including (but not limited to) the following: technical feasibility, process and/or agreements/approvals required for site ownership or lease, distance from residents and sensitive receptors, proximity to existing transmission and transformation infrastructure, and access to major roads/highways. As well, land parcels with existing land use designations[1] of either Public Utility, First Nation's Development Land and/or industrial are preferred. All sites under consideration are listed in Table 3.2-1 and shown in Figure 3.2-1.

Yukon Energy is currently working through a site selection analysis exercise – that will include information gathering such as baseline data collection, evaluation of VESECs, life cycle cost estimates, and feedback from First Nations, key stakeholders, and the public.

**Table 3.2-1: Project Site Locations Under Consideration**

| Project Area | Site Name | Land Requirements | Site Status | Past Use | Existing Land Use Designation |
|---|---|---|---|---|---|
| **North Thermal** | Whitehorse Waste Management Facility | City of Whitehorse municipal land | Brownfield | Adjacent to Whitehorse Waste management facility | Public Utility |
| | Land Parcel TKC R-5B - Deep Creek | TKC Settlement land | Brownfield - Abandoned | Gravel pit | First Nations Settlement Land |
| | North Klondike Highway Km 232 - North of Deep Creek Road | Territorial Crown land | Greenfield | Unknown | Hinterland |

[1] Land Use Designations according to the City of Whitehorse Office Community Plan (City of Whitehorse, 2025. Whitehorse 2040 Official Community Plan. Retrieved from: https://www.whitehorse.ca/wp-content/uploads/2022/06/Whitehorse-2040-OCP-February-4-2025.pdf)

| Project Area | Site Name | Land Requirements | Site Status | Past Use | Existing Land Use Designation |
|---|---|---|---|---|---|
| **North Thermal (Continued)** | Land Parcel KDFN C-53B –Kulan Industrial Area | KDFN Settlement land | Greenfield | Unknown | First Nations Development Land[a] |
| | Km 1,438 km Alaska Highway - Haeckel Gravel Pits | Territorial Crown land | Brownfield – Abandoned | Gravel pit | Natural Resource Extraction |
| **South Thermal** | McLean Lake Gravel Pit Area | Territorial Crown land | Greenfield | Gravel pit | Industrial |
| | Copper Haul Rd | Territorial Crown land | Greenfield | Unknown | Industrial |
| | Land Parcel KDFN C-95B – Alaska Highway at Lorne Road | KDFN Settlement land | Greenfield | Unknown | First Nations Development Land[a] |
| | Land Parcels KDFN C-183B to C-187B –Sima Industrial Subdivision | KDFN Settlement land | Greenfield – 2 of 5 parcels have been cleared | Unknown | First Nations Development Land[a] |
| | Whitehorse Copper Mine | Territorial Crown land | Greenfield | Mining | Industrial |
| **Substation** | Long Lake Road | City of Whitehorse municipal land | Brownfield | Sewage lagoon | Public Utility |

[a] According to the City of Whitehorse 2040 Official Community Plan.

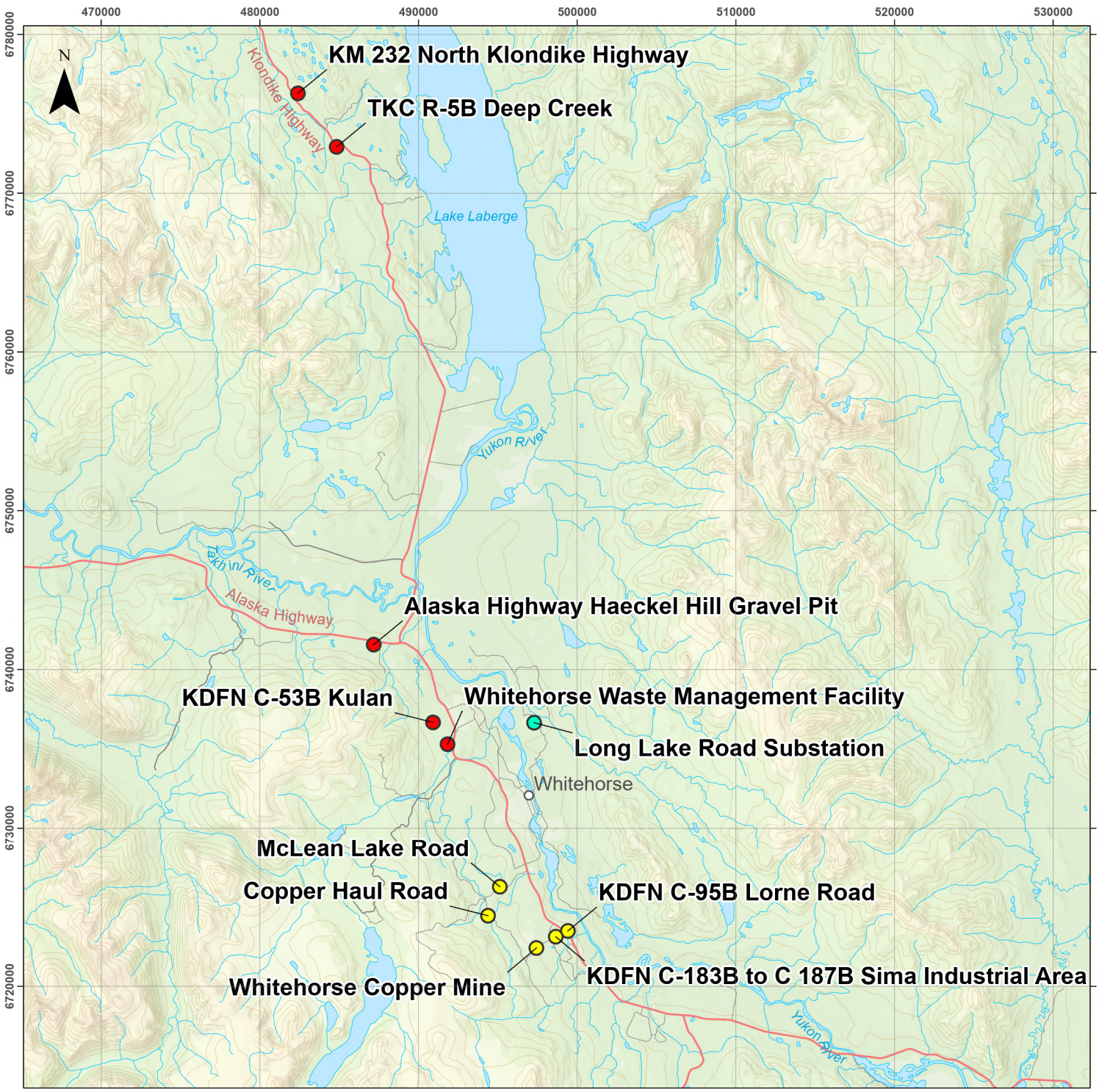
Environmental and socio-economic attributes are provided in maps provided in Figure 3.2-2 through Figure 3.2-13 and in the discussion of site conditions in Section 3.2.2. The following information is provided:

- Communities, roads, and infrastructure;
- First Nations Settlement land and Traditional Territory;
- Watersheds and ecoregions;
- Environmentally sensitive or ecologically significant areas;
- Wildlife key areas (WKA);
- Fish habitat;

- Third-party land-use interests (e.g., trapping concessions, heritage sites, outfitter concessions, mineral claims, other land uses – residential, commercial/industrial, infrastructure, agricultural);
- Land use planning areas, Special Management Areas, Parks or Protected Areas, First Nations, municipal and community area plans (where applicable); and
- Listed wildlife species or critical habitat in Species At Risk Act (s79).

Maps with "A" designation encompass the municipality of Whitehorse, and maps by "B" designation shows the Deep Creek area in relation to the municipality of Whitehorse.

Based on initial reviews of the environmental mapping layers and an environmental baseline assessment, the Project is not likely to directly affect species at risk habitats. The Project sites are either located within or near existing brownfield sites or in highly industrialized areas surrounded by active industrial activities. The Project Proposal will include further details in this regard.




**Legend**

- Highway
- Primary Road
- Secondary Road
- Contour (100 m Interval)
- Watercourse
- Waterbody

**Potential Site of Generation Station and Substation**

- North
- South
- Substation

**Figure 3.2-1: Overview Map of Proposed Generation and Substation Locations**

Data Sources

- Thermal Resource Options. Yukon Energy Corporation. June, 2025.
- Base data. CanVec 1:50,000. Government of Canada. 2024.
- Main Basemap. World Hillshade. Esri, USGS

Disclaimer
EDI Environmental Dynamics Inc. has made every effort to verify this map is free of errors. Data has been derived from a variety of digital sources and, as such, EDI does not warrant the accuracy, completeness, or reliability of this map or its data.

0 2 4 6 8 10
Kilometres

Map Scale: 1:350,000 (printed on 8.5 x 11)
Map Projection: NAD 1983 CSRS UTM Zone 8N

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480000 490000 500000 510000

6750000 6740000 6730000 6720000 6710000

N

Takhini River

Klondike Highway

Alaska Highway Haeckel Hill Gravel Pit

Yukon River

KDFN C-53B Kulan

Long Lake Road Substation

Whitehorse Waste Management Facility

McLean Lake Road

Copper Haul Road

KDFN C-95B Lorne Road

Whitehorse Copper Mine

KDFN C-183B to C-187B Sima Industrial Area

Cantlie Lake

Fish Lake

Alaska Highway

Klondike Highway

## Legend

- Potential Site of Generation Station (North)
- Potential Site of Generation Station (South)
- Potential Site of Substation
- YEC Power Generating Station
- YEC Power Lines
- Highway
- Watercourse
- Waterbody
- City of Whitehorse Municipal Boundary
- Carcross/Tagish First Nation Settlement Lands - Surveyed
- Kwanlin Dün First Nation Settlement Lands - Surveyed
- Ta'an Kwäch'än Council Settlement Lands - Surveyed

Notes:
the map area includes the Champagne and Aishihik First Nations, Kwanlin Dün First Nation, and Ta'an Kwäch'än Council traditional territories, the Yukon Southern Lakes ecoregion, and the Yukon River drainage area.

# Figure 3.2-2: Project Location and Infrastructure A

Data Sources

- First Nation Settlement Lands. Yukon Government. June, 11, 2025
- YEC Power Lines and Power Generating Stations. Yukon Government. June 11, 2025
- Basemap. CanVec 1:250,000. Government of Canada. World Hillshade. Esri, USGS, Yukon Energy Corporation (YEC)

Disclaimer
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0 2.5 5 7.5 10
Kilometres

Map Scale 1:140,000 (printed on 11 x 17)
Map Projection: NAD 1983 CSRS UTM Zone 8N

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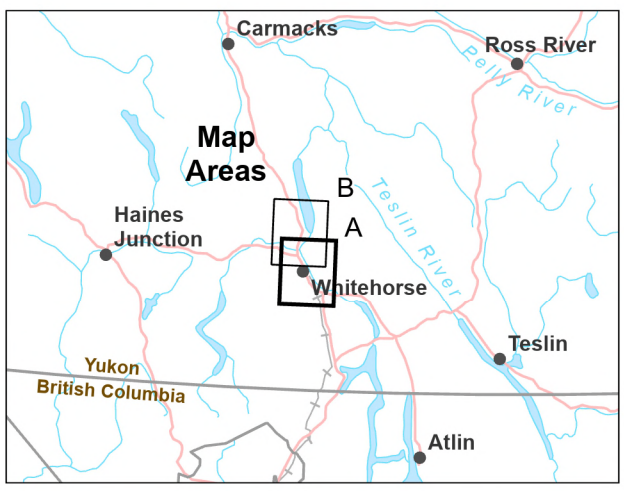


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480000 490000 500000

6770000 6760000 6750000 6740000

N

KM 232 North Klondike Highway

TKC R-5B Deep Creek

Lake Laberge

Thomas Lake

Klondike Highway

Takhini River

Alaska Highway

Alaska Highway Haeckel Hill Gravel Pit

Yukon River

KDFN C-53B Kulan

Long Lake Road Substation

Whitehorse Waste Management Facility

**Legend**

- Potential Site of Generation Station (North)
- Potential Site of Substation
- YEC Power Generating Station
- YEC Power Lines
- Highway
- Watercourse
- Waterbody
- City of Whitehorse Municipal Boundary
- Kwanlin Dün First Nation Settlement Lands - Surveyed
- Ta'an Kwäch'än Council Settlement Lands - Surveyed

Notes:
the map area includes the Champagne and Aishihik First Nations, Kwanlin Dün First Nation, and Ta'an Kwäch'än Council traditional territories, the Yukon Southern Lakes ecoregion, and the Yukon River drainage area.

# Figure 3.2-3: Project Location and Infrastructure B

Data Sources

- First Nation Settlement Lands. Yukon Government. June, 11, 2025
- YEC Power Lines and Power Generating Stations. Yukon Government. June 11, 2025
- Basemap. CanVec 1:250,000. Government of Canada. World Hillshade. Esri, USGS, Yukon Energy Corporation (YEC)

Disclaimer
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Kilometres

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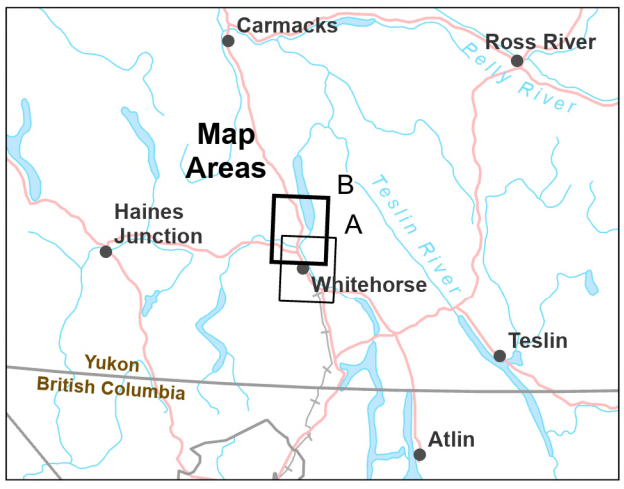


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480000 490000 500000 510000

6750000 6740000 6730000 6720000 6710000

N

Tekhini River

Klondike Highway

Alaska Highway Haeckel Hill Gravel Pit

Yukon River

KDFN C-53B Kulan

Long Lake Road Substation

Whitehorse Waste Management Facility

Whitehorse

McLean Lake Road

Copper Haul Road

KDFN C-95B Lorne Road

KDFN C-183B to C 187B Sima Industrial Area

Whitehorse Copper Mine

Cantlie Lake

Fish Lake

Alaska Highway

Klondike Highway

## Legend

- Potential Site of Generation Station (North)
- Potential Site of Generation Station (South)
- Potential Site of Substation
- Highway
- Watercourse
- Waterbody
- CDC Species of Conservation Concern Polygon

Wildlife Key Area

- Alpine Raptor
- Bald Eagle
- Duck
- Golden Eagle
- Gyrfalcon
- Moose
- Thinhorn Sheep

# Figure 3.2-4: Wildlife Key Areas and CDC Species A

Data Sources

- Wildlife Key Areas and CDC Species. Yukon Government. June, 11, 2025
- Basemap. CanVec 1:250,000. Government of Canada. World Hillshade. Government of Yukon, Esri, USGS

Disclaimer

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Kilometres

Map Scale 1:140,000 (printed on 11 x 17)

Map Projection: NAD 1983 CSRS UTM Zone 8N

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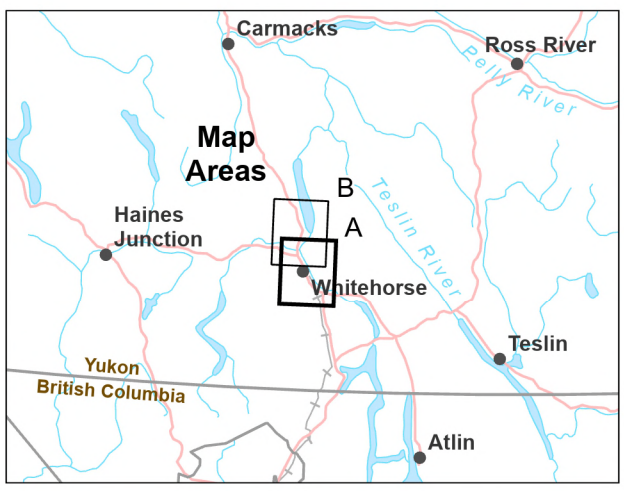


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480000 490000 500000

6770000 6760000 6750000 6740000

KM 232 North Klondike Highway

TKC R-5B Deep Creek

Lake Laberge

Thomas Lake

Klondike Highway

Tekhini River

Alaska Highway

Alaska Highway Haeckel Hill Gravel Pit

Yukon River

KDFN C-53B Kulan

Long Lake Road Substation

Whitehorse Waste Management Facility

**Legend**

- Potential Site of Generation Station (North)
- Potential Site of Substation
- Highway
- Watercourse
- Waterbody
- CDC Species of Conservation Concern Polygon

Wildlife Key Area

- Alpine Raptor
- Bald Eagle
- Duck
- Golden Eagle
- Gyrfalcon
- Moose
- Mule Deer
- Riparian Raptor
- Swan
- Thinhorn Sheep
- Ungulate

# Figure 3.2-5: Wildlife Key Areas and CDC Species B

Data Sources

- Wildlife Key Areas and CDC Species. Yukon Government. June, 11, 2025
- Basemap. CanVec 1:250,000. Government of Canada. World Hillshade. Government of Yukon, Esri, USGS

Disclaimer

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Map Scale 1:140,000 (printed on 11 x 17)

Map Projection: NAD 1983 CSRS UTM Zone 8N

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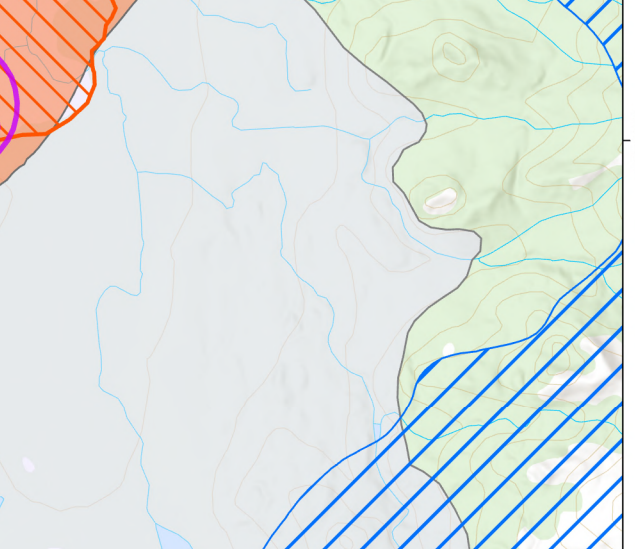


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480000 490000 500000 510000

6750000 6740000 6730000 6720000 6710000

N

Takhini River

Klondike Highway

Alaska Highway Haeckel Hill Gravel Pit

Yukon River

KDFN C-53B Kulan

Long Lake Road Substation

Whitehorse Waste Management Facility

Whitehorse

McLean Lake Road

Copper Haul Road

KDFN C-183B to C 187B Sima Industrial Area

KDFN C-95B Lorne Road

Whitehorse Copper Mine

Cantlie Lake

Fish Lake

Alaska Highway

Klondike Highway

**Legend**

- Potential Site of Generation Station (North)
- Potential Site of Generation Station (South)
- Potential Site of Substation
- Highway
- Watercourse
- Waterbody
- Quartz Lease
- Quartz Claim
- Quartz Land Use Permit
- Placer Claim
- Mineral Claim - Surveyed

# Figure 3.2-6: Mineral Rights and Tenure A

Data Sources

- Mineral Leases, Claims and Permits. Yukon Government. June, 11, 2025
- Basemap. CanVec 1:250,000. Government of Canada. World Hillshade. Esri, USGS

Disclaimer
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Kilometres

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Map Projection: NAD 1983 CSRS UTM Zone 8N

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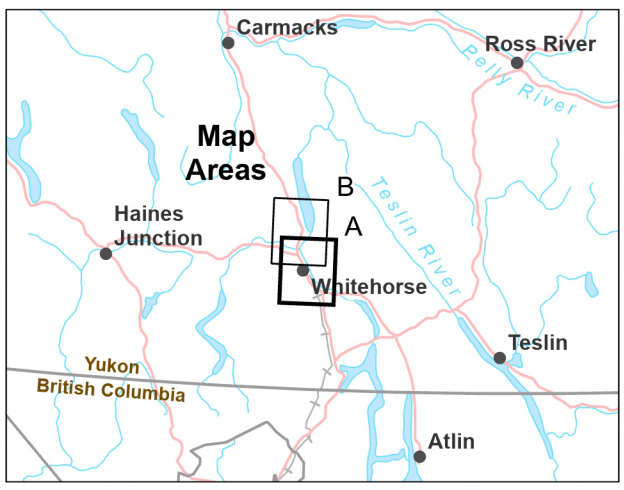


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480000
490000
500000
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6760000
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N
KM 232 North Klondike Highway
TKC R-5B Deep Creek
Lake Laberge
Thomas Lake
Klondike Highway
Takhini River
Alaska Highway
Yukon River
Alaska Highway Haeckel Hill Gravel Pit
KDFN C-53B Kulan
Long Lake Road Substation
Whitehorse Waste Management Facility

**Legend**

- Potential Site of Generation Station (North)
- Potential Site of Substation
- Highway
- Watercourse
- Waterbody
- Quartz Claim
- Placer Lease
- Placer Claim
- Mineral Claim - Surveyed

# Figure 3.2-7: Mineral Rights and Tenure B

Data Sources

- Mineral Leases, Claims and Permits. Yukon Government. June, 11, 2025
- Basemap. CanVec 1:250,000. Government of Canada. World Hillshade. Esri, USGS

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Kilometres

Map Scale 1:140,000 (printed on 11 x 17)
Map Projection: NAD 1983 CSRS UTM Zone 8N

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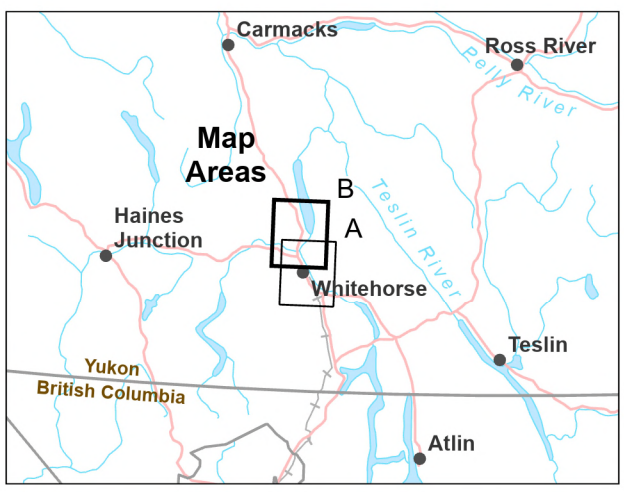


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480000 490000 500000 510000

6750000 6740000 6730000 6720000 6710000

N

Klondike Highway

Takhini River

Yukon River

Alaska Highway Haeckel Hill Gravel Pit

KDFN C-53B Kulan

Long Lake Road Substation

Whitehorse Waste Management Facility

McLean Lake Road

Copper Haul Road

KDFN C-95B Lorne Road

KDFN C-183B to C 187B Sima Industrial Area

Whitehorse Copper Mine

Whitehorse

Cantlie Lake

Fish Lake

Alaska Highway

Klondike Highway

419 284 134 289 288 287 409 17 296 294 295 298

## Legend

- Potential Site of Generation Station (North)
- Potential Site of Generation Station (South)
- Potential Site of Substation
- Highway
- Watercourse
- Waterbody
- Outfitting Concessions
- Trapping Concessions

# Figure 3.2-8: Trapping and Outfitting A

Data Sources

- Outfitting and Trapping Concessions. Yukon Government. June, 11, 2025
- Basemap. CanVec 1:250,000. Government of Canada. World Hillshade. Esri, USGS

Disclaimer
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Kilometres

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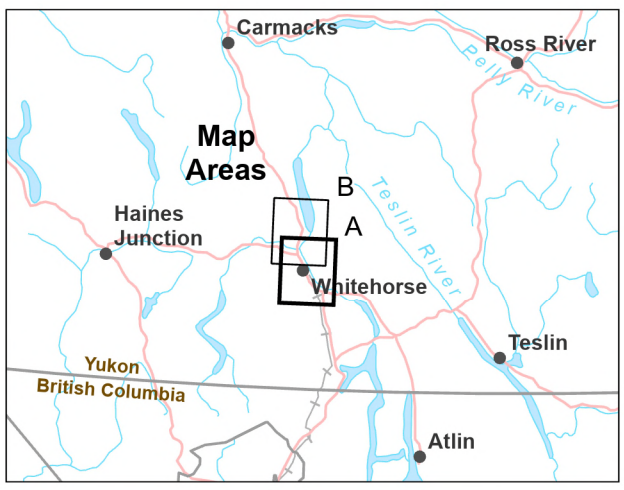


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480000
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6770000
6760000
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6740000

KM 232 North Klondike Highway

TKC R-5B Deep Creek

N

225

224

226

Thomas Lake

Lake Laberge

222

284

419

Klondike Highway

Takhini River

134

Alaska Highway

Yukon River

288

Alaska Highway Haeckel Hill Gravel Pit

17

287

KDFN C-53B Kulan

Long Lake Road Substation

286

Whitehorse Waste Management Facility

409

**Legend**

- Potential Site of Generation Station (North)
- Potential Site of Substation
- Highway
- Watercourse
- Waterbody
- Outfitting Concessions
- Trapping Concessions

## Figure 3.2-9: Trapping and Outfitting B

Data Sources

- Outfitting and Trapping Concessions. Yukon Government. June, 11, 2025
- Basemap. CanVec 1:250,000. Government of Canada. World Hillshade. Esri, USGS

Disclaimer
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Kilometres

Map Scale 1:140,000 (printed on 11 x 17)
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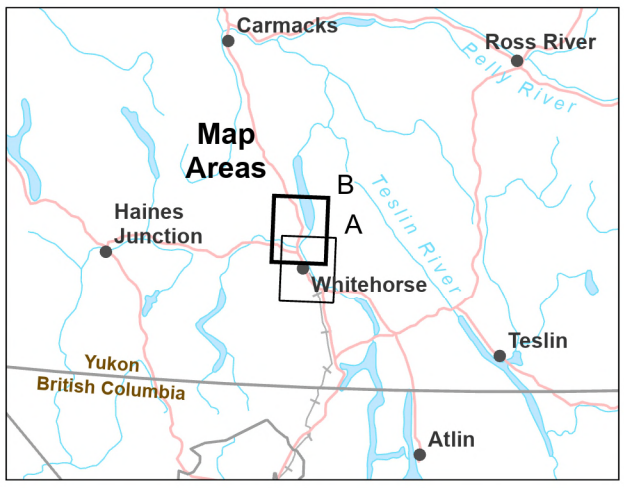


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480000 490000 500000 510000

6750000 6740000 6730000 6720000 6710000

N

Takhini River

Klondike Highway

Alaska Highway Haeckel Hill Gravel Pit

Yukon River

KDFN C-53B Kulan

Long Lake Road Substation

Whitehorse Waste Management Facility

Whitehorse

McLean Lake Road

Copper Haul Road

KDFN C-95B Lorne Road

KDFN C-183B to C 187B Sima Industrial Area

Whitehorse Copper Mine

Cantlie Lake

Fish Lakes

Alaska Highway

Klondike Highway

**Legend**

- Potential Site of Generation Station (North)
- Potential Site of Generation Station (South)
- Potential Site of Substation

Cultural Features Point

- Designated Area
- Manmade Feature

Wilderness Tourism Activities

- Cross Country Skiing
- Fishing
- Hiking
- Off road vehicle
- Snowmobiling

- Highway
- Watercourse
- Waterbody

Cultural Features Polygon

- Built-up Area
- Solids Depot/Dump

# Figure 3.2-10: Heritage and Culture A

Data Sources

- Cultural Features 250K (Points, Lines, and Polygons) and First Nation Heritage Routes. Yukon Government. June, 11, 2025
- Basemap. CanVec 1:250,000. Government of Canada. World Hillshade. Department of Tourism and Culture, Government of Yukon, Esri, USGS

Disclaimer

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0 2.5 5 7.5 10

Kilometres

Map Scale 1:140,000 (printed on 11 x 17)

Map Projection: NAD 1983 CSRS UTM Zone 8N

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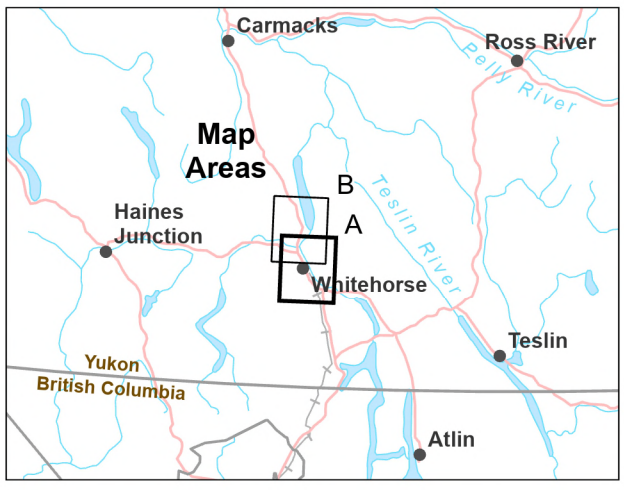


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480000 490000 500000

6770000 6760000 6750000 6740000

KM 232 North Klondike Highway

TKC R-5B Deep Creek

Lake Laberge

Thomas Lake

Klondike Highway

Takhini River

Alaska Highway

Yukon River

Alaska Highway Haeckel Hill Gravel Pit

KDFN C-53B Kulan

Long Lake Road Substation

Whitehorse Waste Management Facility

**Legend**

- Potential Site of Generation Station (North)
- Potential Site of Substation

Cultural Features Point

- Designated Area
- Manmade Feature

Wilderness Tourism Activities

- Cross Country Skiing
- Fishing
- Hiking

- First Nation Heritage Routes
- Highway
- Watercourse
- Waterbody

Cultural Features Polygon

- Built-up Area

# Figure 3.2-11: Heritage and Culture B

Data Sources

- Cultural Features 250K (Points, Lines, and Polygons) and First Nation Heritage Routes. Yukon Government. June, 11, 2025
- Basemap. CanVec 1:250,000. Government of Canada. World Hillshade. Department of Tourism and Culture, Government of Yukon, Esri, USGS

Disclaimer

EDI Environmental Dynamics Inc. has made every effort to verify this map is free of errors. Data has been derived from a variety of digital sources and, as such, EDI does not warrant the accuracy, completeness, or reliability of this map or its data.

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Kilometres

Map Scale 1:140,000 (printed on 11 x 17)

Map Projection: NAD 1983 CSRS UTM Zone 8N

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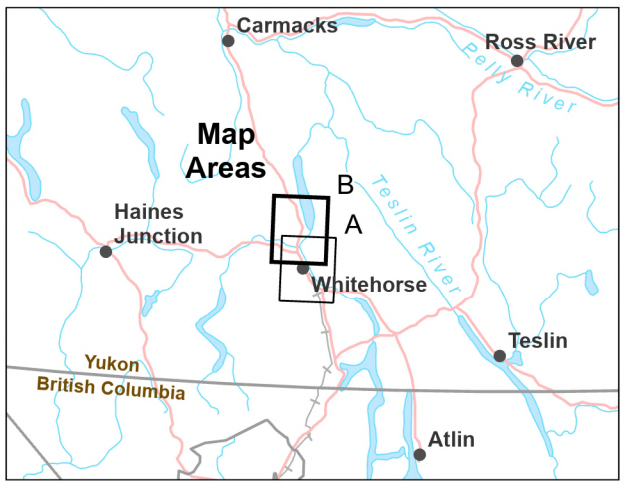


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6750000 6740000 6730000 6720000 6710000

N

Hotsprings Road Local Area Plan

Takhini River

Klondike Highway

Hamlet of Ibex Valley Local Area Plan

Alaska Highway Haeckel Hill Gravel Pit

Yukon River

KDFN C-53B Kulan

Long Lake Road Substation

Whitehorse Waste Management Facility

Whitehorse

McLean Lake Road

Copper Haul Road

KDFN C-95B Lorne Road

Whitehorse Copper Mine

KDFN C-183B to C-187B Sima Industrial Area

Cantlie Lake

Fish Lake Local Area Plan

Fish Lake

Golden Horn Local Area Plan

Alaska Highway

Hamlet of Mount Lorne and Carcross Road Area Plan

Hamlet of Mount Lorne and Carcross Road Area Plan

**Legend**

- Potential Site of Generation Station (North)
- Potential Site of Generation Station (South)
- Potential Site of Substation
- Highway
- Watercourse
- Waterbody
- Local Area Plan
- City of Whitehorse Land Use Designation Boudary

# Figure 3.2-12: Planning and Development Areas A

Data Sources

- Land Use Designation. City of Whitehorse. June 17, 2025.
- Local Area Plans. Yukon Government. June, 11, 2025
- Basemap. CanVec 1:250,000. Government of Canada. World Hillshade. Esri, USGS

Disclaimer

EDI Environmental Dynamics Inc. has made every effort to verify this map is free of errors. Data has been derived from a variety of digital sources and, as such, EDI does not warrant the accuracy, completeness, or reliability of this map or its data.

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Kilometres

Map Scale 1:140,000 (printed on 11 x 17)

Map Projection: NAD 1983 CSRS UTM Zone 8N

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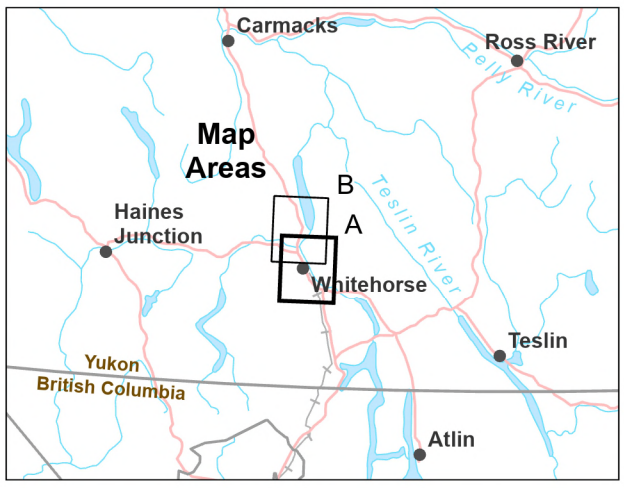


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480000 490000 500000

6770000 6760000 6750000 6740000

KM 232 North Klondike Highway

TKC R-5B Deep Creek

Deep Creek Community Plan

Fox Lake Local Area Plan

Deep Creek Community Plan - Joint Management Region

Lake Laberge

Thomas Lake

Klondike Highway

Hotsprings Road Local Area Plan

Alaska Highway

Takhini River

Hamlet of Ibex Valley Local Area Plan

Alaska Highway Haeckel Hill Gravel Pit

Yukon River

KDFN C-53B Kulan

Long Lake Road Substation

Whitehorse Waste Management Facility

Fish Lake Local Area Plan

**Legend**

- Potential Site of Generation Station (North)
- Potential Site of Substation
- Highway
- Watercourse
- Waterbody
- Local Area Plan
- City of Whitehorse Land Use Designation Boudary

## Figure 3.2-13: Planning and Development Areas B

Data Sources

- Land Use Designation. City of Whitehorse. June 17, 2025.
- Local Area Plans. Yukon Government. June, 11, 2025
- Basemap. CanVec 1:250,000. Government of Canada. World Hillshade. Esri, USGS

Disclaimer

EDI Environmental Dynamics Inc. has made every effort to verify this map is free of errors. Data has been derived from a variety of digital sources and, as such, EDI does not warrant the accuracy, completeness, or reliability of this map or its data.

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Kilometres

Map Scale 1:140,000 (printed on 11 x 17)

Map Projection: NAD 1983 CSRS UTM Zone 8N

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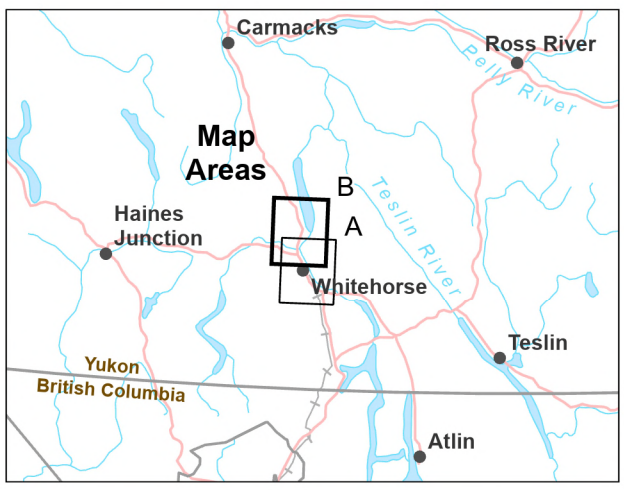


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### 3.2.2 Site Conditions

The Project lies within the Yukon Southern Lakes Ecoregion, a part of the Boreal Cordillera Ecozone on the Yukon Plateau[2]. The topography is made up of dissected plateaus, rolling hills and broad valleys occupied by lakes and rivers. Much of the terrain in the area lies between 1,000 and 1,500 metres (m) above sea level while the major rivers and Tàa'än Män/Lake Laberge all lie below 760 m. As the regional name suggests, the area is home to many large lakes and rivers. Most of the Southern Lakes, and the larger rivers, Tàgä Shäw/Yukon and Dèlin Chù/Dedeslíni/Deisleen Íxde Naadaayí/Teslin, trend in a northwest-southeast or north-south orientation and form the headwaters of the Yukon River. This pattern of water flow is reflective of the northwest-trending faults and folds of the bedrock as the Yukon River makes its way to the Bering Sea. All Project sites fall within the Yukon River watershed.

Climatically, the Yukon Southern Lakes Ecoregion's climate is dry and cool and is typified by long, cold winters and short, warm summers. Monthly summer temperatures (June-August) average 13.6 °C and winter (November to March) temperatures average -13.2 °C. Most of the precipitation falls as rain between June and September with a total mean monthly precipitation during this period of 147 millimetres (mm). Wind speed as measured from 1981-2010 at the Whitehorse Airport illustrates that the prevailing wind direction is from the south throughout the year. The maximum recorded gust speed occurred in November and was measured to be 106 kilometres per hour (km/h) coming from the southeast[3].

All Project sites, except the two north sites in the Deep Creek area, fall within the Whitehorse Planning Region. The following sections describe site conditions at each proposed site in the north and south of Whitehorse.

#### 3.2.2.1 North Power Centre Sites

A summary description of site conditions at each of the five identified north sites is provided below.

##### WHITEHORSE WASTE MANAGEMENT FACILITY

**Owner:** City of Whitehorse
**Current Use:** Adjacent to an active waste management facility

The Whitehorse waste management facility site is within the Boreal Low Ecoregion and near the Whitehorse Waste Management Facility, which is accessed via a junction near KM 1429 of the Alaska Highway. The area surrounding the site is comprised of an open, mixed conifer forest comprised of lodgepole pine and white spruce; a minor element of trembling aspen occurs. A burn occurred in the area in 1958. No intersecting data with Wildlife Key

[2] Yukon Ecoregions Working Group, 2004. Yukon Coastal Plain. In: Ecoregions of the Yukon Territory: Biophysical properties of Yukon landscapes, C.A.S. Smith, J.C. Meikle and C.F. Roots (eds.), Agriculture and Agri-Food Canada, PARC Technical Bulletin No. 04-01, Summerland, British Columbia, p. 63-72.
[3] Yukon Energy Corporation, 2015. Southern Lakes Enhanced Storage Concept Wind Data Analysis. Yukon Energy Corporation. Whitehorse, YT. March 19.

Areas (Alpine Raptor WKA ID 1763 is 2 km away) or Species of Concern are present in the immediate area. The site overlaps with the Carcross caribou herd range. Porter Creek is greater than 300 m away to the east and is a known fish-bearing stream. No wetlands or waterbodies were detected via a visual assessment using aerial imagery.

The site terrain is rolling and hummocky with surficial soils deposited as veneers or blankets. Glacial meltwater channels exist throughout the area. There are multiple soil types in the area comprising glacial till, sand and gravel, and organic bog. The proposed site is underlain by glacial till and/or organic rich soil, likely with glaciofluvial soil below. The subsurface conditions include shallow bedrock expected below glacial till and groundwater table expected to sit on or below the glacial till.

Landslides are indicated on surficial geology map on steeper terrain and permafrost could be found in shaded areas of north-facing slopes but is likely absent in other areas. There is a moderate seismic hazard rated as seismic class D.

## LAND PARCEL TKC R-5B - DEEP CREEK

**Owner:** TKC (R-5B)
**Current Use:** Abandoned gravel pit

The Deep Creek (Gravel Pit) site is within the Boreal Low Ecoregion and located immediately west of the Klondike Highway near km 227. It is approximately 270 m from transmission line L170 and entirely within TKC Settlement land, TKC R-5B. The site is also located within the Fox Lake Local Planning Area.

This site has been cleared, forest inventory data of the surrounding area is described as an open and young mixed wood forest comprised of trembling aspen, lodgepole pine (Pinus contorta) and white spruce.

Occurrences of Mule Deer WKA 1907 (1-3 km away) and Alpine Raptor WKA 1355 (1-3 km away) are nearby. Riparian Raptor WKA 1365 (3-5 km away) and Thinhorn Sheep Winter WKA 1240 (3-5 km away).

A small network of mapped streams is located east of the site but is over 500 m away. Fish presence is unknown. Two mapped wetlands are located to the northeast and southwest but are both approximately 400 m away from the site.

The Deep Creek site was formerly used by TKC as a gravel pit. The site has been previously cleared and has relatively flat topography to develop whereas other areas have more complex topography. The quarry has sand and gravel likely with sufficient area for proposed developments. The surrounding area has complex topography comprising plains, hummocks, and terraces with undulating topography throughout. The area has complex surficial geology of glacial till, glaciofluvial sand and gravel, glaciolacustrine sand, silt, and clay, organics in wetlands, alluvial sand, gravel, and silt, colluvium, and bedrock outcrops all found along the highway. The area close to the proposed site is mostly dominated by organic or glaciolacustrine deposits.

The subsurface conditions are glacial till underlain by bedrock with sand and gravel typically underlain by glacial till. Groundwater is expected to lie on or within glacial till/glaciolacustrine soil. There is no subsurface data to indicate whether permafrost is present or not.

There is a moderate seismic hazard rated as seismic class D.

## NORTH KLONDIKE HIGHWAY KM 232 - NORTH OF DEEP CREEK ROAD

**Owner:** Yukon Government
**Current Use:** Greenfield Site

This site is situated approximately 400 m east of the Klondike Highway near KM 232 and adjacent to a power transmission line, L170 in the Boreal Low Ecoregion. TKC Settlement land (TKC R-5B) is on the opposite side of the Klondike Highway from this site. The site is within the Deep Creek Community Planning area.

The site is in a mixed coniferous/deciduous forest consisting of trembling aspen (*Populus tremuloides*) and white spruce (*Picea glauca*). A group of small waterbodies are northeast of the site, with one of these being within 1 km. Fish presence is unknown. A mapped wetland is north and within 1 km of the site.

Wildlife Key Area data suggests occurrences of Mule Deer WKA 1907 (up to 10 km away) and Alpine Raptor WKA 1355 (1-3 km away) are nearby. Riparian Raptor WKA 1365 (5 km away) and Thinhorn Sheep Winter WKA 1240 (5-10 km away).

Just within 1 km, and likely associated with the above-mentioned wetland, is a Species of Concern, Sartwell's Sedge (Carex sartwellii, Occurrence ID #1181); it has been noted that this is a historical record, and it is unknown if the plant is still present in the area. An occurrence of the Gypsy Cuckoo Bumble Bee (Occurrence ID #1793) has been documented along the Klondike Highway 400 m to the west.

This area has a prominent exposure of sand and gravel. The surrounding area has complex topography comprising plains, hummocks, and terraces with undulating topography throughout. The area has complex surficial geology of glacial till, glaciofluvial sand and gravel, glaciolacustrine sand, silt, and clay, organics in wetlands, alluvial sand, gravel, and silt, colluvium, and bedrock outcrops all found along the highway.

The subsurface conditions are glacial till underlain by bedrock with sand and gravel typically underlain by glacial till. Groundwater is expected to lie on or within glacial till/glaciolacustrine soil. There is no subsurface data to indicate whether permafrost is present or not.

There is a moderate seismic hazard rated as seismic class D.

## LAND PARCEL KDFN C-53B - KULAN INDUSTRIAL AREA

**Owner:** KDFN (C-53B)
**Current Use:** Greenfield sites in an industrial area

This site is located on KFDN Settlement land, KDFN C-53B, near the southwest corner of the Kulan Industrial Subdivision. It is within the Boreal Low Ecoregion. It is situated on a Quartz Mining Claim (Hat 7; Grant # YB57543; Claim ID 37213), owned by H. Coyne & Sons Ltd.

Forested lands are dominated by lodgepole pine. A burn occurred in the area in 1958. There are no wetlands in proximity to the site.

There are no intersecting data indicating that Wildlife Key Areas (Alpine Raptor WKA ID 1763 is 2.5 km away) or Species of Concern are present in the immediate area. The site overlaps with the Carcross caribou herd range.

Porter Creek is beyond 1 km from the site. There are no mapped wetlands or waterbodies in proximity to the area.

The Kulan Industrial area is underlain by glacial till. The topography is described as surficial soil deposited as a blanket with ridges and a topographical high point. The proposed parcel is surrounded by wetlands with an organic blanket and possible old meltwater channels. The organic-rich materials in these meltwater channels may be underlain with sand and gravel.

In general, the subsurface conditions are expected to be glacial till underlain by bedrock and soils expected to be sand (silty, gravelly, cobbles and boulders throughout). Groundwater is expected near the surface given the proximity of wetland areas.

Permafrost is not expected in the area proposed, and no geohazards are expected. There is a moderate seismic hazard rated as seismic class D.

## KM 1438 ALASKA HIGHWAY – HAECKEL GRAVEL PITS

**Owner:** Yukon Government
**Current Use:** Abandoned gravel pit

The Haeckel Hill Gravel Pit just south of KM 1439 of the Alaska Highway is situated in an open pit. This site does not intersect any Settlement lands, nor is it within a local planning area. It is within the Boreal Low Ecoregion.

This site is a gravel pit and as such, has been subjected to past and existing disturbance. Surrounding forested land consists predominantly of a conifer forest comprised of lodgepole pine and white spruce, with a minor element of trembling aspen.

Wildlife Key Areas data indicates that an alpine raptor area (WKA ID 1763) is within 2 km of the site. There are no Species of Concern in proximity. The site overlaps with the Carcross caribou herd range.

A small tributary to Takhini River is approximately 800 m to the east. It is unknown if fish are present, but given its proximity to Takhini River, a fish-bearing stream, presence may be likely. There is a small, isolated pond adjacent to the gravel pit; based on a visual assessment using aerial imagery, there does not appear to be connectivity to fish-bearing waters.

This site is a former gravel pit. The site has been previously cleared and is lower than the surrounding area. Surficial geology consists of glaciofluvial sands and gravel deposited as a fan. The surrounding area consists of hummocky or ridged topography.

Permafrost is not expected in the area proposed, and no geohazards are expected. There is a moderate seismic hazard rated as seismic class D.

#### 3.2.2.2 South Power Centre Sites

A summary description of site conditions at each of the five identified south sites is provided, below.

##### MCLEAN LAKE GRAVEL PIT AREA

**Owner:** Yukon Government
**Current Use:** Greenfield site adjacent to Brownfield sites in an industrial area

The McLean Lake Road site is with the Boreal Low Ecoregion. It is 2.2 km east of the junction of McLean Lake Road and the Alaska Highway, on the north side of the road. It does not overlap with First Nations Settlement lands. It is in proximity to the McLean Lake Quarry situated to the west.

The site is within an open lodgepole forest. There are trails throughout the area that are designated as multi-use. Recently FireSmart activity has taken place here.

There are no occurrences of Species of Concern that are within 1 km of the site. The closest Wildlife Key Area is approximately 2.5 km to the west (Golden Eagle WKA ID 1378).

A small, mapped stream is approximately 225 m away and flows into a wetland complex to the north (>2.5 km away). This drainage has been studied recently and was deemed non-fish bearing. Small fish-bearing ponds (McLean Lake) are beyond 500 m of the area.

This area has complex topography derived from geomorphological processes during deglaciation of meltwater channels and outwash floods. Topography consists of plains and terraces with hummocks, ridges, depressions, and undulations throughout.

The surficial geology is complex and consists of glaciofluvial sand and gravel, glacial till, colluvium, organics in wetlands, and bedrock outcrops. The subsurface conditions are glacial till underlain by bedrock and sand and gravel and are likely underlain by till.

Permafrost is not expected in the proposed development area, and landslides are indicated within the area, though none are expected in the areas proposed. There is a moderate seismic hazard rated as seismic class D.

## LAND PARCEL KDFN C-95B - ALASKA HIGHWAY AT LORNE ROAD

**Owner:** KDFN
**Current Use:** Greenfield site adjacent to an industrial area

The Lorne Road site is within the Boreal Low Ecoregion and on KDFN Settlement land KDFN C-95B. The site is close to KM 1414 of the Alaska Highway. The Settlement land is bounded by a railway, owned by the White Pass and Yukon Route to the east.

Forest inventory data indicates this location consists of an open lodgepole pine forest. There are no occurrences of Species of Concern. While there are no intersecting wildlife key areas, the site overlaps with the Carcross caribou herd range and is within 3.5 km of the Laberge herd range.

No streams or waterbodies are present within 500 m of this site location.

Surficial soils in this area are deposited as plains or terraces. There are kettles and ice-contact margins present in the area, with depressions visible. The surficial soils consist of glaciofluvial sands and gravels, with a contact between the sands and gravels and glacial till present along the western boundary. Some cobbles and boulders are likely present in the glaciofluvial soils.

Permafrost is not expected in the area proposed, and no geohazards are expected. There is a moderate seismic hazard rated as seismic class D.

## LAND PARCELS KDFN C-183B TO C-187B - SIMA INDUSTRIAL SUBDIVISION

**Owner:** KDFN
**Current Use:** Greenfield and cleared sites in an industrial area

The potential thermal facility site is within the Sima Industrial Area and is within the Boreal Low ecoregion. Located east of Collins Lane in the Sima Industrial Area, this site is within five adjoining KDFN Settlement lands and has land use designation of First Nations Development Land. The five sites being considered include the following:

- KDFN C-183B
- KDFN C-184B
- KDFN C-185B
- KDFN C-186B
- KDFN C-187B

The lands are forested with lodgepole pine being the dominant species, followed by trembling aspen. The crown closure is generally open (20%). Beyond the forested lands, disturbance is associated with industrial use and includes extensive anthropogenic disturbance. Land parcels C-185B and C 186B have already been cleared.

There are no occurrences of Species of Concern, wildlife key areas (WKA 1758; Golden eagle and Gyrfalcon) are beyond 3.5 km away to the west. The site overlaps with the Carcross caribou herd range.

Three small ponds are within 1,000 m of the site and connected to an unmapped wetland feature. A stream connected to the Yukon River is located within 1,000 m; however, there is no documented fish occurrence.

The topography is described as surficial soil deposited as a blanket with ridges and a topographical high point. The surficial geology is glacial till with a sand/silt matric and bedrock outcrops to the east and west.

The subsurface conditions are expected to be glacial till underlain by bedrock and soils expected to be sand (silty, gravelly, cobbles and boulders throughout). Groundwater is expected on/within glacial till or at bedrock surface and is likely deep due to till and being a topographical high point.

Permafrost is not expected in the area proposed, and no geohazards are expected. There is a moderate seismic hazard rated as seismic class D.

## COPPER HAUL ROAD

**Owner:** Yukon Government
**Current Use:** Greenfield site adjacent to an industrial area

The Copper Haul Road site is situated in the Boreal Low Ecoregion. It does not overlap First Nations Settlement lands and is approximately 1 km south of the McLean Lake Quarry along the Copper Haul Road. The site is located outside of the proposed Chasàn Chùa (McIntyre Creek) protected area boundaries. Copper Haul Road is a multi-use trail with a variety of users (e.g., hikers, snowmobilers, motorcyclists, etc.). A small quarry is located approximately 800 m to the northwest. The site is situated on a Quartz Mining Claim (Gin 47; Grant # YC19494; Claim ID 40099), owned by H. Coyne & Sons Ltd.

The land on which the site is situated is forested with an open, mixed stand of lodgepole pine and trembling aspen, with a minor element of white spruce.

There are no occurrences of Species of Concern that are within 1 km of the site. The closest Wildlife Key Area is just beyond 1 km to the west (Golden Eagle WKA ID 1378). The site overlaps with the Carcross caribou herd range.

Two small tributaries are flowing eastward that are within 300 m to 600 m from the site; one of which is McIntyre Creek, a known fish-bearing stream. Five small ponds are within 1 km; one of which is situated alongside Copper Haul Road and is a popular waterbody for anglers. No wetlands are documented nearby this site.

This area has complex topography derived from geomorphological processes during deglaciation of meltwater channels and outwash floods. Topography consists of plains and terraces with hummocks, ridges, depressions, and undulations throughout.

The surficial geology is complex and consists of glaciofluvial sand and gravel, glacial till, colluvium, organics in wetlands, and bedrock outcrops. The subsurface conditions are glacial till underlain by bedrock and sand and gravel and are likely underlain by till. Shallow bedrock may be present in the proposed area.

Permafrost is not expected in the proposed development area, and landslides are indicated within the area, though none are expected in the areas proposed. There is a moderate seismic hazard rated as seismic class D.

#### WHITEHORSE COPPER MINE

**Owner:** Yukon Government
**Current Use:** Greenfield site adjacent to brownfield abandoned mine site

The Whitehorse Copper Mine site is in the Boreal Low Ecoregion, approximately 1.8 km on the Sima Road from its junction with the Alaska Highway. It is located adjacent to an abandoned mining area where extensive anthropogenic disturbance has occurred. It is situated on a Quartz Mining Claim (FYDB 15; Grant # YB46667; Claim ID 146746), owned by Groundtrax Environmental Services Inc.

The forest composition at this site is predominantly white spruce and lodgepole pine, with a minor element of trembling aspen.

There are no occurrences of Species of Concern, wildlife key areas (WKA 1758; Golden eagle and Gyrfalcon) are beyond 2 km away to the west. Thinhorn Sheep (WKA 1551) is within 5 km. The site overlaps with the Carcross caribou herd range.

No fisheries or wetland values occur within 1 km of this site.

The proposed site is in an area of surficial sands and gravels. The surrounding area consists of hummocky or ridged topography.

Permafrost is not expected in the area proposed, and no geohazards are expected. There is a moderate seismic hazard rated as seismic class D.

### 3.2.2.3 Substation Site

A summary of the site conditions at the substation site is provided below.

#### LONG LAKE ROAD

**Owner:** City of Whitehorse
**Current Use:** Adjacent to brownfield abandoned sewage lagoon

The proposed location for the substation, accessed via the Long Lake Road, is within the Boreal Low Ecoregion. It does not intersect with First Nations Settlement Lands; however, KDFN C-116B is 750 m to the east. A junction of two power transmission lines (L172 and L172 McIntyre Tap) are approximately 650 m to the east. Locating a new substation near this power transmission junction is an ideal location to improve system reliability.

The site is within a forest area comprised predominantly of lodgepole pine with a minor occurrence of trembling aspen throughout. Wetlands are not present in the immediate area; there is a wetland complex approximately 1.7 km to the east.

The site overlaps with the Carcross caribou herd range and is within 2 km of the Laberge caribou herd range. The site overlaps with a late-winter moose wildlife key area (WKA ID 5417). There are no Species of Concern within 1 km of the area; the closest is 1.1 km away, which is an occurrence of bank swallow (Riparia riparia), Occurrence ID # 1948.

The Yukon River, a well-documented fish-bearing stream, is approximately 1.2 km to the west of the site. Croucher Creek, a known juvenile Chinook rearing stream, flows from the east and southeast into the Yukon River is located approximately 500 m away from this site.

The site topography is hummocky terrain with depressions. The surficial geology is generally sand and gravel or eolian sand overlaying glaciolacustrine silt, sand, and clay with glaciofluvial sand and gravel confined to the area south and east of the existing sewage lagoon. The proposed development area is eolian sand overlying glaciolacustrine.

Subsurface conditions are glaciolacustrine soil with groundwater expected on the surface of glaciolacustrine soil.

Permafrost is not expected in the area and the escarpment is susceptible to landslides. There is a moderate seismic hazard rated as seismic class D.

### 3.2.3 Proximity to Other Projects

Other projects listed in the YESAB Online Registry in proximity to the proposed Project are listed in Table 3.2-2, below:

**Table 3.2-2: Other Projects in YESAB Registry in Proximity to the Proposed Project**

| YESAB Project # | Proponent | Project Name | Current Assessment Stage |
|---|---|---|---|
| 2024-0103 | Yukon Energy | Whitehorse Air Emissions Permit Renewal (Whitehorse Rapids Generating Station) | Decision Document Issued |

| YESAB Project # | Proponent | Project Name | Current Assessment Stage |
|---|---|---|---|
| 2024-0188 | Government of Yukon, Forest Management Branch | Copper Haul Road Fuel Abatement Timber Harvest Plan | Evaluation Information Request |
| 2024-0193 | Castle Rock Enterprises | Quarry – Castle Rock North Renewable and Expansion | Recommendation Sent |
| 2025-0031 | Gladiator Metals Corp | Quartz Exploration Whitehorse Copper Projects – Gladiator Metals Corp | Adequacy Review Response |
| 2025-0033 | Terus Construction | Air Emissions Permit and Quarry | Prepare Recommendation |
| 2025-0036 | Drew Spicer | Lot 232 Golden Horn – Power Line Installation | Adequacy Information Request |
| 2025-0037 | Parks Canada Agency | S.S. Klondike Vessel and Site Remediation | Adequacy Review Response |
| 2025-0041 | City of Whitehorse | Long Lake Day Area Improvements | Adequacy Information Request |
| 2025-0073 | Yukon Government – HPW – Transportation Engineering Branch | Multi-Use Trail – Two Mile Hill to Kopper King | Adequacy Review |

### 3.2.4 Proximity to First Nations Interests and Lands

All identified Project sites are within the Traditional Territories of two Yukon First Nations with treaties: KDFN and TKC. Both Nations provided Settlement land options for consideration for the Project. The sites located within Settlement land are detailed in Table 3.2-3, below. Known cultural/heritage sites in the Project area are shown in Figure 3.2-10 and Figure 3.2-11.

**Table 3.2-3: Project Sites Located Within Settlement Lands**

| Project Site Name | First Nation | Parcel Number |
|---|---|---|
| Deep Creek | TKC | TKC 5-RB |
| Kulan Industrial Area | KDFN | KDFN C-53B |
| Alaska Highway at Lorne Road | KDFN | KDFN C-95B |
| Sima Industrial Subdivision | KDFN | KDFN C-183B to C-187B |

### 3.2.5 Land Requirements

One site for a substation and up to three sites for thermal generation located in and around the City of Whitehorse are required for the Project. Locating generation and substation assets as close as feasible to customer demand is

essential in order to provide reliable electricity to our customers. Yukon Energy has identified a variety of site options including territorial Crown land, TKC and KDFN First Nations Settlement land, and municipal land options. Land types for each identified site are provided in Table 3.2-1, above; Table 3.2-3 provides Settlement land parcels under consideration for the Project.

### 3.2.6 Past Uses of Project Site

Several of the sites are located on previously disturbed, levelled, and developed land, both within the Municipality of Whitehorse and outside. These areas have been previously cleared of vegetation and levelled for industrial use. Other sites are located on First Nations land or other properties that have not been developed within recent years. Past uses of each proposed site are provided in Table 3.2-1. Prior to the Gold Rush, the land was used extensively by the KDFN and TKC since time immemorial.

# 4 PROJECT STAGES AND SCHEDULE

The following sections describe the project stages and proposed schedule. The proposed Project stages are detailed in Table 4.1-1, below.

## 4.1 Project Stages and Schedule

Yukon Energy is currently working through a site selection exercise. Multiple sites are being considered, and the preferred sites are planned to be selected by Fall 2025. The design process will begin in 2025, followed by construction that will start once the assessment is complete and permits are issued, expected to be in late 2026. The construction is anticipated to occur in phases (as discussed in Section 3.1.3) between 2026 and 2035.

The operations stage is planned to begin by winter 202 for the south thermal site and by 2030 for the first north thermal site and the substation, subject to assessment and permitting timelines. Operations will begin upon commissioning of each site and will include operations and maintenance of the generators and supporting infrastructure by Yukon Energy.

As this project is a new build with no current plans for decommissioning and closure within the temporal scope of the project, the focus of the information provided here is on the planning, construction, and operational phases of the Project.

**Table 4.1-1: Summary of Project Stages and Schedule**

| Stage | Timing | Description |
|---|---|---|
| **Planning and Engagement** | 2019-2027 | Government and Community Engagement |
| | 2024-2026 | Feasibility and Preliminary Engineering |
| | 2025 | Environmental and Socio-economic Baseline and Effects Assessment |
| **Study, Design and Assessment/Permitting** | Starting in 2025 | Detailed Engineering Design |
| | June 2025 | Submit Project Description to initiate YESAB Pre-Submission Engagement |
| | 2025-2026 | YESAA Assessment Process |
| | 2026-2027 | Municipal Building and Development Permits |
| | 2026-2027 | Air Emission and Fuel Tank Permits |
| **Construction and Installation** | Starting in 2026 | Civil Site Improvements |
| | Starting in 2027 | Mechanical and Electrical (Installation, Tie in and Inspection) |
| | Starting in 2027 | Placement of Generators and Fuel Storage Tanks |
| **Commissioning** | 2027-2035 | Commissioning and Close Out |
| **Operations** | Substation and transmission upgrades will extend beyond 40 years. Thermal generation may extend beyond 40 years depending on the availability of other dependable electricity resources. | Operation and maintenance of the thermal generators and support infrastructure |
| **Decommissioning** | N/A | Not within temporal scope of the assessment |
| **Closure** | N/A | Not within temporal scope of the assessment |

## 4.2 Project Design Stage

Feasibility design for north and south sites was completed to identify technical feasibility of the identified sites; however, detailed design of site-specific components cannot begin until the four sites are selected (expected in Fall 2025). Maximum thermal generation capacity to be in place by winter 2035 for the north and south sites is determined (75 and 30 MW, respectively); however, fuel sources, generator specifications, installation type, and ancillary site components are yet to be defined. Yukon Energy plans to define these parameters prior to submission of the Project Proposal.

## 4.3 Proposed Concurrent Activities

Proposed activities to be undertaken during Pre-Submission Engagement to inform the development of the Project Proposal include the following:

- Completing the site selection process that includes discussions with the City of Whitehorse, Yukon Government, and First Nation Governments;
- Gathering site specific information to inform Environmental and Socio-Economic assessments, including the following:
  - Air Quality;
  - Noise;
  - Biophysical Components;
  - Socio-economic components;
  - Geotechnical Information; and
  - Any required traffic studies.
- Continuing engagement with the local community, KDFN, and TKC. This engagement will build on the past several years of engaging with these communities to understand concerns related to the Project and provide information on studies conducted to date (see Section 6 for further details); and
- Advancing engineering design of the proposed facilities and connection to the existing electrical grid.

# 5 REGULATORY CONTEXT

The regulatory context of the Project is described in Section 5.1 below.

## 5.1 Regulatory Requirements

The Project requires permits and authorizations. These may vary depending on the fuel type selected. See Table 5.1-1 below, for necessary authorizations required. The Project is assessable under YESAA at the Executive Committee Screening level pursuant to Schedule 3, Item 25 of the *Assessable Activities, Exceptions and Executive Committee Projects Regulations*, which includes the construction, decommissioning or abandonment of a fossil fuel-fired electrical generating station with a production capacity of 5 MW or more.

The Project may require Yukon Government Land Branch Authorizations for land clearing, in addition to building or civil works related permits that are not subject to YESAA assessment.

Following the completion of the YESAA assessment and issuance of a Decision Document by the Yukon Government, Yukon Energy will apply for the necessary project authorizations required to construct and operate the fuel storage system and operate the generators.

**Table 5.1-1: Required Project Authorizations**

| Agency | Agency (Department) | Authorization |
|---|---|---|
| YESAA-Designated Decision Body | Territorial | *Yukon Environmental and Socio-economic Assessment Act* (*YESAA*)<br>- Decision Document |
| Yukon Government | Environment | *Environment Act*, Air Emissions Regulation<br>- Air Emissions Permit |
| Yukon Government | Community Services<br>Fire Marshal's Office | *Environment Act*, Storage Tank Regulation<br>- Tanks Regulation, Storage Tank Systems Permit |
| Yukon Government | Energy Mines and Resources | If LNG or dual or bi fuel thermal generation selected - Gas Processing Plant Regulations (GPPR) of the *Yukon Oil and Gas Act*<br>- LNG Facility Licence |
| Yukon Government[1] | Community Services<br>Building Safety | Building Permit |
| The City of Whitehorse[1] | Planning and Development | For sites within the municipality - Development Permit |

[1]Authorizations not requiring a YESAA Decision Document.

# 6 INITIAL ENGAGEMENT AND CONSULTATION TO DATE

The following sections describe the initial engagement Yukon Energy has conducted and our plans to conduct future engagement.

## 6.1 Affected First Nations and Communities

Yukon Energy identifies the following affected First Nations and communities:

- TKC;
- KDFN;

- Whitehorse Municipality and surrounding area; and
- Deep Creek Community.

## 6.2 Summary of 2019 20 MW Thermal Plant Engagement (Initial Engagement)

The need for additional thermal generation in Whitehorse specifically was first introduced to First Nations, stakeholders and the public in 2019, when Yukon Energy started engagement for its proposed 20-megawatt thermal plant. Through engagement efforts in 2019, Yukon Energy was able to share the Project's purpose and need as well as collect feedback that Yukon Energy has since applied to the revised 2025 Project scope.

Between March and June 2019, Yukon Energy undertook public engagement activities. While engagement activities were focused on the Whitehorse area given the project's proposed location, there were opportunities for all Yukoners to share feedback. As part of the engagement activities, Yukon Energy did the following:

- Formed a project-specific Advisory Committee with representatives from KDFN, TKC, the City of Whitehorse, Government of Yukon as well as stakeholders like the Yukon Conservation Society, neighbour associations close to the proposed Project locations and Yukon University, as well as a local economist and intervenors in the regulatory process. The mandate of this committee was to understand the project in-depth and to discuss the project work at key stages. Members of the committee provided comments to Yukon Energy staff on the rationale and methodology of the project work and pointed out any errors or omissions.
- Hosted four open houses in Whitehorse to provide opportunities for members of the public to learn more about the project, ask questions and provide their input.
- Conducted an online survey to enable individuals across the territory to access project information and provide input on the 20-megawatt thermal plant's location and fuel type.
- Visited approximately 175 homes and businesses within 800 metres of each of the proposed locations to share information about the project and gather feedback.
- Developed the following public materials:
  - Household mailer mailed to all Yukon households;
  - Posters posted at various businesses and on community boards around town;
  - Print and radio ads broadcast in the Whitehorse Star, Yukon News, What's Up Yukon, L'Aurore Boreale, CKRW and CHON FM;
  - A project page on Yukon Energy's website;
  - Two 90-second videos – one detailing the location options, and one about the fuel options being considered – used as both paid and organic Facebook posts and paid Google ads; and
  - Facebook and Google ads to inform Yukoners of the project open houses and to encourage participation in the online engagement survey.

Through these engagement activities, the following key themes emerged:

- Renewables, conservation and alternative solutions;
- Impact on residents;
- Climate change;
- Diesel over LNG;
- Cost;
- Access during emergencies; and
- Rented versus owned generators.

Generally speaking, feedback from the public highlighted a preference for renewable energy sources, while considering cost and impact on rates. Participants also expressed concerns about the proposed thermal facility's impact on nearby communities, including noise, traffic, and reduced quality of life. While renewables were preferred, diesel was favored over LNG due to infrastructure readiness and environmental concerns about fracking. Emergency access and operational efficiency were also key factors, with some supporting the idea of renting generators to meet short-term needs without long-term fossil fuel commitments. A more detailed report of the feedback received can be found in Appendix A.

The feedback received from the initial round of engagement informed the weighting criteria used to narrow down potential sites in 2025 and will continue to be considered as the project develops.

## 6.3 Learnings from the Callison Generating Station Pre-Submission Engagement Process

In 2023 and 2024, Yukon Energy went through the pre-submission engagement process for the Callison Generating Station (YESAB project number 2023-0150). Like this Project, the Callison Generating Station is also a thermal plant, and as such, some of the feedback received from that project can be applied to the Whitehorse Power Centres project. Feedback received during the Callison engagement centred around greenhouse gas emissions and climate change, project alternatives, as well as cost and reliability. Based on this feedback, Yukon Energy has attempted to clearly outline why a thermal plant in Whitehorse is needed and how it will help to improve reliability, as well as what Yukon Energy is doing to keep rates affordable for Yukoners. This information was presented in Yukon Energy's Road Map to 2050, Building a Resilient and Renewable Energy Future, as well as Chapter 1: A Reliable and Robust Grid and will continue to be communicated in future engagement activities.

## 6.4 Recent and Future Engagement Activities

Yukon Energy's efforts to communicate the need for dependable winter capacity in the Yukon are ongoing. This need for dependable winter capacity is emphasized in many of Yukon Energy's other project communications, as well as through broader strategic plans.

In April 2025, Yukon Energy released its road map to 2050, along with the first chapter of the road map—Chapter 1: A Reliable and Robust Grid. Chapter 1 specifically mentioned the Whitehorse Power Centres project (pages 16 and 17) and presented the revised Project scope to all Yukoners. A summary of how this document was released and promoted can be found in section 6.4.5.

### 6.4.1 Summary of Engagement with Ta'an Kwäch'än Council and Kwanlin Dün First Nation

In 2024, Yukon Energy introduced the Whitehorse Power Centres Project to KDFN and TKC. In 2025, once the Project scope was refined and the process of selecting sites began, Yukon Energy met, and continues to meet, with KDFN and TKC to discuss potential site locations and investment opportunities. See Table 6.4-1 for review of Yukon Energy's relevant engagement with First Nation since 2023 up to the time of this submission.

**Table 6.4-1: First Nations Engagement Record**

| Date | Nation | Topic | Description of Information Provided |
|---|---|---|---|
| October 23, 2023 | All Yukon First Nations | Energy Summit technical workshop hosted by Council of Yukon First Nations (CYFN) | Yukon Energy representatives delivered a presentation on the need for dependable winter capacity over the next five years to meet peak demand. |
| November 30, 2023 | All Yukon First Nations | Energy Summit leadership gathering hosted by CYFN | Discussed need for dependable winter capacity over the next five years to meet peak demand. |
| February 24, 2024 | KDFN | Draft Energy Supply Plan meeting | Provided an overview of Yukon Energy's draft Energy Supply Plan (Short-Term Action Plan) that highlighted the need for more diesel, wind and batteries on the grid to meet peak demand for power. |

| Date | Nation | Topic | Description of Information Provided |
|---|---|---|---|
| May 7, 2024 | All Yukon First Nations | Arctic Indigenous Investment Conference presentation | Provided overview of electricity system needs and opportunities, as well as priorities over the next five years, including the need for dependable winter capacity. |
| May 30, 2024 | KDFN and TKC (separate meetings for each Nation) | Whitehorse Power Centres project introduction meeting | Provided detail about the need for new power centres in the Whitehorse area.<br>Discussed land acquisition and process.<br>Discussed Yukon Energy's commitments under Chapter 22 of the Umbrella Final Agreement. |
| March 24, 2025 | All Yukon First Nations | Yukon Energy Road Map to 2050 and Five-Year Strategic Plan (Building a Resilient and Renewable Energy Future) | Shared copies of plans with all 14 Yukon First Nations via email. |
| April 1, 2025 | TKC | Site locations for Project | Discussed potential site locations for project. |
| April 22, 2025 | All Yukon First Nations | Yukon First Nations Defence and Security Industries Conference presentation | Shared Road Map to 2050 and five-year strategic plan and how five-year priorities promote energy security. |
| April 29, 2025 | TKC | Site locations for Project | Discussed potential site locations for project. |
| May 6, 2025 | All Yukon First Nations | Arctic Indigenous Investment Conference presentation | Shared Road Map to 2050 and five-year strategic plan.<br>Introduced Whitehorse Power Centres project. |
| May 8, 2025 | KDFN | Site locations for Project | Discussed potential site locations for project. |
| May 13, 2025 | TKC | Letter of support for Project | See Appendix B. |
| May 29, 2025 | KDFN | Site Locations for project | Discussed potential site locations for project. Walk through of potential sites. |

### 6.4.2 Summary of Engagement with the City of Whitehorse

In 2024, Yukon Energy engaged the City of Whitehorse in the need for a thermal plant(s) in Whitehorse and site selection discussions. Yukon Energy continues to have meetings with the City of Whitehorse to discuss site locations and the need for dependable winter capacity. See Table 6.4-2 for review of Yukon Energy's relevant engagement with the City of Whitehorse from 2024 up to the time of this submission.

**Table 6.4-2: City of Whitehorse Meeting Record**

| Date | Topic | Description of Information Provided |
|---|---|---|
| November 7, 2024 | Project introduction | Presented a high-level overview of the Whitehorse Power Centres Project and introduced the preliminary proposal to explore the use of a portion of the City's landfill site as a potential location for new infrastructure. |
| November 21, 2024 | Project progress check-in | Reviewed progress on use of landfill site and specific locations at site. |
| December 5, 2024 | Technical coordination and site alternatives | Discuss broader implications of infrastructure development and alternative site locations. |
| January 30, 2025 | Landfill site visit | Visited landfill to look at potential locations for project. |
| May 1, 2025 | Project overview and site selection | Presented an overview of the Whitehorse Power Centres project starting with a discussion of the Road Map, followed by a presentation of the proposed locations for generation stations and substations for City of Whitehorse staff to provide feedback. |
| May 8, 2025 | Site selection | Reviewed maps of the City in GeoYukon and identified areas of Public Utility land and industrial land that may be suitable for thermal generation and/or substations. |

### 6.4.3 Summary of Engagement with the Government of Yukon

In 2024, Yukon Energy engaged the Government of Yukon in the need for a thermal plant(s) in Whitehorse and site selection discussions early in the process. Yukon Energy continues to have meetings with the Government of Yukon to discuss site locations and the need for dependable winter capacity. Yukon Energy also continues to share regular information with the Yukon Development Corporation and Minister of Energy, Mines and Resources. See Table 6.4-3 for review of Yukon Energy's relevant engagement with the Government of Yukon from 2024 up to the time of this submission.

**Table 6.4-3: Government of Yukon Meeting Record**

| Date | Topic | Description of Information Provided |
|---|---|---|
| May 3, 2024 | Electricity Supply Plan Briefing | Presented need for diesel for backup and shared high-level schedule showing construction of a Whitehorse Power Plant to be in-service by 2029. |
| March 19, 2025 | Site selection | Met with Government of Yukon's Aviation Branch to discuss potential sites near the Whitehorse airport. Nav Canada were included in the meeting invite but did not attend. |
| May 1, 2025 | Project overview and site selection | Presented an overview of the Whitehorse Power Centres Project starting with a discussion of the Road Map, followed by a presentation of the proposed locations for generation stations and substations for Government of Yukon Lands Department staff to provide feedback. |
| May 16, 2025 | Site selection | Reviewed maps inside and outside of the City in GeoYukon and identified areas of Public Utility land and industrial land that may be suitable for thermal generation and/or substations. |
| May 26, 2025 | Site selection | Discussed the proposed substation on Long Lake with relation to how it would fit with the Whitehorse North Growth Area. Some discussion about the landfill, McLean Lake, and Sima area locations. |
| May 29, 2025 | Project scope | Discussed the approach to the project, timelines, and the sites that are being contemplated with the Department of Environment, Environmental Protection and Assessment Branch. |
| June 16, 2025 | Site Selection | Discussed the land tenure and the acquisition process for the proposed sites that are located on Yukon Government land. |

### 6.4.4 Summary of Engagement with Other Stakeholders

In addition to First Nations and stakeholders in the project area, Yukon Energy has engaged with other stakeholders across the Yukon that have expressed an interest in the project or in the Yukon's energy future. This has included the following stakeholders:

- Yukon Conservation Society;
- Yukon University;
- Yukoners Concerned;
- Canadian Parks and Wilderness Society – Yukon Chapter;
- Town of Faro;

- Village of Mayo;
- City of Dawson;
- Yukon Utilities Board;
- Potential assessors and intervenors in the regulatory process;
- Yukon Chamber of Commerce;
- Whitehorse Chamber of Commerce; and
- Yukon First Nations Chamber of Commerce.

In 2025, the groups above were sent copies of Yukon Energy's Road Map to 2050 and Chapter 1: A Reliable and Robust Grid. They will also be invited to participate in future engagement for the Project. See Table 6.4-4 for review of Yukon Energy's relevant engagement with Other Stakeholders from 2025 up to the time of this submission.

**Table 6.4-4: Other Stakeholders Meeting Record**

| Date | Group | Topic | Description of Information Provided |
|---|---|---|---|
| February 18, 2025 | - Yukoners Concerned | Road Map to 2050, five-year strategic plan and project introduction | Provided information about the electricity challenges Yukon Energy is facing, Road Map to 2050, the priorities in the next five years and the need for additional thermal facilities in Whitehorse. |
| April 2, 2025 | - Town of Faro residents | Road Map to 2050, five-year strategic plan and project introduction | Provided overview of Yukon Energy's Road Map to 2050, five-year strategic plan and overview of the Whitehorse Power Centres Project. |

| Date | Group | Topic | Description of Information Provided |
|---|---|---|---|
| April 8, 2025 | - Potential assessors and intervenors in the regulatory process<br>- Yukon Conservation Society<br>- Yukon University<br>- Yukon Fish and Wildlife Management Board<br>- Whitehorse Chamber of Commerce<br>- Yukon Chamber of Commerce<br>- First Nations Chamber of Commerce<br>- Yukon Utilities Board<br>- Canadian Parks and Wilderness Society – Yukon chapter<br>- City of Dawson<br>- Village of Mayo<br>- Town of Faro | Road Map to 2050, five-year strategic plan | Shared copies of plans with all stakeholders via email. |
| May 21, 2025 | - Village of Mayo Council | Road Map to 2050, five-year strategic plan and project introduction | Provided overview of Yukon Energy's Road Map to 2050, five-year strategic plan and overview of the Whitehorse Power Centres Project. |

### 6.4.5 Summary of Recent Public Engagement

As mentioned above, in April 2025, Yukon Energy released the first chapter of its road map to 2050—A Reliable and Robust Grid. This document specifically mentioned the Whitehorse Power Centres Project (pages 16 and 17) and presented the revised Project scope to all Yukoners. The release of the document involved tabling the documents in the Yukon Legislative Assembly, a month-long social media campaign, press release, and media coverage including a live interview with CBC Yukon and online articles.

**Table 6.4-5: Summary of Public Launch**

| Date | Media | Link |
|---|---|---|
| April 8, 2025 | Road Map to 2050 and Chapter 1 tabled in Yukon Legislative Assembly | https://yukonassembly.ca/sites/default/files/hansard/35-1-242.pdf |

| Date | Media | Link |
|---|---|---|
| April 8, 2025 | Website update and press release issued | https://yukonenergy.ca/about-us/news-events/yukon-energy-reveals-bold-new-vision-and-plans-for-a-resilient-energy-future<br>https://yukonenergy.ca/energy-in-yukon/projects-facilities/whitehorse-power-centres |
| April 10, 2025 | CBC live interview on Yukon Morning<br>Web article | Yukon Energy pitches $100M plan for new fossil-fuel plants in Whitehorse \| CBC News |
| April 8-30, 2025 | Social media ads and organic posts | https://www.facebook.com/share/p/18zJK9gMw4/<br>https://www.facebook.com/share/p/1AU2Y61GZn/<br>https://www.facebook.com/share/p/1E6uLG3LUQ/<br>https://www.facebook.com/share/p/1BvpsgTyuX/<br>https://www.facebook.com/share/p/1DcbdpZpZA/<br>https://www.facebook.com/share/p/1AgUZig9vU/<br>https://www.facebook.com/share/p/16Y277puYc/<br>https://www.facebook.com/share/p/16bCr1JSTz/ |

The public was able to share feedback about the 2025 project scope through social media comments and direct email to Yukon Energy staff. As in 2019, general feedback received thus far has centered around the need for renewable electricity, the need for affordable electricity, as well as potential noise and air impacts from the project.

Once this Project Description has been submitted to the YESAB Executive Committee, Yukon Energy will undertake the following:

- Send a mailer to all Whitehorse residents;
- Host open houses in the Whitehorse area;
- Update the Yukon Energy website;
- Post information on social media;
- Print and radio ads broadcast in the Yukon News, CKRW and CHON FM;
- Set up group briefings or one-on-one meetings with stakeholders; and
- Visit and/or send letters to property owners that are close to the proposed locations.

Yukon Energy will also continue to regularly engage with the TKC, KDFN, the City of Whitehorse and the Government of Yukon. All feedback received, including feedback received during the Pre-Submission Engagement process, will be used to select site locations and help to inform the Project's design.

# 7 PRELIMINARY VALUES COMPONENTS AND DATA

The following sections provide preliminary identification of valued environmental and socio-economic components (VESECs).

## 7.1 Description

A background desktop review of available data, including reports, literature, and government databases (e.g. GeoYukon) was reviewed for the Project areas. In addition, site specific field assessments were conducted for some of the proposed Project sites. The assessments, coupled with historic thermal generation engagement conducted in Whitehorse (see Section 6), allowed for initial identification of environmental and socio-economic components that have the potential to interact with the Project.

Table 7.1-1 provides a preliminary list of VESECs with the potential for interaction with the Project that are anticipated to be included in the effects assessment. This list of VESECs will be refined based on input from the data collection process outlined in Section 7.2, and the outcomes of engagement, site selection, and the YESAA Pre-submission Engagement (PSE) processes.

**Table 7.1-1: Values Components with Likelihood of Interaction with the Project**

| Environmental or Socio-economic Component | Valued Component | Potential Effect |
|---|---|---|
| Aquatic Environment | - Fish and Fish Habitat<br>- Water quality/ ground water quality | - Contamination from spills<br>- Impacts to water quality from construction activities (reduced water quality from erosion and sedimentation |
| Terrestrial Environment | - Vegetation and Ecosystems<br>- Wildlife and Wildlife Habitat<br>- Birds and Bird Habitat | - Spread of invasive plants due to construction activities<br>- Impact on soil and vegetation from construction activities<br>- Wildlife habitat avoidance due to increased. disturbance and noise during construction and operations<br>- Habitat loss due to direct physical disturbance<br>- Direct and indirect wildlife mortality<br>- Disturbance or incidental take to breeding birds, nests, eggs or young |
| Socio-economic Environment | - Climate Change | - Increased emissions and greenhouse gases from thermal generation |

| Environmental or Socio-economic Component | Valued Component | Potential Effect |
|---|---|---|
| Socio-economic Environment (continued) | - Human Health | - Reduced air quality during construction and operation activities<br>- Changes in noise levels for human receptors during construction and operations |
| | - Well-being | - Changes to visual/acoustic quality and experience of areas close to the project related to construction and operation activities |
| | - Recreational, commercial and other land users | - Reduced access to recreational areas during construction<br>- Changes in experience on the land<br>- Reduce area availability for future land uses<br>- Proximity of infrastructure to residential areas |
| | - Occupational Health and Safety | - Injury from heavy equipment or materials or falls from heights<br>- Health effects from diesel emissions, fuel exposure, or excessive noise |
| | - Local and Regional Economy | - Project provides opportunities for business and employment |
| | - Heritage Resources | - Disturbance of heritage resources during construction activities |
| | - Regional Economy | - Utility rate impacts<br>- Reliable Energy Resource |

## 7.2 Proposed VESEC Data Collection

For some sites, existing biophysical and socio-economic conditions were assessed in 2019 as part of the initial work done to advance a 20 MW thermal facility at that time.

In 2025, Yukon Energy will conduct outstanding baseline data collection, including desktop analysis and fieldwork (as needed), for the selected sites proposed in the Project Proposal. This includes data collection related to the physical and biophysical environment, as well as data collection related to the socio-economic environment (including heritage resources, and human health [noise, air quality]).

Yukon Energy has completed a qualitative desktop air quality and noise impact assessment for the sites being considered; however, a quantitative desktop air and noise modeling exercise will be completed for the three thermal generation sites. The quantitative modeling exercise will consider the air quality impacts taking into

account the maximum power centre generation capacity, the type of fuel, and the emissions and noise specifications of the generating unit. Yukon Energy will present this information in the Project Proposal.

Any additional baseline studies and results of the effects assessment will be included in the Project Proposal once the Executive Committee issues the Project Proposal Report at the conclusion of the PSE process.

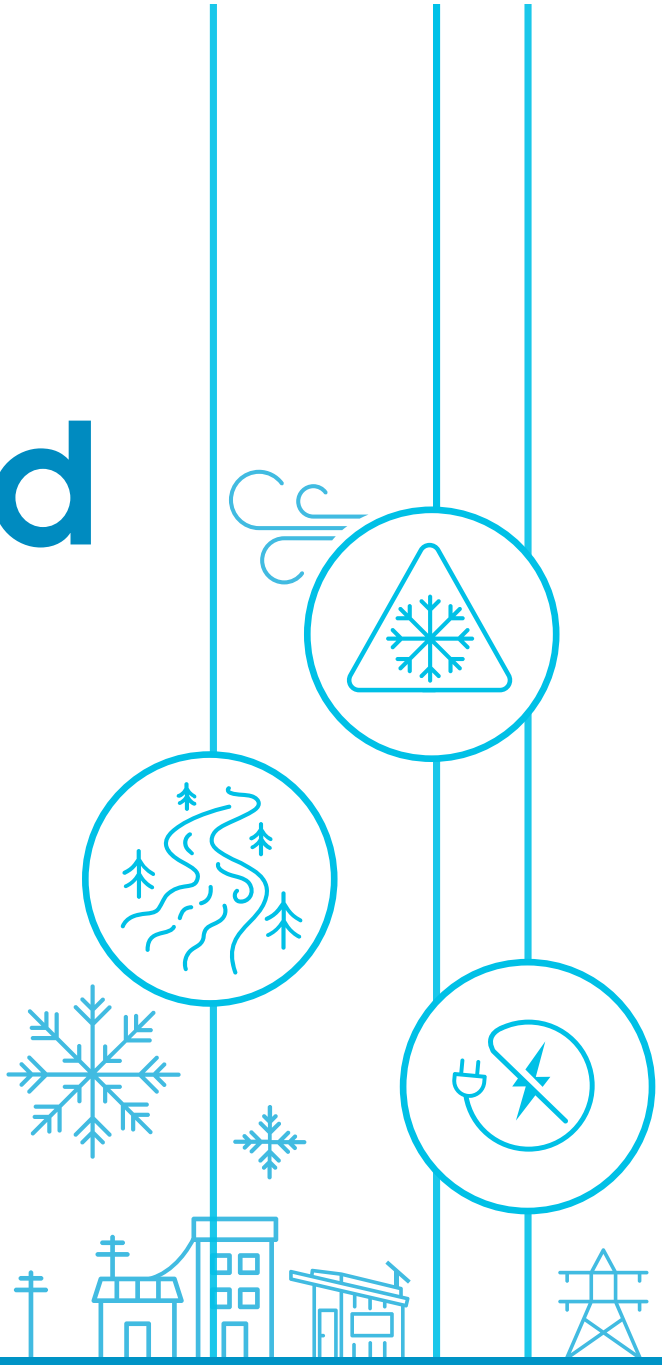
# APPENDIX

## Appendix A: 2019 What We Heard Report

# what we heard

## PROPOSED NEW THERMAL GENERATION FACILITY

October 2019
public engagement summary



**THERMAL ENERGY** PART OF OUR
**Future-Focused Portfolio**

yukon energy

# table of contents



## LIST OF APPENDICES

# executive summary

## We are committed to providing sustainable, reliable and affordable power to Yukoners.

Yukon is growing, and so too is the demand for electricity. Population and economic growth in the territory, coupled with the increased use of electric heat in homes, has increased peak demands for power. Under certain emergency conditions, the demand for electricity is more than what is available.

In order to address these concerns, we are working to build our future-focused portfolio, a mix of new energy projects including hydro upgrades and enhancements, small hydro, battery storage, energy conservation programs, independent power producers, and a new 20 megawatt (MW) thermal generation facility in the Whitehorse area.

**The new thermal facility would provide safe and reliable electricity quickly during:**

- loss of hydro generation
- peak hours of consumption
- low water periods
- extreme low temperatures
- emergencies

Before the new thermal facility could move forward, we wanted to collect feedback from stakeholders and the public. In particular, our goal was to gather public input on the preferred location and fuel type (liquefied natural gas, diesel or dual-fuel) for the proposed facility.

We used a range of techniques to collect feedback, including a project-specific advisory committee, meetings with local First Nations and industry stakeholders, a public online survey, open houses, household visits, social media, and general emails and phone calls. This work took place between March and June 2019.

The Advisory Committee met three times between March and June 2019, providing us with their comments on the rationale and methodology of the project work. The Advisory Committee was not a decision-body of the project, nor did it approve our work. Their comments and feedback were used as input similar to other feedback received from other stakeholder groups and the public.

Senior leaders from our organization attended meetings and had discussions with the Kwanlin Dün First Nation, Ta'an Kwäch'än Council, City of Whitehorse, ATCO Electric Yukon and other industry stakeholders. The purpose of those discussions was to inform them of the need for the proposed facility, the locations and fuel options being considered and to gather their input.

We worked with the Yukon Bureau of Statistics to create a public online survey. This survey allowed individuals across the territory to access project information and provide input on the project at a time that best suited them. The survey was completed by 447 members of the public.

We also hosted four public open houses in the Whitehorse area between June 1st and June 6th. These open houses provided the public with the opportunity to provide us their feedback, ask questions and learn more about the project.

In addition to the survey and open houses, we visited approximately 175 homes and businesses within 800 metres of each of the proposed locations, and either visited or called an additional nine businesses with operations in the broader Takhini area to get their input on the project.

Finally, we distributed household mailers and ran ads on social media, specifically Facebook and Google, which informed people about the project and directed them to the project homepage on the website. Individuals were able to email or call us or comment on the ads to provide their feedback.

In order to make this information as useful as possible, we have considered all the input collected from the various engagement activities and have pulled out the key themes. They are not listed in order of importance.

### 1. Renewables, conservation and alternative solutions

There is a strong desire for Yukon Energy to pursue renewable energy projects. Participants expressed a desire for Yukon Energy to incorporate the latest technologies (e.g. battery storage, geothermal, nuclear, biomass, wind, solar) to increase the amount of renewable power generation, and to employ new programs and technologies to allow residents to conserve and better manage their electricity use.

Participants also expressed a desire for any new renewable project to capitalize on other opportunities and needs of the territory including managing garbage and recycling, increasing employment and business ventures (i.e., secondary businesses developed to support biomass).

### 2. Impact on residents

Participants who attended the Open Houses cited specific concerns about the proposed facility being located near their home and asked that the facility be located in less habituated areas. Participants cited specific concerns about noise levels, increased traffic, site safety, property values and general impacts to their quality of life. Specific to the proposed Takhini location, participants stated their objection to the site given its direct conflict with 'country living' and their sense of place. Residents in Riverdale tended to be concerned with noise levels from the facility should it be located in the existing Yukon Energy Diesel Plant.

### 3. Climate Change

Participants expressed a concern about climate change and the company's proposed use of liquefied natural gas (LNG) or diesel on the environment. Participants urged Yukon Energy to explore alternatives to fossil fuels to generate electricity siting concerns about emissions, pollution, air quality and the environment in general.

### 4. Go green, but if you must, use diesel

Participants urged Yukon Energy to use renewable energy sources instead of fossil fuels. But when asked specifically to choose between the use of LNG or diesel to fuel the proposed power plant, participants outlined a clear preference for diesel instead of LNG. Diesel was viewed to more effective for the integration of future renewables, while LNG was negatively viewed by many for its reliance on hydraulic fracking. A reliable fuel supply was also a consideration raised by survey respondents, which favours diesel given the established supply chain and storage facilities in Whitehorse.

### 5. Cost

Participants sited cost as an important factor for Yukon Energy to consider when choosing the location of the facility and whether to use LNG or diesel to fuel it. Respondents encouraged Yukon Energy to select the lowest-cost option in order to limit impact of the investment on rates.

### 6. Access during emergencies

When asked to choose between the five possible locations for the new power plant, respondents encouraged Yukon Energy to pick the location that could be accessed the most quickly and easily during emergencies. Respondents cited considerations such as proximity to the existing electrical grid and other back-up facilities, access to major roads, and how best to optimize operational efficiencies.

### 7. Rented vs. owned generators

While we did not explicitly ask for public input on the preferred ownership model for the new facility, participants who commented on the topic clearly expressed a desire for Yukon Energy to rent instead of own the proposed new generators. Renting was viewed as a way for Yukon Energy to continue to meet the short-term need for dependable power, while not committing to the use of additional fossil fuel generation in the long-term. It was also viewed that the lower up-front capital costs of the rental options would make more capital available for future investments in renewable supply options.

# 1.0 introduction

As Yukon continues to grow, so does the demand for electricity. Under certain emergency conditions, peak demand for electricity in Yukon outpaces what is available.

In order for us to continue to deliver sustainable, reliable and affordable electricity to Yukoners today and over the next 20 years, we proposed a portfolio of new renewable energy projects be built along with a new 20 MW thermal facility in or around Whitehorse. When complete, the portfolio would generate 95 per cent or more renewable energy on average over the next 20 years.

**The proposed 20 MW thermal facility was identified as a critical piece of the portfolio because it would serve to provide safe, reliable and affordable electricity quickly during:**

- loss of hydro generation
- peak hours of consumption
- low water periods
- extreme low temperatures
- emergencies

It would also provide a dependable and affordable way to meet peak demands for power that intermittent renewables like wind and solar cannot. It would also serve as a more permanent solution to our current practice of renting additional diesel generators each winter.

Given the limited amount of days the facility was also expected to run (about 10 days a year with average water conditions), greenhouse gas emissions from the facility were also expected to be minimal.

# 2.0 stakeholder meetings

## 2.1 PROJECT-SPECIFIC ADVISORY COMMITTEE

**Representatives from the following governments and groups were invited to participate on a project-specific Advisory Committee.**

- Kwanlin Dün First Nation
- Ta'an Kwäch'än Council
- Yukon Conservation Society
- neighbourhoods close to the project
- potential assessors and intervenors in the project's future regulatory process
- Yukon government's Energy Branch
- City of Whitehorse
- Yukon College
- a local economist

The Advisory Committee met three times between March and the end of June 2019. The mandate of this committee was to understand the project in-depth by way of a comprehensive presentation and discussion of the project work at key stages. Members of the committee provided us with their comments on the rationale and methodology of the project work and pointed out any errors or omissions they felt were made during the work. Committee meetings were conducted under Chatham House Rule where participants were free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participants, could be revealed.

Input from the committee is considered part of stakeholder engagement. It was not a decision body and had no role in approving work.

## 2.2 UPDATES AND MEETINGS WITH THE KWANLIN DÜN FIRST NATION, TA'AN KWÄCH'ÄN COUNCIL, AND INDUSTRY STAKEHOLDERS

Our senior leaders and project leads gathered input from these governments, industry groups and stakeholders through numerous meetings, phone discussions and email exchanges. These communication initiatives centred on the need for the proposed new thermal generating facility and the proposed locations and fuel type.

There were several ways for the public to provide input into this project: open houses, an online survey, household visits, social media and general email/phone calls.

**Our goals were to:**

- Inform stakeholders and the public about the need for the proposed new thermal generation facility
- Show where it fits into our vision of a sustainable, reliable and affordable electricity system
- Obtain feedback from the public about the preferred location and fuel type for the proposed facility
- Ensure public aspirations and concerns were consistently understood and considered

**There were three types of fuel types examined:**

- Liquefied natural gas (LNG)
- Diesel
- Dual-fuel (both natural gas and diesel)

**There were five locations examined:**

- Beside our Takhini substation
- Near the Whitehorse sewage lagoon
- At the Whitehorse landfill
- At our Whitehorse diesel plant
- Across from our LNG generating facilities

## 3.1 PUBLIC OPEN HOUSES

We hosted four Open Houses in Whitehorse between June 1 and June 6, 2019 to provide opportunities for members of the public to learn more about the project, ask questions and provide their input on the project.

**Open House Dates and Locations:**

Saturday, June 1. Canada Games Centre. 10 a.m. to 2 p.m.

Monday, June 3. NorthLight Innovation Hub. 11 a.m. to 2 p.m.

Tuesday, June 4. Grey Mountain Primary School. 6 p.m. to 9 p.m.

Thursday, June 6. Hidden Valley Elementary School. 6 p.m. to 9 p.m.

Our Open Houses were hosted in Whitehorse in order to provide residents and businesses in close proximity to the proposed locations with the opportunity to ask specific questions about the project and to provide their specific views and opinions. Ninety-four individuals attended the four open houses. Four hundred and forty-six questions and comments were received. A full report of these comments can be found in Appendix A.

### 3.2 HOUSEHOLD VISITS

Between May 30 and June 17, we visited approximately 175 homes and businesses within 800 metres of each of the proposed locations (in this case, only our Whitehorse diesel plant and Takhini substation options were deemed to have residents with 800 metres). We also either visited or called an additional nine businesses with operations in the broader Takhini area to get their input. We spoke to 39 individuals and businesses. In those discussions, eighteen comments about the project were received. A full report of these comments can be found in Appendix B.

### 3.3 ONLINE SURVEY

We recognize Yukoners are active individuals throughout the year. As a result, we worked with a professional survey developer and the Yukon Bureau of Statistics to create an online survey to enable individuals across the territory to access project information and provide input on the project at a time that best suited them. The survey was open between May 21 and June 9, 2019, and made available in both English and French. Four hundred and forty-seven survey responses were received. A full report of these survey results can be found in Appendix C.

### 3.4 EMAILS, LETTERS AND PHONE CALLS

To kick-off our public engagement activities, we delivered a mailer to Yukon households in mid-May 2019 with information about the proposed new thermal facility and encouraging Yukoners to learn more and provide their input. One way individuals were encouraged to provide feedback on the project was to contact our Public Engagement Team by email (communications @yec.yk.ca) or phone (867-393-5333). Sixteen emails, letter and phone calls were received between May 21 and July 15, 2019. A full report of these comments can be found in Appendix D.

### 3.5 SOCIAL MEDIA

We developed two 90-second videos – one detailing the location options, and one about the fuel options being considered – and utilized both paid and organic Facebook posts, and paid Google ads to share the videos with Yukoners. The purpose of the videos was to create a heightened level of awareness and interest about the project in the broader Yukon population.

Facebook and Google ads were also created and used to inform Yukoners of our project open houses and to encourage participation in the online engagement survey.

Both videos and all online ads drove people to a project-specific landing page on our website (yukonenergy.ca/thermal) where more information about the survey, open houses, proposed locations and fuel types was available. People were able to comment on the social media material developed as an additional way of providing feedback. Eighteen comments were received.

### 3.5 OVERVIEW SUMMARY

The table below summarizes the comments we received at the open houses, in the survey, during household and business visits, from email, letters and calls we got, and on our social media channels. Individual comments and questions may have been attributed to more than one theme depending on the context of the comment or question.

| THEME | NUMBER OF COMMENTS AND QUESTIONS | SUMMARY OF COMMENTS/ QUESTIONS |
|---|---|---|
| **Renewables and alternative solutions including demand-side management programs** | **655** | » More renewables should be used instead of the continued use of fossil fuels.<br>» Yukon Energy should consider alternates to thermal such as:<br>Biomass<br>Nuclear<br>Battery storage<br>Geothermal<br>Pumped storage<br>Waste heat<br>Interconnection to Atlin, BC<br>Garbage<br>Solar<br>Wind<br>» More should be done to help people lower their demand for power and conserve energy. |
| **Proposed location's proximity to homes and businesses** | **247** | **I have concerns about:**<br>» the project being near my home and or business<br>» noise levels of the new plant<br>» increased traffic<br>» site safety<br>» public safety<br>» property value of my home if this is built by me<br>» general impact on my quality of life<br>» the project's impact on wildlife in the area |
| **Environment / Climate Change** | **177** | » The United Nations said we have 12 years to cut our GHGs by half.<br>» The last thing the Yukon needs in a climate crisis is a discussion around new thermal capacity.<br>» Spend the budget you have on electrical generation that doesn't contribute to climate change.<br>» Consider pollution, emissions, air quality. |

| THEME | NUMBER OF COMMENTS AND QUESTIONS | SUMMARY OF COMMENTS/ QUESTIONS |
|---|---|---|
| **Fuel Selection** | **121** | » Diesel is more effective for integration of future renewables.<br>» No fracking. No LNG.<br>» Reliability of fuel supply chain.<br>» Preference for fuel that starts quickly in an emergency.<br>» Choose fuel with fewest emissions. |
| **General questions and comments** | **118** | » Are you regulated?<br>» Water levels are low this year.<br>» How big is your existing LNG plant?<br>» What kind of grid-monitoring does Yukon Energy have?<br>» What is the difference between energy and capacity?<br>» What is an IPP?<br>» What is better – overhead or underground power lines?<br>» Is this really your only option?<br>» I support this.<br>» I don't support this. |
| **Cost** | **110** | » Impact of investment on debt cap.<br>» Impact of project on rate payer vs. tax payer.<br>» Lifecycle costs.<br>» Lowest cost and impact on rates.<br>» Highest stability of fuel pricing. |
| **Access to site during emergencies** | **94** | » Don't put all of your back-up facilities at the same site.<br>» Not at an existing facility. A more spread out system is more robust.<br>» Close to current facilities.<br>» Easy to access/maintain (for Yukon Energy), safe and secure.<br>» Proximity to existing power grid.<br>» Access to major roads. |

| THEME | NUMBER OF COMMENTS AND QUESTIONS | SUMMARY OF COMMENTS/ QUESTIONS |
|---|---|---|
| **Project Details and Context** | **85** | » What is an emergency scenario?<br>» How was the load forecast determined?<br>» Are mines and/or electric vehicles considered in the load forecast?<br>» How often will the facility be used?<br>» How much more power is needed?<br>» What would the footprint of the plant be?<br>» Is the project designed to replace the temporary diesels you rent every year?<br>» Would there be a person at this site at all times? |
| **Renting vs owning** | **40** | » Preference for renting instead of owning/building.<br>» Renting is a short-term solution that does not rely on fossil fuels in the future.<br>» Renting limits the impact of capital investment on future investments.<br>» Deal with the risks of renting. |
| **Engagement** | **15** | » What is the duration and scope of public engagement?<br>» What influence will feedback have on decisions?<br>» What steps are being done to engage communities outside of Whitehorse?<br>» Have First Nations been engaged? |
| **Future Planning** | **13** | » Build a solution that also meets future population and economic growth. |
| **Recreation** | **7** | » Do not remove land for residential, commercial and recreation. |
| **Wildlife** | **4** | » Keep disturbance for wildlife and people minimal.<br>» Consider wildlife need and safety. |
| **Reliability** | **3** | » Minimize outages. |
| **Security** | **2** | » Security. |

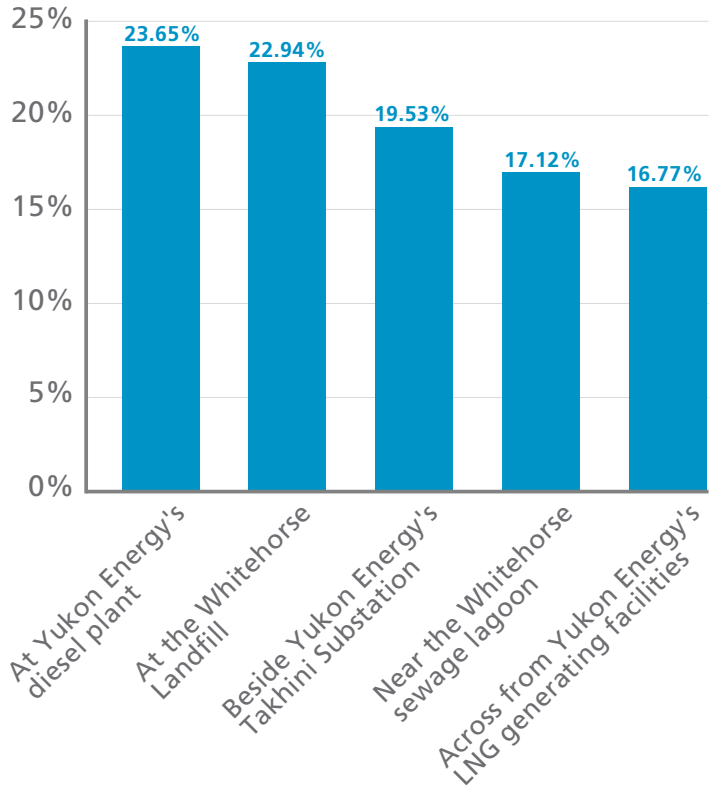
### 3.6 ONLINE SURVEY RESULTS

This section provides a summary of the survey results. There were 447 respondents.

## Question 1

Tell us your preference for each of the following site location options for a new thermal electric generation facility.

**PREFERRED LOCATION. WEIGHTED SCORE**



## Question 2

If you don't support any of these options, tell us why.

» Answered: 184

» Skipped: 263

Answers by theme. Please note, a single response may be attributed to one or more theme based on the comment.

| THEME | RESPONSES |
|---|---|
| Renewables | 90 |
| Alternative energy solutions (e.g., biomass, nuclear, geothermal, battery) | 20 |
| Location proximity to residents (e.g., safety, noise, quality of life, property value, etc.) | 18 |
| Access to site during emergencies | 15 |
| Cost | 6 |
| Energy-conservation | 6 |
| Climate Change/Environment (including air, emissions, pollution, etc.) | 5 |
| Recreation | 5 |
| Fuel Selection | 4 |
| Wildlife | 1 |
| Other | 13 |
| No comment/can't say | 13 |

## Question 3

What is the one most important thing you would like Yukon Energy to consider regarding the location of a new thermal electricity generation facility?

» Answered: 352

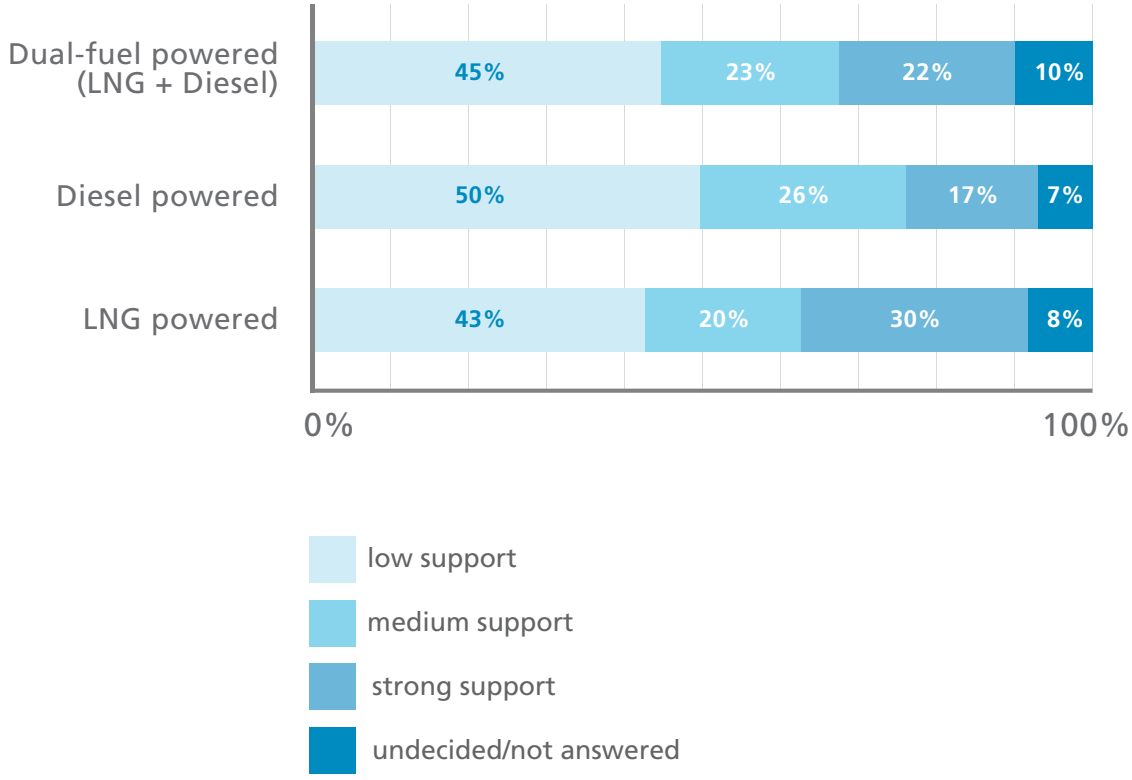
» Skipped: 95

Answers by theme. Please note, a single response may be attributed to one or more theme based on the comment.

| THEME | RESPONSES |
|---|---|
| Location proximity to residents (e.g., safety, noise, quality of life, property value, etc.) | 103 |
| Access to site during emergencies | 61 |
| Renewables | 60 |
| Climate Change/Environment (including air, emissions, pollution, etc.) | 51 |
| Cost | 35 |
| Aesthetics of the site | 17 |
| Planning for future growth | 13 |
| Alternative energy solutions (e.g., biomass, nuclear, geothermal, battery) | 8 |
| Rent | 8 |
| Energy-conservation | 3 |
| Recreation | 3 |
| Service reliability | 3 |
| Security | 2 |
| Wildlife | 2 |
| Other | 27 |
| No comment | 3 |

## Question 4

Tell us your level of support for each of the following fuel generation options.



## Question 5

If you didn't prefer any of these options tell us why.

» Answered: 237

» Skipped: 210

Answers by theme. Please note, a single response may be attributed to one or more theme based on the comment.

| THEME | RESPONSES |
|---|---|
| Renewables | 142 |
| Alternative Energy Solutions (i.e., biomass, nuclear, geothermal) | 39 |
| Climate Change/Environment (including air, emissions, pollution, etc.) | 22 |
| Energy-conservation | 12 |
| Fracking | 9 |
| Fuel Supply | 8 |
| Cost | 6 |
| Fuel selection | 6 |
| Rent vs. own | 4 |
| Proximity to residents (including safety, noise, etc.) | 3 |
| General Comment | 2 |
| No comment/can't say | 10 |

## Question 6

What is the ONE MOST IMPORTANT thing you would like Yukon Energy to consider regarding the type of fuel to be used to power a new thermal electricity generation facility?

» Answered: 349

» Skipped: 98

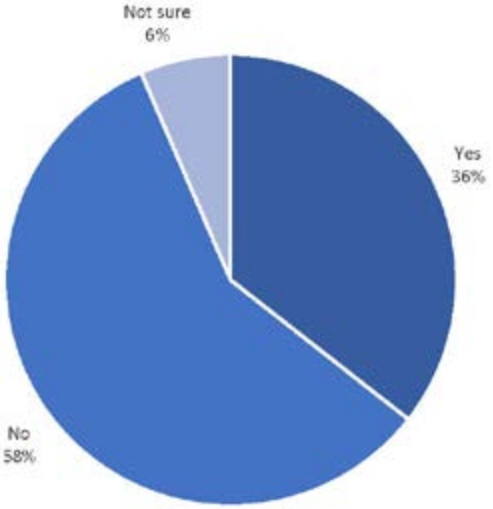
Answers by theme. Please note, a single response may be attributed to one or more theme based on the comment.

| THEME | RESPONSES |
|---|---|
| Renewables | 100 |
| Climate Change/Environment (including air, emissions, pollution, etc.) | 95 |
| Cost | 48 |
| Fuel Supply | 27 |
| Service reliability | 18 |
| Fracking | 18 |
| Alternative Energy Solutions (i.e., biomass, nuclear, geothermal) | 12 |
| Proximity to residents (including safety, noise, etc.) | 12 |
| Integration of renewables | 8 |
| Rent vs. own | 4 |
| Energy-conservation | 3 |
| Jobs | 3 |
| Wildlife | 1 |
| General Comment | 14 |
| No comment/can't say | 10 |

**QUESTIONS 7 TO 16 OF THE SURVEY WERE MANDATORY AND HAD TO BE COMPLETED BY ALL RESPONDENTS TO THE SURVEY.**

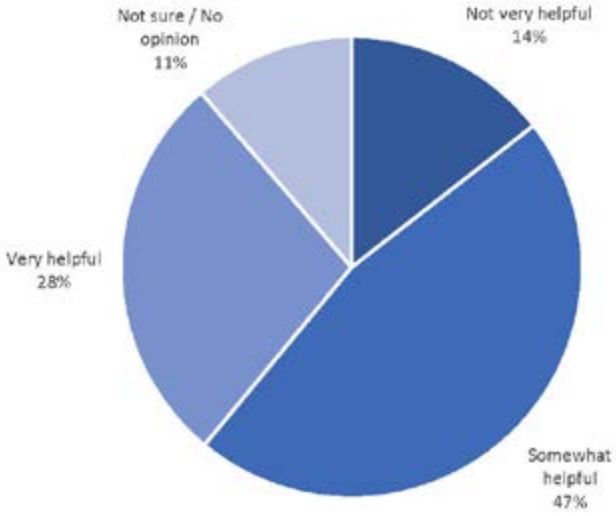
## Question 7

Do you recall seeing an information brochure from Yukon Energy regarding new thermal powered electrical generation?



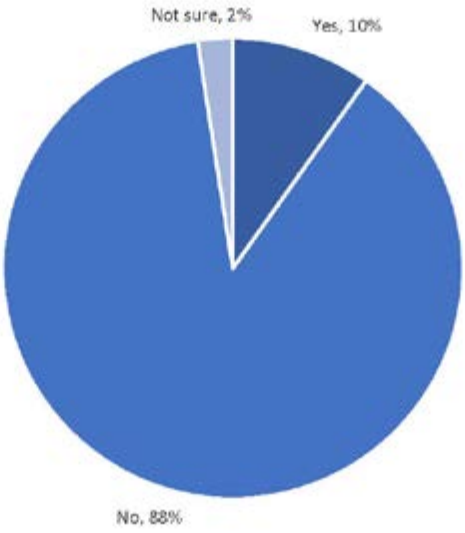

## Question 8

If you recall seeing an information brochure on new thermal powered electricity generation, how helpful was it in informing you about site location and fuel source options?



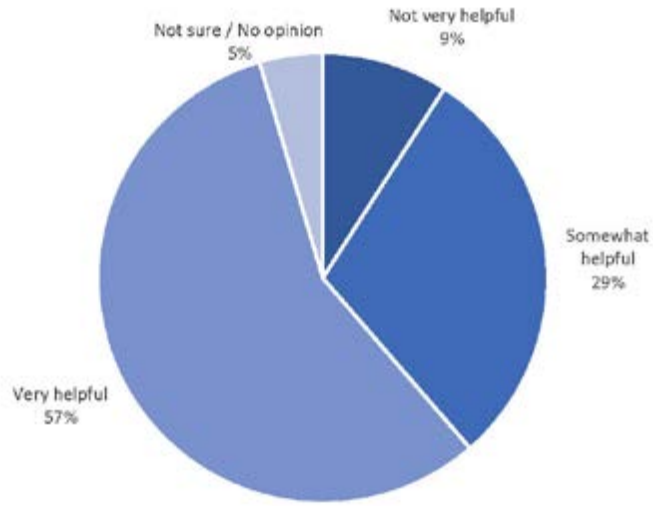
## Question 9

Did you attend an Open House hosted by Yukon Energy regarding new thermal powered electrical generation?



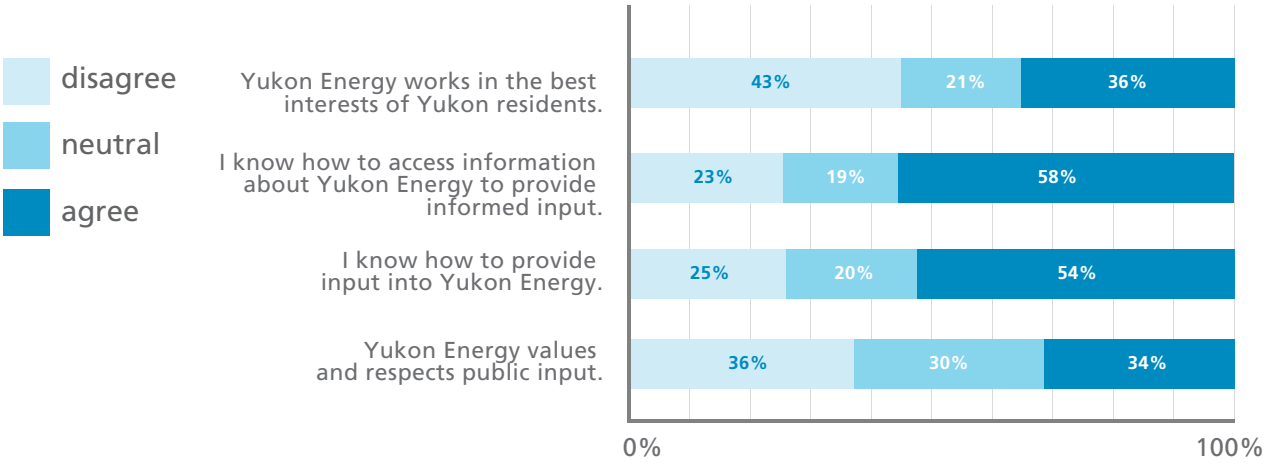

## Question 10

If you attended an Open House on new thermal powered electricity generation, how helpful was it in informing you about site location and fuel source options?



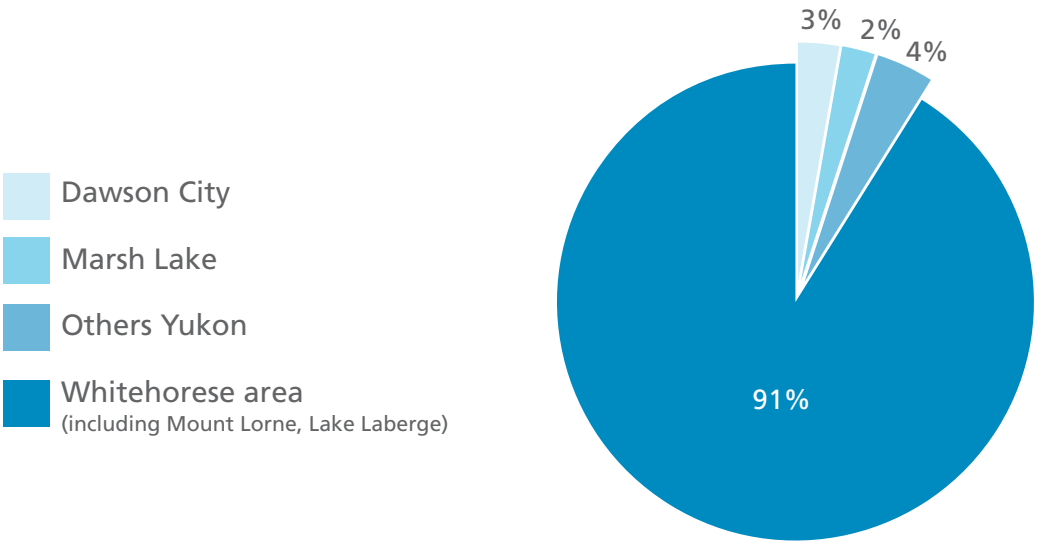
## Question 11

### Respondents' level of agreement with the following statements:



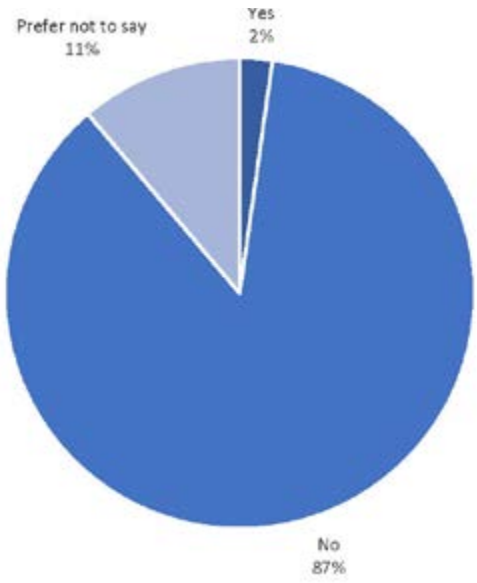

## Question 12

### In which community is your primary residence?



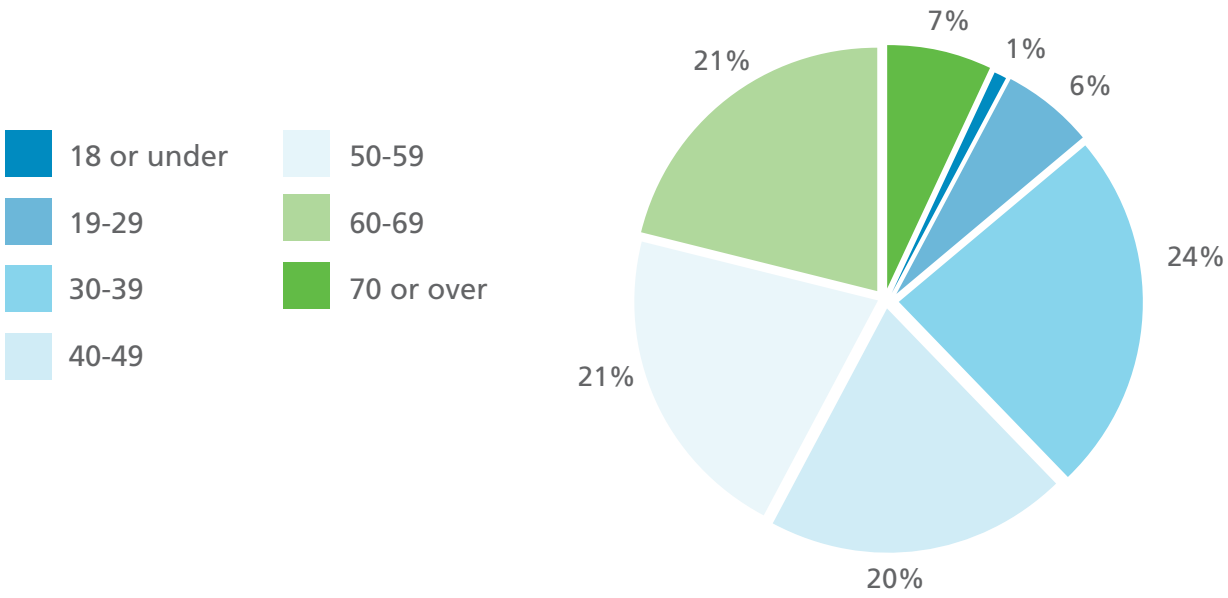
## Question 13

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



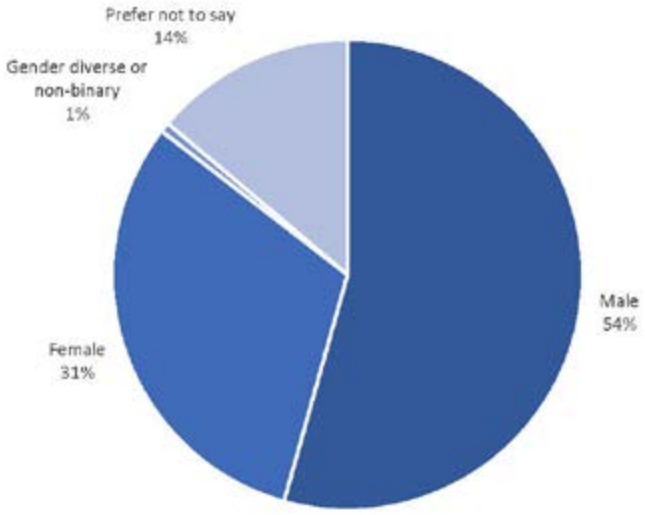

## Question 14

What is your age?



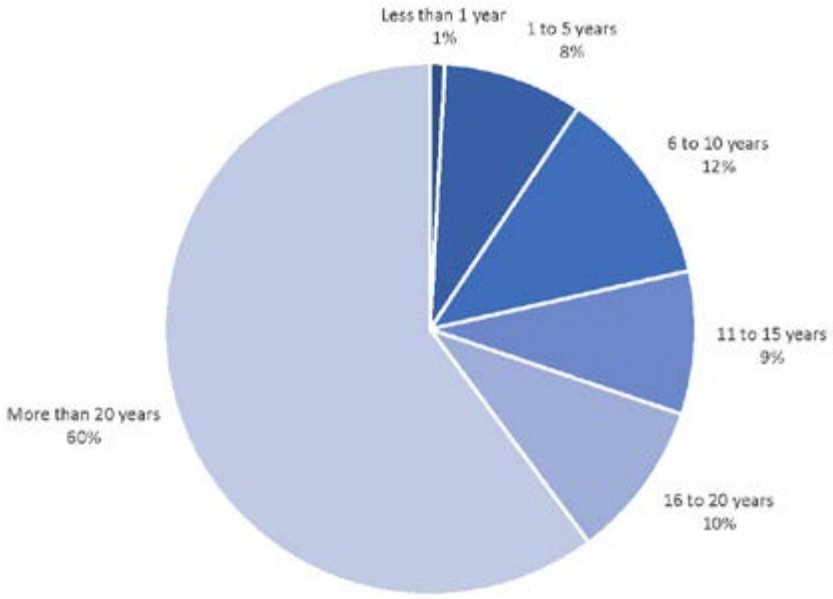
## Question 15

What is your gender?




## Question 16

How long have you been a Yukon resident?



# 4.0 summary

In order to make this information as useful as possible, we have considered all the input collected from the various engagement activities and have pulled out the key themes. They are not listed in order of importance.

### 1. RENEWABLES, CONSERVATION AND ALTERNATIVE SOLUTIONS

There is a strong desire for Yukon Energy to pursue renewable energy projects. Participants expressed a desire for Yukon Energy to incorporate the latest technologies (e.g. battery storage, geothermal, nuclear, biomass, wind, solar) to increase the amount of renewable power generation, and to employ new programs and technologies to allow residents to conserve and better manage their electricity use.

Participants also expressed a desire for any new renewable project to capitalize on other opportunities and needs of the territory including managing garbage and recycling, increasing employment and business ventures (i.e., secondary businesses developed to support biomass).

### 2. IMPACT ON RESIDENTS

Participants who attended the Open Houses cited specific concerns about the proposed facility being located near their home and asked that the facility be located in less habituated areas. Participants cited specific concerns about noise levels, increased traffic, site safety, property values and general impacts to their quality of life. Specific to the proposed Takhini location, participants stated their objection to the site given its direct conflict with 'country living' and their sense of place. Residents in Riverdale tended to be concerned with noise levels from the facility should it be located in the existing Yukon Energy Diesel Plant.

### 3. CLIMATE CHANGE

Participants expressed a concern about climate change and the company's proposed use of liquefied natural gas (LNG) or diesel on the environment. Participants urged Yukon Energy to explore alternatives to fossil fuels to generate electricity siting concerns about emissions, pollution, air quality and the environment in general.

### 4. GO GREEN, BUT IF YOU MUST, USE DIESEL

Participants urged Yukon Energy to use renewable energy sources instead of fossil fuels. But when asked specifically to choose between the use of LNG or diesel to fuel the proposed power plant, participants outlined a clear preference for diesel instead of LNG. Diesel was viewed to more effective for the integration of future renewables, while LNG was negatively viewed by many for its reliance on hydraulic fracking. A reliable fuel supply was also a consideration raised by survey respondents, which favours diesel given the established supply chain and storage facilities in Whitehorse.

### 5. COST

Participants sited cost as an important factor for Yukon Energy to consider when choosing the location of the facility and whether to use LNG or diesel to fuel it. Respondents encouraged Yukon Energy to select the lowest-cost option in order to limit impact of the investment on rates.

### 6. ACCESS DURING EMERGENCIES

When asked to choose between the five possible locations for the new power plant, respondents encouraged Yukon Energy to pick the location that could be accessed the most quickly and easily during emergencies. Respondents cited considerations such as proximity to the existing electrical grid and other back-up facilities, access to major roads, and how best to optimize operational efficiencies.

### 7. RENTED VS. OWNED GENERATORS

While we did not explicitly ask for public input on the preferred ownership model for the new facility, participants who commented on the topic clearly expressed a desire for Yukon Energy to rent instead of own the proposed new generators. Renting was viewed as a way for Yukon Energy to continue to meet the short-term need for dependable power, while not committing to the use of additional fossil fuel generation in the long-term. It was also viewed that the lower up-front capital costs of the rental options would make more capital available for future investments in renewable supply options.

# appendix a: open houses comments and questions

June 1-6, 2019

| Participant comment/question | Yukon Energy Response |
|---|---|
| Why doesn't Yukon Energy look at having all of the LNG and diesel at its existing facility rather than at different parts of town? | Certainly one of the considerations. Yukon Energy is looking at putting the new thermal generation facility at its existing diesel plant (retrofit) |
| What is the difference between LNG, diesel and dual-fuel? | There are three main differences:<br>1. LNG emits fewer greenhouse gas emissions<br>2. Diesel engines start up faster<br>3. Diesel engines respond better to changes in electricity load and are better suited to the future integration of renewables<br>We've completed a detailed analysis between the three fuels. That information is available on a summary chart on our website, yukonenergy.ca/thermal. |
| Why thermal? | We need this facility during emergencies, to meet peak demands for power, and when hydroelectricity isn't available. We need a generation source that we can access immediately and that can be switched on at a moment's notice. Electricity generated using LNG, diesel or both (dual-fuel) is proven to be the most reliable and cost-effective solution to meet these needs.<br>It's important to note that this new thermal facility will not provide all of the power we need to meet the increasing demands for power in Yukon. This project is one of many we are pursuing, some of which are renewables like the development of new sources of hydroelectricity. |

| | |
|---|---|
| Can Yukon Energy control hot water tanks to manage peaks? | We are exploring that option through our pilot Residential Demand Response Program Pilot which will begin later this year |
| What is the difference between LNG, diesel and dual-fuel? | There are three main differences:<br>1. LNG emits fewer greenhouse gas emissions<br>2. Diesel engines start up faster<br>3. Diesel engines respond better to changes in electricity load and are better suited to the future integration of renewables |
| | We've completed a detailed analysis between the three fuels. That information is available on a summary chart on our website, yukonenergy.ca/thermal. |
| Drought conditions/storage | Our water license forces us to spill |
| The media coverage makes this project seem polarized, but now I understand the challenges. | Reinforced the need for the project. |
| I'm not an expert. Why do you want my opinion? | We listen to all values. Public input will be used with the research we've done on the project as input on the recommendation we put forward to our Board of Directors about the preferred location and fuel type for this project. |
| What is the cost of wind? | Building wind on this scale is very expensive. Wind is also not 100% dependable or dispatchable. It is also has a slower ramp up rate. |
| What is the cost of battery storage? | We are exploring a grid-scale battery and have an application in front of the federal government to help us fund that project. A $19 million project with $10 million funded by the federal government. Battery is good for backup and to help levelize peak demands for power. |
| Can the renewables in Alaska be used here? | We exploring a whole suite of renewables including hydro. Independent Power Producers will also make more renewable electricity available on the grid. We need to be mindful about the cost of being 100% renewable and what that would mean to ratepayers who will have to pay for the projects. (referred to 2016 Resource Plan) |
| Can the government not just pay for it, or incent it? | Referred to cost allocations in the 2016 Resource Plan (Renewables-only portfolio vs. the mixed portfolio) |
| Why doesn't Yukon Energy help people lower their demand for power? | We do. We offer a range of energy conservation programs. |
| How does the project fit into Yukon Energy's larger energy plan? | Referred to the 2016 Resource Plan and the Future-Focused portfolio panel that spoke to all of the renewable and non-renewable projects the company is working on. |
| What about geothermal? | Yukon Energy explored geothermal technology as part of our 2016 Resource Plan. Two possible sites were identified, however those projects were not pursued because they were not found to be in the most cost-effective portfolio of resources needed to meet the increased demands for electricity. |

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| What about pumped storage? | Pumped storage was explored as part of the 2016 Resource Plan. It was found to be a relatively expensive energy option compared to the competing options. |
| How does Yukon Energy use its waste heat from its existing LNG and diesel facilities? | In Whitehorse, we used waster heat to heat the dykes at our Whitehorse Rapids facility. |
| What about battery storage? | We are exploring a grid-scale battery and have an application in front of the federal government to help us fund that project. A $19 million project with $10 million funded by the federal government. |
| What about solar and battery projects in the smaller communities? | If you store energy 50% of the time you need 200% capacity |
| How much power is needed in the Yukon? | Our highest recorded peak was 93 MW in 2018. 66MW of that was supplied using hydro resources. The rest was supplied with LNG and diesel. |
| Why do you need this facility? | We need this facility during emergencies, to meet peak demands for power, and when hydroelectricity isn't available. |
| Why doesn't Yukon Energy sells its waste heat to other buildings/users | Current government policy says that Yukon Energy cannot sell its waste heat to others. |
| Why don't we connect to Atlin, BC? | This is one project we are exploring. It would require investment from Atlin to generate the additional power we need, and an investment to build the transmission line from Atlin to the grid. |
| What is the cost of rentals? | Showed the participant the summary panel that outlined that rentals are more expensive than owning the LNG or diesel generators. |
| Yukon Energy should just invest in nuclear. It's coming. | The use of nuclear to generate power would need to be approved by the Yukon Government before it is something that we would be able to explore and implement. |
| The Yukon should be 100 per cent renewable. | Referred to the "renewables-only portfolio" in the 2016 Resource Plan and the cost of nearly $800 million. |
| Do you have any public advise as to home someone can shift their peak demand using their home heating? | We believe in energy conversation and promote it to our customers. We don't sell any products specific to home heating ourselves. We are launching a pilot program later this year where Yukoners can volunteer to have a device added |

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| | to their hot water tank or electric baseboards to help shave and shift peak demands for electricity during the winter. |
| You have no option other than thermal at this time. | We agree and will be investing soon. We are obligated to serve all electricity users in the Yukon and have a duty to ensure that that power is reliable. |
| Growth is growth. | It all has an impact on the amount of electricity we need. |
| Electric cars will spike demand. | We are aware. |
| There should be an incentive for building green (more renewables). | Building renewables only is costly. Who would pay that extra cost? Government or ratepayers? |
| Building green (renewables) helps your peak. | We are proposing to build this project to help with peaks during winter months which also tend to be the coldest and darkest of days. We need dependable sources of electricity that are available year-round and in all weather conditions. |
| What is the worst case scenario? | We need to invest in enough back-up electricity that we can still meet the demand for power in case we were to lose generation from Aishihik (one of our largest dams). |
| Why doesn't Yukon Energy sells its waste heat to other buildings/users | Current government policy says that Yukon Energy cannot sell its waste heat to others. |
| What is it reasonable to plan for? | We are investing in our insurance plan which would allow us to still meet peak demands for power and keep the lights on in case we were to lose hydroelectricity from one of our largest dams. |
| Who are the biggest users? | Mines. In the case of an emergency situation we would disconnect the mines from the grid so that that power could be used by residents. The demand we are showing on this graph (Need panel), shows what demand would be without mines. |
| What about wind? | Building wind on this scale is very expensive. Wind is also not 100% dependable or dispatchable. It is also has a slower ramp up rate. |
| Is this a drought year? | Yes. We have been seeing low water levels for two years now. |

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| Can we not use wind to reduce demand? | Wind is also not 100% dependable or dispatchable. We are planning for an emergency situation right now which means in the case we lose one of our largest hydro generating facilities or in the winter months when the peak demand is high. |
| Build wind. | Wind is not suitable as a backup for emergency situation as it is not 100% dependable or dispatchable in an emergency situation. |
| What about battery storage? | We are exploring a grid-scale battery and have an application in front of the federal government to help us fund that project. A $19 million project with $10 million funded by the federal government. |
| What about geothermal? | Yukon Energy explored geothermal technology as part of our 2016 Resource Plan. Two possible sites were identified, however those projects were not pursued because they were not found to be in the most cost-effective portfolio of resources needed to meet the increased demands for electricity. |
| Looks like you need to think on the system scale | Yes, to the extent that we can. |
| Why not just do renewables and deal with economic consequences? | Referred to the "renewables-only portfolio" in the 2016 Resource Plan and the cost of nearly $800 million. |
| Your load forecast is way off | We used information available about current and projected population and economic growth, anticipated use of electric vehicles, electric heat and other variables to determine the forecasted load. |
| Use wind first, then use hydro as back up | Spilling is water when we already have it would be wasting valuable energy. There are also gaps in technology that don't allow wind to be the primary source of power all year round in every weather condition. |
| Do you plan on using 20 MW of thermal? | This is the amount that is needed for our upgraded insurance plan. We anticipate having to use this facility for about 10 days each year under normal conditions (average water, no emergencies or disasters that would destroy a hydro facility). |
| When the government change comes, will you even be allowed to go 100% renewable? | Referred to the "renewables-only portfolio" in the 2016 Resource Plan and the cost of nearly $800 million. |

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| How often do you expect running this facility? | We anticipate having to use this facility for about 10 days each year under normal conditions (average water, no emergencies or disasters that would destroy a hydro facility). |
| The last time you added thermal it was for backup. Now it's always on. | We are in a drought, and because of that low water, we have having to use our LNG units every day to ensure there is enough power on the grid. |
| Your demand forecast is wrong. | We used information available about current and projected population and economic growth, anticipated use of electric vehicles, electric heat and other variables to determine the forecasted load. |
| I hear you saying you want thermal. | We need this facility during emergencies, to meet peak demands for power, and when hydroelectricity isn't available. We need a generation source that we can access immediately and that can be switched on at a moment's notice. Electricity generated using LNG, diesel or both (dual-fuel) is proven to be the most reliable and cost-effective solution to meet these needs. |
| You should use water tank monitoring and temp controls to manage peaks. | Yes, those devices can help. We are piloting a Residential Demand Response Program later this year which will help us see how much peak we can shift by remotely controlling the temperatures on hot water tanks and baseboard heat. |
| You sound like a broken record. | We are regulated utility with an obligation to serve and mandate to provide reliable power to individuals. |
| What about battery storage? | We are exploring a grid-scale battery and have an application in front of the federal government to help us fund that project. A $19 million project with $10 million funded by the federal government. |
| What does this graph (on the why thermal panel) mean? | We are investing in our insurance plan which would allow us to still meet peak demands for power and keep the lights on in case we were to lose hydroelectricity from one of our largest dams. |
| Why not wind? | Wind is not suitable as a backup for emergency situation as it is not 100% dependable or dispatchable in an emergency situation. |

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| The United Nations said we have 12 years to cut our GHGs by half. | Building renewables can take 7-10 years and costs a lot (refer to 2016 Resource Plan). We need to plan and build for an emergency situation which can happen now. |
| Our bills are low. Charge more. Do more. | Referred to the 2016 Resource Plan that showed that the renewable-only portfolio would cost nearly $800 million (for 99 per cent renewable), vs the mixed portfolio for $300 million for (98 per cent renewable). |
| What about electric cars? | We know they are coming. We accounted for a high penetration level of electric vehicles in the forecasts we developed for our 2016 Resource Plan. |
| What about carbon emissions? | LNG and diesel both emit carbons. Diesel more so than LNG. |
| Your LNG facility was supposed to be backup, but it's running all the time now. | We are in a drought, and because of that low water, we have having to use our LNG units every day to ensure there is enough power on the grid. |
| You used your LNG facility even before this drought too. | Yes, to meet peak demands for electricity that couldn't be met using hydro alone, and for days we had to do maintenance on the hydro or LNG units. |
| You should have stored the water when you had the chance. | Our regulations say that we can store water based on the parameters that are outlined in each of our Water Use Licenses. |
| Build more renewables please. | We are committed to renewables too. More than 90% of the electricity we generate is renewable already. Money is limited and to be 100 per cent renewable would cost a lot more than having a mix portfolio (referred to 2016 Resource Plan). |
| Do you really care about our opinions? | Yes. We want to hear all perspectives. Your feedback will be used with the research we've done on the project as input on the recommendation we put forward to our Board of Directors about the preferred location and fuel type for this project. |
| I'm tired of years of Yukon Energy not listening. | We are trying. Plans to build renewables don't always work out. |
| Why don't you connect to Atlin hydro? | We're looking into it. It would require investment from Atlin to generate the additional power we need, and an investment |

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| | to build the transmission line from Atlin to the grid. |
| Build solar everywhere on government money. | Solar is not an optimal solution to provide winter back-up. That's why we're here today. To speak about the LNG and diesel that we need in case of an emergency and when peaks demands for power are at their highest (usually in the winter) |
| Sign us up for the water heater pilot project. | More information about our Residential Demand Response Program will be coming out this fall. |
| You appear to be embracing gas. | We use LNG and diesel now. No decision has been made about whether this new facility will be LNG or diesel. |
| Does the Government have a stance? | Yes, like us they would like to see more renewables come online. |
| Does the load you show include mines? | No (refer to Why thermal? panel) |
| Water levels are low this year. | Yes they have been for a couple of years now. |
| Are you regulated? | Yes, by the Yukon Utilities Board. Our projects must also be approved by YESAB. |
| Thermal is your short term plan. Do you have a long term? | Yes. This new thermal facility is just one of the projects we're working on in our new future-focused portfolio. Referred to future-focused portfolio panel (spoke about new hydro, upgraded hydro, storage enhancements and battery). |
| Hydro is best. | We must look at what's needed to provide reliable and affordable power in the short, medium and long term. |
| I guess building renewables depends on who owns the land. Many can say no. | Yes, it can be difficult to build renewables if individuals or communities do not want it nearby. |
| Build more renewables | We need this facility during emergencies, to meet peak demands for power, and when hydroelectricity isn't available. We need a generation source that we can access immediately and that can be switched on at a moment's notice. Electricity generated using LNG, diesel or both (dual-fuel) is proven to be the most reliable and cost-effective solution to meet these needs. |

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| How far is the proposed site in Takhini from the highway? | Showed participant the Midgard map for the proposed site (available in hard copy and online). |
| People should install and sell the solar back to the grid. | Customers can do that through the government's Microgeneration policy. Independent Power Producers can do it through the government IPP policy. |
| Is small hydro doable? | Yes. We assessed a number of locations during our 2016 Resource Plan and are exploring the options to build small hydro in Drury Creek and to connect to Atlin. |
| Is it possible to build hydro in Dawson? | To generate hydroelectricity you need a large change in elevations. Dawson is wide and slow. |
| What about nuclear? | The use of nuclear to generate power would need to be approved by the Yukon Government before it is something that we would be able to explore and implement. |
| What are your long term plans? | When we did our 2016 Resource Plan we looked a variety of possible projects to help us meet future demand – a new thermal facility was just one of them. In addition to this project we're working on a portfolio of other projects including:<br>• upgrades to our existing hydro facilities;<br>• hydro storage enhancements;<br>• building new hydro, and<br>• installing a grid-sized battery. |
| Is an LNG depot being built in Whitehorse? | We are aware that a third-party vendor is exploring that option. The LNG depot is not a Yukon Energy project and out of our control. |
| The value of my home will drop if the facility is built by me. | Many factors are considered when assessing the value of a property. |
| Takhini has no real fire response. | Thank you for informing us of this. We are in the early stages of this project. Should the Takhini site be deemed to be the preferred location for the new facility we will certainly take this into consideration and adjust our plans accordingly. |
| Traffic on the highway beside the proposed Takhini site is fast. Having trucks turning here could be a possible safety issue. | Thank you for the feedback. We will include this as part of our assessment of the site. |
| What about the noise, smell, and health effects from fumes? | We anticipate running this facility for about 10 days each year under normal/average conditions (not low water or no emergency). |

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| | We've done preliminary air quality studies and they've shown that there is no foreseeable significant impacts of emissions from the facility to nearby residents. Take our existing diesel and LNG facility for example. Our new facility will be no closer to residents as the existing facilities are to residents in Riverdale and these facilities have passed previous air quality and human health impact assessments.<br><br>If an LNG facility is built, it will be no louder than the existing LNG facility on Robert Service Way.<br><br>If a diesel facility is built we expect it to be around 75 decibels loud when it runs (assuming you're standing about 10 feet away). 75 decibels is just a little louder than a vacuum cleaner.<br><br>Regardless of its location, if a new diesel facility is found to be the best solution, it would be quieter than the existing diesel plant at the Whitehorse Rapids site. That site is louder because older and louder units are in there now. |
| 5Mile road is a dead end in case of fire. | Thank you for the feedback. We will include this as part of our assessment of the site. |
| I would rather have no power for two days then have this near homes. | Yukon Energy is committed to providing reliable power to our customers. This project is needed in case of an emergency, to help meet peak demands for power and when other renewables aren't available. We anticipate only using the facility for about 10 days a year during normal conditions (average water/no emergencies). |
| Will you announce the location? | Yes. We will be providing letting Yukoners know the decision we made and how feedback and research influenced that decision. |
| I don't want to have this by my house. | Thank you for the feedback. We will include this as part of our assessment of the site. |
| The road beside the proposed Takhini site is used for races. | Thank you for the feedback. We will include this as part of our assessment of the site. |
| The area beside the Takhini site is a wildlife corridor. | Thank you for the feedback. We will include this as part of our assessment of the site. |

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| Building at the sewage lagoon would be a good reason to build a second bridge to Riverdale. | Those types of decisions are made by the City of Whitehorse. |
| It sounds silly to have all of your back-up plants in one locations (referring to proposed Diesel site). | Thank you for the feedback. We will include this as part of our assessment of the site. |
| You should replace all of the diesels in Whitehorse. | Electricity generated using LNG, diesel or both (dual-fuel) is proven to be the most reliable and cost-effective solution to generate power during emergency situations. |
| The cost to rent or buy isn't that different. Rent the new generators instead of buying them so we can get rid of them in 15 -20 years. | Renting anything comes with risks. Think of it like renting a house vs. buying one.<br>• Will there be enough rentals available when you need them?<br>• Will the cost to rent increase?<br>• What state will the rentals be when you get them?<br>• And at what point does it make financial sense to invest the money you spend each year on a rental into an owned asset.<br><br>By investing in an owned solution we can ensure that this additional power is always available when we need it. By owning the facility, we'll also be in a position to make sure that it is always maintained and ready for service. |
| What about battery storage? | We are exploring a grid-scale battery and have an application in front of the federal government to help us fund that project. A $19 million project with $10 million funded by the federal government. |
| There are quarry out in the Takhini area. By building this plant here we will have homes surrounded by industry. | The proposed Takhini site is just one of five locations we are looking at. (referred to location panels and maps). |
| In the case of an emergency beside the Takhini site, you could be blocking off south access to the Highway. | Thank you for the feedback. We will include this as part of our assessment of the site. |
| My property value would drop if your build this beside me. | Many factors are considered when assessing the value of a property. |
| In case of an explosion what would the radius be of those affected? | We can't say for sure, but I can say that the risk of an explosion is very small. |
| How loud would the facility be? | If an LNG facility is built, it will be no louder than the existing LNG facility on Robert Service Way. |

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| | If a diesel facility is built we expect it to be around 75 decibels loud when it runs (assuming you're standing about 10 feet away). 75 decibels is just a little louder than a vacuum cleaner.<br><br>Regardless of its location, if a new diesel facility is found to be the best solution, it would be quieter than the existing diesel plant at the Whitehorse Rapids site. That site is louder because older and louder units are in there now. |
| What about biomass? | This project is needed to provide power in the case of an emergency, to help meet peak demands for power and when other renewables aren't available. Biomass is one option we explored in our 2016 Resource Plan, but it isn't suitable to provide that quick, dependable, dispatchable power we need during an emergency. |
| Renting is the only good idea so that we are not tied to it | Renting anything comes with risks. Think of it like renting a house vs. buying one.<br>• Will there be enough rentals available when you need them?<br>• Will the cost to rent increase?<br>• What state will the rentals be when you get them?<br>• And at what point does it make financial sense to invest the money you spend each year on a rental into an owned asset.<br><br>By investing in an owned solution we can ensure that this additional power is always available when we need it. By owning the facility, we'll also be in a position to make sure that it is always maintained and ready for service. |
| Deal with the risks of renting, it's not like all of the rental generators will fail or be in poor condition. | The condition and quality of the rentals is only one concern. The other is the uncertainty about how much future rentals will cost and uncertainty about if enough would be available each year for what we need. |
| What about pump storage? | Pumped storage was explored in the 2016 Resource Plan. It is a relatively expensive energy option compared to the competing options |
| Is distance from residence considered a pro or con in your evaluation? | It is a consideration we will look at to determine a preferred location for the project. |

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| How loud will the generators be? | If an LNG facility is built, it will be no louder than the existing LNG facility on Robert Service Way.<br><br>If a diesel facility is built we expect it to be around 75 decibels loud when it runs (assuming you're standing about 10 feet away). 75 decibels is just a little louder than a vacuum cleaner.<br><br>Regardless of its location, if a new diesel facility is found to be the best solution, it would be quieter than the existing diesel plant at the Whitehorse Rapids site. That site is louder because older and louder units are in there now. |
| The government made a commitment not to frack in the Yukon so I don't want to see fracking elsewhere. | Diesel is another fuel option we are exploring for this project. |
| I didn't realize this project was for back-up only. | We need this facility during emergencies, to meet peak demands for power, and when hydroelectricity isn't available. We need a generation source that we can access immediately and that can be switched on at a moment's notice. Electricity generated using LNG, diesel or both (dual-fuel) is proven to be the most reliable and cost-effective solution to meet these needs. |
| Yukon Government will need to change their passive stance on renewables. | Yukon Energy, like the Yukon Government is committed to renewables. |
| Before these generators are decommissioned, there will be a better way to address this need. | We need this facility during emergencies, to meet peak demands for power, and when hydroelectricity isn't available. We need a generation source that we can access immediately and that can be switched on at a moment's notice. Electricity generated using LNG, diesel or both (dual-fuel) is proven to be the most reliable and cost-effective solution to meet these needs. |
| I want to see us rent these units. Buying them is a deal-breaker for me. | Thank you for the feedback. We will include this as part of our assessment of the site. |
| The Lagoon option is too far; the Landfill site looks good. | Thank you for the feedback. We will include this as part of our assessment of the site. |
| I don't want to see the use of LNG. | Diesel is another fuel option we are exploring for this project. |

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| | uncertainty about if enough would be available each year for what we need. |
| What about pump storage? | Pumped storage was explored in the 2016 Resource Plan. It is a relatively expensive energy option compared to the competing options |
| Is distance from residence considered a pro or con in your evaluation? | It is a consideration we will look at to determine a preferred location for the project. |
| How loud will the generators be? | If an LNG facility is built, it will be no louder than the existing LNG facility on Robert Service Way.<br><br>If a diesel facility is built we expect it to be around 75 decibels loud when it runs (assuming you're standing about 10 feet away). 75 decibels is just a little louder than a vacuum cleaner.<br><br>Regardless of its location, if a new diesel facility is found to be the best solution, it would be quieter than the existing diesel plant at the Whitehorse Rapids site. That site is louder because older and louder units are in there now. |
| The government made a commitment not to frack in the Yukon so I don't want to see fracking elsewhere. | Diesel is another fuel option we are exploring for this project. |
| I didn't realize this project was for back-up only. | We need this facility during emergencies, to meet peak demands for power, and when hydroelectricity isn't available. We need a generation source that we can access immediately and that can be switched on at a moment's notice. Electricity generated using LNG, diesel or both (dual-fuel) is proven to be the most reliable and cost-effective solution to meet these needs. |
| Yukon Government will need to change their passive stance on renewables. | Yukon Energy, like the Yukon Government is committed to renewables. |
| Before these generators are decommissioned, there will be a better way to address this need. | We need this facility during emergencies, to meet peak demands for power, and when hydroelectricity isn't available. We need a generation source that we can access immediately and that can be switched on at a moment's notice. Electricity generated using |

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| | LNG, diesel or both (dual-fuel) is proven to be the most reliable and cost-effective solution to meet these needs. |
| I want to see us rent these units. Buying them is a deal-breaker for me. | Thank you for the feedback. We will include this as part of our assessment of the site. |
| The Lagoon option is too far; the Landfill site looks good. | Thank you for the feedback. We will include this as part of our assessment of the site. |
| I don't want to see the use of LNG. | Diesel is another fuel option we are exploring for this project. |
| Why aren't renewables coming in faster? | We continue to work on hydro developments but like other renewables, these projects take time to find a suitable location, get social license to build there and to obtain permits and the funding. |
| Why does LNG take so long to heat up? | It takes LNG engines longer to warm up when compared to diesel engines. |
| How much capacity is Aishihik? | 37MW |
| I read a report that says that Yukon Energy supports LNG over Diesel. | LNG has fewer emissions than diesel units but we don't have a preference in terms of one fuel over the other. There are operational benefits to both. |
| What is Yukon Energy doing to try to shift peak loads to different times of the day? | We are piloting a Residential Demand Response Program later this year which will help us see how much peak we can shift by remotely controlling the temperatures on hot water tanks and baseboard heat. |
| Have you looked at using a turbine for instream? | Fairbanks has done a lot of tests. Capacity is good in summer only |
| Where would the location of #4 (the diesel plant) be? | In the existing diesel plant at the Yukon Energy office on Robert Service Way. It would be a retrofit of the existing building. |
| Is Yukon Energy profitable? | According to the Yukon Utilities Board we are allowed to earn a rate of return on our investments. Historically, that rate has been between five and seven per cent. |

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| How you assessed the cost of each of the portfolios? | A variety of renewable options were explored as part of our 2016 Resource Plan. Costs for each are available in the detailed plan available online at yukonenergy.ca |
| How long are peaks? | Usually between 10 and 15 minutes depending on the temperatures outside. |
| How much will this new facility be used? | We anticipate having to use this facility for about 10 days each year under normal conditions (average water, no emergencies or disasters that would destroy a hydro facility). |
| What about small nuclear? | The use of nuclear to generate power would need to be approved by the Yukon Government before it is something that we would be able to explore and implement. |
| What is the cost of a battery? | We are exploring a grid-scale battery and have an application in front of the federal government to help us fund that project. A $19 million project with $10 million funded by the federal government. Battery is good for backup and to help levelize peak demands for power. |
| How did Yukon Energy choose these sites? | We took into account and weighed a number of different factors including:<br>1. Distance to the existing electrical grid. We wanted a location close the existing transmission lines to limit cost and disturbance footprint to connect the facility to the grid.<br>2. Opportunities for First Nation partnerships or investment. We wanted to explore locations that could potentially include a First Nation partner in the project.<br>3. Impacts to land development (Brownfield vs. Greenfield). We wanted to explore options where other industrial activity already exists or is nearby to limit disturbance of new areas.<br>4. Land conditions. We needed to look at locations where the ground conditions were suitable for this type of construction. |
| Is there a power line near the Lagoon | Yes, a 138 kV transmission line. Referred participant to the hard copy maps of the locations (also available online). |

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| Are there any favorites? | No. At this point we are exploring the technical, social, economic and environmental considerations of each options as well as collecting public feedback on each proposed site. |
| Are there any possible non fossil fuel ideas for back up? | For what this project is needed for (emergencies, low water, peak demands), not yet. We need a resource that is 100 per cent dependable and dispatchable meaning that it can be switched on at a moment's notice. |
| What is the longest blackout you experienced? | On an isolated grid like ours, black outs are not acceptable. |
| How are you going to upgrade the dam? | We are currently working on projects to maximize the amount of power we can generate with the assets we have and looking at increasing the storage or more water in summer and fall months for use in the winter. |
| What is peak energy? | It's that highest amount of electricity that everyone needs at a single point in time. It is usually seasonal (happening in the winter), and happens usually when everyone gets home from work (around dinner time), and in the morning (as people are getting ready for work and school). |
| What about a battery? | We are exploring a grid-scale battery and have an application in front of the federal government to help us fund that project. A $19 million project with $10 million funded by the federal government. Battery is good for backup and to help levelize peak demands for power. |
| What can you do with the 1.7 billion? | We don't have access to that level of money so we haven't explored those options. |
| Do you anticipate that fossil fuels will be phased out in 40 years? | On an isolated grid like ours, there will always be a need for some kind of thermal back-up for emergencies and when renewables aren't available. |
| I want you to rent these generators instead of buy them. | Thank you for the feedback. We will include this as part of our assessment of the project. |

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| With how much louder will this new facility be? | If an LNG facility is built, it will be no louder than the existing LNG facility on Robert Service Way.<br><br>If a diesel facility is built we expect it to be around 75 decibels loud when it runs (assuming you're standing about 10 feet away). 75 decibels is just a little louder than a vacuum cleaner.<br><br>Regardless of its location, if a new diesel facility is found to be the best solution, it would be quieter than the existing diesel plant at the Whitehorse Rapids site. That site is louder because older and louder units are in there now. |
| How many delivery trucks are going to your LNG facility today? | A couple a day. |
| What is the capacity of those trucks? | 80,000lbs. |
| The area around the diesel facility is a recreational area, but you say there will be no impact. | The diesel facility options would be a retrofit of the existing building, not the construction of a new site. |
| Why do you only rent diesels in the winter months? | Right now, we don't need them in summer. |
| Has the First Nation provided input into the site across the LNG facility? | Yes, we have been discussing this option with them. |
| Will are there concerns about LNG supply? | No. We store some LNG in our existing LNG facility. |
| Would you consider our energy demand to be high? | Not compared to BC or other provinces. |
| Have you surveyed the Landfill location yet? | No. Survey of the site would happen if we determined to proceed with that site as the preferred option. |
| Where is the existing transmission line beside the Landfill? | Behind it. Referred to the site map (hard copy, also available online). |
| How do you collect community input | Right here by having open houses like this. We are also hosting an online survey so that people who can't attend the open house can also provide their input. People can also email or call our office. |

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| The Hot Springs is going to grow in 2020, 2021. Have you explored geothermal there? | Geothermal was assessed as an option in our 2016 Resource Plan, but was found to be too expensive to be included in the most cost-effective portfolio we are pursuing now. |
| Don't we use LNG already? | Yes, however replaced the old diesels we had that had to be retired. Based on forecasted demand, we need more LNG or diesel to meet demand for power during emergencies, peaks and when renewables are not available. |
| I don't care what fuel is used. Location is the big deal for me. I don't want it by me or other residents. | Thank you for the feedback. We will include this as part of our assessment of the project. |
| What about noise? | If an LNG facility is built, it will be no louder than the existing LNG facility on Robert Service Way.<br><br>If a diesel facility is built we expect it to be around 75 decibels loud when it runs (assuming you're standing about 10 feet away). 75 decibels is just a little louder than a vacuum cleaner.<br><br>Regardless of its location, if a new diesel facility is found to be the best solution, it would be quieter than the existing diesel plant at the Whitehorse Rapids site. That site is louder because older and louder units are in there now. |
| What is the difference between LNG and diesel? | There are three main differences:<br>1. LNG emits fewer greenhouse gas emissions<br>2. Diesel engines start up faster<br>3. Diesel engines respond better to changes in electricity load and are better suited to the future integration of renewables<br>We've completed a detailed analysis between the three fuels. That information is available on a summary chart on our website, yukonenergy.ca/thermal. |
| Is diesel cleaner than LNG? | Diesel emits more emissions than LNG. |

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| Why not have smart meters? | ATCO previously submitted an application to the Yukon Utilities Board to do a smart meter pilot and it was denied. |
| The government is supporting electric cars. | The use of electric vehicles was considered in our demand forecasts (show the need diagram). |
| What about biomass? | This project is needed to provide power in the case of an emergency, to help meet peak demands for power and when other renewables aren't available. Biomass is one option we explored in our 2016 Resource Plan, but it isn't suitable to provide that quick, dependable, dispatchable power we need during an emergency. |
| What about using garbage to generate power? | This can be considered a form of biomass product. Biomass is one option we explored in our 2016 Resource Plan, but it isn't suitable to provide that quick, dependable, dispatchable power we need during an emergency. |
| What is the capacity of the LNG plant you already have? | 12.8 MW |
| Why is LNG higher? | The upfront capital cost to build a LNG facility is more expensive than a diesel facility. |
| What is thermal generation? | Liquefied natural gas (LNG), diesel or dual fuel. |
| What is dual fuel? | Runs on both diesel and LNG. Starts on diesel, runs on LNG. |
| What other options have you looked at for emergencies? | We are exploring a grid-scale battery and have an application in front of the federal government to help us fund that project. A $19 million project with $10 million funded by the federal government. Battery is good for backup and to help levelize peak demands for power. |
| What about nuclear? | The use of nuclear to generate power would need to be approved by the Yukon Government before it is something that we would be able to explore and implement. |

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| What would like facility be used as back-up for? | In case we were to lose our largest hydro facility (Aishihik at 37 MW), as well as emergencies, low water and when peak demands are high. |
| Would this facility run all the time? | We anticipate having to use this facility for about 10 days each year under normal conditions (average water, no emergencies or disasters that would destroy a hydro facility). |
| What about noise? | If an LNG facility is built, it will be no louder than the existing LNG facility on Robert Service Way.<br><br>If a diesel facility is built we expect it to be around 75 decibels loud when it runs (assuming you're standing about 10 feet away). 75 decibels is just a little louder than a vacuum cleaner.<br><br>Regardless of its location, if a new diesel facility is found to be the best solution, it would be quieter than the existing diesel plant at the Whitehorse Rapids site. That site is louder because older and louder units are in there now. |
| There are five site you are looking at. How many would you build? | Just one. |
| Would this provide back-up to mines? | Mines have their own back-up which they pay for themselves. We didn't include mines in our forecast of demand that we need to meet in case of any emergency. |
| What about nuclear? | The use of nuclear to generate power would need to be approved by the Yukon Government before it is something that we would be able to explore and implement. |
| What is the purpose of this project? | We need this facility during emergencies, to meet peak demands for power, and when hydroelectricity isn't available. We need a generation source that we can access immediately and that can be switched on at a moment's notice. |
| Would you build in all five places? | No. Just one. |

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| Who is looking at building the LNG depot? | Ferus |
| Is Yukon Energy locked into using fossil fuels | No, we are working a portfolio of renewable and non-renewable projects that are needed to meet the increasing demand for electricity in Yukon. It includes this project, new hydro, upgrade and storage enhancements to existing hydro and a grid-scale battery. |
| What about nuclear? | The use of nuclear to generate power would need to be approved by the Yukon Government before it is something that we would be able to explore and implement. |
| Is Yukon Energy Corporation going to suppress information again | All information that was is used to help us inform the decisions we make about this project will be made available as part of our application processes to YESAB and the YUB. |
| What about Moon Lake? | Moon Lake BC is too far and too expensive for us to connect to. |
| What about geothermal in Watson Lake? | Geothermal was assessed as an option in our 2016 Resource Plan, but was found to be too expensive to be included in the most cost-effective portfolio we are pursuing now. |
| There is too much fossil fuel. I want to see more renewables. | We need this facility during emergencies, to meet peak demands for power, and when hydroelectricity isn't available. We need a generation source that we can access immediately and that can be switched on at a moment's notice. Electricity generated using LNG, diesel or both (dual-fuel) is proven to be the most reliable and cost-effective solution to meet these needs.<br>It's important to note that this new thermal facility will not provide all of the power we need to meet the increasing demands for power in Yukon. This project is one of many we are pursuing, some of which are renewables like the development of new sources of hydroelectricity. |
| What is the life span of hydro dam? | Hydro dams can have a life of anywhere between 50 and 100 years. Each of our hydro dams will eventually major refurbishments. |

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| What about connect Skagway to Yukon? | It would be too costly. |
| What is better? Overhead or underground power lines? | Overhead power lines are much more affordable to build, and easier to maintain, repair and/or upgrade because you can visually inspect them. Underground power lines are less exposed to the elements. |
| When would you use AC (alternate current) vs DC (direct current)? | Direct current is most commonly used to transmit power over long distances (hundreds of km). |
| What is the capacity of new plant? | 20MW |
| What other hydro options are you exploring? | We explored many different options during our 2016 Resource Plan. We are currently exploring two options in more details: Drury Creek and Atlin. |
| Make energy more expensive so people have to choose to use it wisely. | We do offer a number of energy conservation programs. We are also going to pilot a Residential Demand Response program last this year to see if, with the public's help, we can shift peak demands. |
| Hydro water supply has been decreasing. Is this the new norm? | Climate change research suggests that weather will become wetter over time, but wet dry long term cycles still occur like the drought period we are experiencing now. |
| Is it beneficial to use wind in Yukon | There is a place for wind in the renewable mix, especially when it comes to renewables developed by Independent Power Producers. For this project we are looking for dependable dispatchable power that is available all year round in any weather. That is why we are looking at LNG and diesel. |
| Why don't we connect to BC? | The Yukon Government explored this option and it was deemed to be too expensive. |
| What about geothermal? | Yukon Energy explored geothermal technology as part of our 2016 Resource Plan. Two possible sites were identified, however those projects were not pursued because they were not found to be in the most |

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| | cost-effective portfolio of resources needed to meet the increased demands for electricity. |
| How much LNG and diesel does Yukon Energy use now? | We track this on our website (yukonenergy.ca). Keep in mind, we're currently in a year with low water so we are using more LNG now than similar times of the year in years past. |
| What about using geothermal as base load? | Yukon Energy explored geothermal technology as part of our 2016 Resource Plan. Two possible sites were identified, however those projects were not pursued because they were not found to be in the most cost-effective portfolio of resources needed to meet the increased demands for electricity. |
| Is there any advantage to placing this facility further away outside of town? | Each site has site specific considerations that need to be considered as part of the decision. |
| Do you expect more mines in the future? | Yes, and mines do add significant load to the grid, however for this project, we accounted for that and are basis are need for more power on electricity demand without mines. |
| When will this project be completed? | If approved, we plan to have this plant built in 3.5 years. |
| Are you looking at renting or owning the generators? | Both options are being considered. |
| Why does LNG have a slower start up rate? | It takes time to convert the LNG into natural gas first. |
| What is the start-up time of LNG? | 15 minutes in the winter. |
| Are we in a low water year? | Yes, we have seen lower than average snow packs in all three of our hydro reservoirs. |
| What about nuclear? | The use of nuclear to generate power would need to be approved by the Yukon Government before it is something that we would be able to explore and implement. |
| What about battery storage? | We are exploring a grid-scale battery and have an application in front of the federal government to help us fund that project. A $19 million project with $10 million funded by the federal government. Battery is good for |

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| | backup and to help levelize peak demands for power. |
| I would prefer the diesel location. | Thank you for the feedback. We will include this as part of our assessment of the project. |
| Why are mines not included in your emergency plan (the demand line of the need panel)? | In the case of an emergency we would disconnect mines from the grid so that that power could be used for other customers. |
| Is LNG less expensive? | LNG fuel is more affordable than diesel, however building a LNG plant is more expensive that a diesel facility. |
| What socio-economic considerations have been made about each site? | We looked at a variety of social, economic, financial, environmental and technical considerations. Let me show you how they are summarized by site (showed panels with considerations listed). |
| It seems unfair that fuel cost analysis includes the capital cost of building the fuel plant | We looked at the 40-year life-cycle cost to build, operate and maintain each type of plant for each fuel source. |
| Can this plant be used as base load if needed? | That is not the intention of this project, but yes, if needed, we could run this plant for base load. |
| How large is the plant? | LNG – about 3 football fields<br>Diesel – about 2 football fields<br>Dual-Fuel – about 1.5 football fields in the existing diesel plant building |
| How does duel fuel work? | It uses diesel to start up and then operates using LNG (about 70% LNG/ 30% diesel) |
| Does dual-fuel cost more? | A little more than diesel, but is certainly is more useful to use both fuels (lower emissions running on LNG, protects against fuel cost variability and secures supply). |
| What does supply loss of Aishihik mean? | It means a scenario where we lost about 37 MW of hydroelectricity because the transmission line between Aishihik and Whitehorse went down or had an equipment failure, or there was a failure at the Aishihik generation facility which meant no hydro power could be generated there. |

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| What are the two possible hydro projects? | Atlin and Drury Creek |
| Have you considered an IPP for this project? | This type of facility wouldn't likely be economical for an IPP as it is only meant to run for about 10 days a year when there is an emergency, low water, to help meet peak demands and when renewables aren't available. |
| What is an IPP? | Independent Power Producer. Acts like a small utility that builds renewable projects and sells the power they generate to Yukon Energy or ATCO for use on the grid. |
| What about battery storage? | We are exploring a grid-scale battery and have an application in front of the federal government to help us fund that project. A $19 million project with $10 million funded by the federal government. Battery is good for backup and to help levelize peak demands for power. |
| What is the Mayo storage enhancement? | We are exploring being able to store more water in our Mayo reservoirs during fall for use in winter. |
| I would rather see Yukon Energy Corporation go full renewables. | As an isolated grid there will always be a need for some thermal power generation for emergencies. As part of our 2016 Resource Plan, we explored what it would take to be 99 per cent renewable; it would cost $785 million. Being 88% renewable which is the portfolio we're working towards now would only cost $300 million. |
| I'd rather see you rent than buy the generators. | Renting anything comes with risks. Think of it like renting a house vs. buying one.<br>• Will there be enough rentals available when you need them?<br>• Will the cost to rent increase?<br>• What state will the rentals be when you get them?<br>• And at what point does it make financial sense to invest the money you spend each year on a rental into an owned asset.<br><br>By investing in an owned solution we can ensure that this additional power is always |

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| | available when we need it. By owning the facility, we'll also be in a position to make sure that it is always maintained and ready for service. |
| We should be doing more to encourage energy conservation. | Energy vs capacity. LNG was originally peaking now it's used for capacity |
| Wasn't your LNG plant only meant to be for back-up? Now it seems to be running all the time. | Our LNG facilities were installed to replace diesel generators that had reached their end of life. They were mean to be used as back-up, but with the low water levels we are experiencing this year, we are needing to use them to supply the electricity we cannot generate with hydro. |
| What is the amount of energy available each year? | Referred to the 2016 Resource Plan summary with the energy and capacity charts. |
| Why not have a renewable energy target? | As part of our 2016 resource plan we assessed the amount of power we would need in terms of energy and capacity and a full range of renewables projects that would help meet those needs. We are working to bring the most cost-effective suite of products (that still meets our needs) forward. |
| How does debt cap get affected by a project of this nature? | We do not intend to ask Yukon Government to contribute to the cost of this project. |
| When does your survey close? | June 9th |
| Why does Yukon Energy not have a policy for renewables? | We don't set policy for energy development. That would be a role for the Yukon Government. |
| I believe there is a resident 1 km away from the proposed location at the Lagoon. | Thanks for the information. |
| Is the noise very disturbing? | If an LNG facility is built, it will be no louder than the existing LNG facility on Robert Service Way.<br><br>If a diesel facility is built we expect it to be around 75 decibels loud when it runs (assuming you're standing about 10 feet away). 75 decibels is just a little louder than a vacuum cleaner. |

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| | Regardless of its location, if a new diesel facility is found to be the best solution, it would be quieter than the existing diesel plant at the Whitehorse Rapids site. That site is louder because older and louder units are in there now. |
| What renewables is Yukon Energy exploring going forward? | We are currently exploring two small hydro developments: one in Drury Creek and one in Atlin. We're also upgrading our existing hydro facilities, and looking and enhancement storage at the Whitehorse and mayo reservoirs. |
| What are the power generators Yukon Energy has around Whitehorse? | Showed the need map graph that showed the different dependent sources of power generation and explained the addition of Aishihik. |
| Given the slower start-up rate of LNG, is using diesel better? | Diesel does start-up quicker, and is cheaper to build, operate and maintain over 40 years. LNG has fewer emissions. |
| How long before this new plant would be operational? | About 3.5 years. |
| Is it certain that you are moving forward with this project or other options being explored? | The need for this project was identified in our 2016 Resource Plan to address the capacity gap we are facing because of an increasing demand for power. This is one of many projects we are working on as part of our portfolio of renewable and thermal projects. |
| Is this project designed to replace the temporary diesels you rent every year? | Yes. |
| When would you run these or the rental diesels? | During emergencies or to help us meet winter peak demands for power and when renewables aren't available. |
| What is the cost comparison for this project over 20 years? | As part of our analysis we looked at the cost to build, operate and maintain each of the proposed fuels at each of the proposed sites over 40 years. |
| We might not need these for 40 years. | 40 years is the typical life of these types of assets so that is why we choose that lifecycle to assess costs over. |

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| Are you considering the impact of electric cars? | Yes. As part of our 2016 Resource Plan and the electric demand we forecast, we did include a penetration of electric vehicles. |
| Wind only takes two years to install. | Yes, the installation of wind can be quick, however, wind is not considered to be a dependable and dispatchable renewable that can be relied on all year round in all weather conditions. That's what this LNG and diesel plant are looking to address. |
| Why not install enough wind and solar, and make hydro back-up for wind? | That would require a lot of wind. As mentioned, wind is also not a reliable source of power year round and in all weather conditions. That's why we are exploring this LNG or diesel facility. |
| Takhini shows natural gas. Why? | There has been some discussion from a third-party vendor that they are looking at building a LNG depot in that area. Knowing that, we thought it would be prudent to include an option to use that natural gas to fuel this plan should that deport be built. |
| What about summer peaks? | We typically store enough hydro to address those peaks. |
| Have you gotten to this point after considering all your options? | This project stems from the research we did during our 2016 Resource Plan which showed that we need more dependable power generation to meet current and forecasted demands for power. |
| How desperate are you to meet these loads? | We need to have a secure reliable supply of electricity. During the winter there are times that we are running almost everything we have to meet peak demands for power. |
| What do you expect to get from the public? | We want to get input from the public on their views about the preferred location and fuel to be used for this project. The feedback will be used with research to provide a recommendation to our Board. |
| Will this asset assist with providing power when extreme weather occurs? | Yes. |
| How would this project affect rates? | Like nearly everything we do and costs we incur, we would apply to have these costs |

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| | included in the rates we recover from customers over the life of the project. |
| Will this increase reliability with respect to vulnerable population, elders, and kids? | Yes. This asset will be able to be used during emergencies, to help meet peak demands for power and when renewables aren't available. |
| Is the site across from the LNG facility higher than the water level at Schwatka? | Yes, I believe so. |
| Is Yukon Energy looking at more hydro developments? | Yes. Our 2016 Resource Plan explored many options. Two that seemed the most feasible that we are exploring right now are Drury Creek and Atlin. |
| What is the life space of the facility? | We're looking at a 40-year forecast. |
| What is the purpose of this plant? | We need this facility during emergencies, to meet peak demands for power, and when hydroelectricity isn't available. We need a generation source that we can access immediately and that can be switched on at a moment's notice. Electricity generated using LNG, diesel or both (dual-fuel) is proven to be the most reliable and cost-effective solution to meet these needs. |
| What is the life-cycle cost of the other options you explored? | All of the reports and research we conducted as part of our 2016 Resource Plan is on our website. |
| With electrical loads increasing, why look at a more permanent solution? | We are working on a whole portfolio or renewable and thermal projects to ensure we can continue to meet demand and have enough electricity. This project is specifically designed to help us during emergencies, during peaks and when renewables are not available. |
| Any investments in hydroelectric is beneficial. | Yes. Right now, we are looking for dependable and dispatchable source of power that will be used during emergencies, during peaks and when renewables are not available. |
| Who are Yukon Energy's main customers? | ATCO (wholesales), mines, and residents/business in Mayo, Dawson, Faro and a number of other communities. |

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| Could you run this plant as an alternative to Whitehorse LNG? | Yes. |
| How big is your existing LNG facility? | 13.2 MW. |
| Would there be person at these sites all the time? | No, only when we need to run them. |
| I like the Takhini and Sewage Lagoon sites but those roads are remote. | Thank you for the feedback. We will include this as part of our assessment of the project. |
| Closest people to Takhini sub is 300 meters and a driveway is right next to it. | Thank you for the feedback. We will include this as part of our assessment of the project. |
| What is the timeline for construction? | About 3.5 years. |
| What would be the footprint of the plant? | LNG – about 3 football fields<br>Diesel – about 2 football fields<br>Dual-Fuel – about 1.5 football fields in the existing diesel plant building |
| There are country residential lots right next to Takhini sub | Thank you for the feedback. We will include this as part of our assessment of the project. |
| Was carbon tax included in the assessment? | No. Legislation about carbon tax is not finalized in Yukon so it was not included. |
| Wad carbon tax considered? | No. Legislation about carbon tax is not finalized in Yukon so it was not included. |
| Would your existing LNG plant or this one run first? | Existing LNG, then this one if needed. |
| Would biomass be considered? | This project is needed to provide power in the case of an emergency, to help meet peak demands for power and when other renewables aren't available. Biomass is one option we explored in our 2016 Resource Plan, but it isn't suitable to provide that quick, dependable, dispatchable power we need during an emergency. |
| Why is the own option at Takhini so much less than the others? | Because that site is outside of Whitehorse City limits we would not need to pay city property taxes on it. |
| Are you looking to build at all five or just one site? | Just one. |
| Did you account for the total lifecycle cost of carbon in your analysis? | Yes. |

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| What about using biomass at the landfill location? | This project is needed to provide power in the case of an emergency, to help meet peak demands for power and when other renewables aren't available. Biomass is one option we explored in our 2016 Resource Plan, but it isn't suitable to provide that quick, dependable, dispatchable power we need during an emergency. |
| What is the definition of thermal? | LNG and diesel are considered thermal, however, geothermal is not. |
| Is this project for the support of mining activity? | This is not geared to supporting mines, in the event of an emergency the mines power will be shut off to meet the grid demand. |
| Is there a hydro plant in Faro or Mayo? | There are hydro plants in Mayo, Whitehorse and Aishihik, not Faro.<br>The Mayo hydro facility was built for the Elsa mine. Once the mine closed the Mayo-Dawson transmission line was built. Water levels are very low this year and Yukon Government has indicated Yukon is in a draught with Carmacks being the epicentre. The last draught was in 1996-1999, at that time we had surplus energy to compensate however that is not the case right now. |
| Why is it a thermal project and not renewable and why has it taken so long? | We will still be at 90% renewable. This project is for emergencies, such as the loss of a hydro unit as we are on an isolated grid. We are also working on a portfolio of renewable and non-renewable projects that are needed to meet the increasing demand for electricity in Yukon. It includes this project, new hydro, upgrade and storage enhancements to existing hydro and a grid-scale battery. |
| Why are we not connecting to the BC grid? | It is not cost effective and the line loss is very high over such a long distance.<br>Currently we are upgrading hydro projects, enhancing storage capabilities and exploring new hydro and battery storage for renewable resources. |
| Why not dual fuel? | Dual fuel is one option we are exploring at the proposed diesel plant location. |

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| How long will the LNG supply last? | Right now estimated at +100 years. The current supply is large and LNG is the cleanest fossil fuel. |
| Is Yukon Energy doing anything geothermal? | Yukon Energy explored geothermal technology as part of our 2016 Resource Plan. Two possible sites were identified, however those projects were not pursued because they were not found to be in the most cost-effective portfolio of resources needed to meet the increased demands for electricity. |
| How much fuel would the new LNG tanks hold? | Enough to run for one day. |
| I prefer the diesel site and retrofit the diesel building. The Sewage lagoon least preferable. | Thank you for the feedback. We will include this as part of our assessment of the project. |
| What about battery? | We are exploring a grid-scale battery and have an application in front of the federal government to help us fund that project. A $19 million project with $10 million funded by the federal government. Battery is good for backup and to help levelize peak demands for power. |
| How efficient are inverters? | Battery storage would allow us to be very efficient when using LNG, diesel and hydro. We would use the battery to provide backup and allow us to switch from one load to another. The proposed Lithium Ion batteries have a life of 10,000 cycles. Flow batteries have a capacity to be long term. |
| What happens when an LNG accident occurs? | LNG evaporates, it does not affect the land. There is no explosion however it does release fugitive emissions of methane. |
| I prefer the current site diesel site at the Yukon Energy office or across the road. I'm concerned about access to the other sites. | Thank you for the feedback. We will include this as part of our assessment of the project. |
| What is the difference between LNG and diesel? | There are three main differences:<br>1. LNG emits fewer greenhouse gas emissions<br>2. Diesel engines start up faster<br>3. Diesel engines respond better to changes in electricity load and are better suited to the future integration of renewables |

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| | We've completed a detailed analysis between the three fuels. That information is available on a summary chart on our website, yukonenergy.ca/thermal. |
| Are there any micro-hydro projects? | There are no micro projects but there are small hydro projects. We are currently exploring two: Drury Creek and Atlin. Wind and solar are variable and therefore not reliable during emergencies or toe meet peak demands. |
| Who would be the owner of the third party LNG depot? | Ferus is looking at the potential of building an LNG deport near the Takhini site. |
| What about bringing LNG up to Skagway and driving it to Yukon from there? | It is something that LNG companies have considered and deemed not to be feasible. |
| I'm concerned about fire suppression at the Takhini substation location. | This is something that would be addressed if this was the chosen location. We would comply with regulations. |
| How is the battery storage project coming? | Technology is moving forward mostly around Lithium Ion batteries which have a 20 year life. The battery would not help with peak demands but would pick up the load in an emergency. We submitted an application to the federal government to help us fund that project. A $19 million project with $10 million funded by the federal government. |
| Why are we still looking at fossil fuel projects as opposed to renewables? | Capacity. These projects are geared towards capacity. We need to plan to meet demand when we need it most (dark, cold winters for ex.) If a renewable unit goes down then we have a backup emergency unit. |
| Do you adjust demand based on different scenarios? | We looked at 20 various scenarios and this is the most likely scenario based on what we know (population and economic growth, electric heat and vehicles, etc.). Energy conservation is something we always look at. |
| Who is the Yukon Utilities Board? | They are a Regulatory Board that consists of Yukon Government appointed members. |
| What about DSM? | We have a DSM program but costs for the program were recently denied by the Yukon Utilities Board. We are asking the YUB to review that decision. |

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| What else are you doing for renewables? | We are exploring a number of project including hydro, battery, thermal, hydro upgrades and storage. There is also a Yukon Government Independent Power Production policy that allows small producers to generate renewable electricity and sell it back to the grid. |
| If we have a portfolio that includes thermal and we look at cradle to grave would the full cost be more or less re: greenhouse gasses | *This answer was not known but will look into it. |
| Are solar panels useful or should I just insulate my house more? | It's better to insulate as solar in not reliable in an emergency in the middle of the winter. |
| What are our emergencies? | Loss of hydroelectricity (failure at one of the dams, primarily Aishihik), a fault on the transmission line between Aishihik and Whitehorse, when peak demands for electricity are more than what's available, weather events, when renewables aren't available. |
| Where does the current LNG plant fit into this? I thought this was supposed to be used as a back-up. | The existing LNG facility was built to replace old diesel generators that were coming to the end of their life. We are using LNG more this year than in the past to supplement the low water levels that we are currently facing. The fuel is inexpensive and clean. |
| What is the difference between energy and capacity? | Capacity is instantaneous and meets our need/peak at a moment in time.<br>Energy is how much can be produced over the course of time. |
| In terms of equipment being used right now, is everything running efficiently right now? | We are currently upgrading the Whitehorse hydro plants which will give us more energy (allow us to produce more energy using the existing amount of water we have). We are also proposing the Southern Lakes Enhancement project to provide a low risk legacy. This would allow us to store more water in the fall months for use in the following winter (lowering our reliance on LNG and diesel during those months). |
| Regarding those affected, particularly at Marsh Lake, is buying out the public an option? | This has not been considered an option to date. |

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| Are you looking at other options for the next 50 years? | We are also working on a portfolio of renewable and non-renewable projects that are needed to meet the increasing demand for electricity in Yukon. It includes this project, new hydro, upgrade and storage enhancements to existing hydro and a grid-scale battery. |
| Since Faro mine has been gone, we haven't had the large load in & out. Why can't Yukon Energy anticipate our long term needs? | Our regulator will not let us build ahead of demand. We are trying to progress with Southern Lakes enhancement projects however we are receiving some disinterest and appeals not to proceed from those in the area. We also explored a Next Generation Hydro but didn't get positive reception on that as well. We are currently moving forward with increasing the output of our current Whitehorse Hydro units and worked with the Government to being the Independent Power Production Program in place. |
| Is Yukon Energy leaning towards dual fuel? | No decision about the fuel type has been made. There are some benefits to dual-fuel as it can be placed at the old diesel location and utilize current LNG storage facility. |
| Are you going to build intermittent renewables? | We continue to explore the development of new small hydro projects and enhancing the storage capabilities of the hydro facilities we currently have. We explored wind, solar, biomass and other renewables as part of the 2016 Resource Plan, but they didn't fit into the portfolio because they are not dependable all year round in all types of weather. |
| It is poor optics that Yukon Energy is building two thermal projects back to back. | Thanks for the feedback. We recognize that concern. |
| If Yukon Energy is just in charge of capacity then who is in charge of energy? | Yukon Energy is the primary generator of power in Yukon. We are responsible for making sure there is enough energy and capacity available in the territory for what's needed. |
| If you connect to the North American Grid would you still do IPP? | We would honour existing contracts but there would no longer be a need for the Policy. |
| How do we get away from fossil fuels? We need to see a serious decline by 2040. | The biggest contributor of greenhouse gas emissions in Yukon is the transportation |

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| | sector so that would be one area to focus on. In terms of electricity generation, on an isolated grid like ours we will always need some thermal energy in case of an emergency or when renewables aren't available. |
| Is Victoria Gold getting power year round? | Yes but the load shifts seasonally and they are producing some of their own power. In the case of an emergency they would get taken off the grid first. |
| If you have multiple diesel units how does the frequency work when they are talking to each other? | They can run as one big unit or separately. |
| What is the diesel vs. LNG ramp rate? | Diesel - 50 KW/second<br>LNG – less than 20 KW/second. Slower but more efficient |
| What kind of grid monitoring does Yukon Energy have? | The grid is connected to SCADA. |
| What about nuclear? | The use of nuclear to generate power would need to be approved by the Yukon Government before it is something that we would be able to explore and implement. |
| We have to do this project because of decisions made 15 years ago while everyone continued to push towards long term hydro or nuclear. | No response. |
| What about the rent vs. purchase option? | We believe there are benefits to owning the generators and new facility regardless of the location and fuel type selected.<br><br>Renting anything comes with risks. Think of it like renting a house vs. buying one.<br>• Will there be enough rentals available when you need them?<br>• Will the cost to rent increase?<br>• What state will the rentals be when you get them?<br>• And at what point does it make financial sense to invest the money you spend each year on a rental into an owned asset. |

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| | By investing in an owned solution we can ensure that this additional power is always available when we need it. By owning the facility, we'll also be in a position to make sure that it is always maintained and ready for service |
| When will we see more info on the proposed hydro projects? | We are in the preliminary stages of that speaking to First Nation governments and other stakeholders in the proposed locations. More information will be shared more globally when we are further down the project path. |
| It's sad to own an electric car and have to use diesel to charge it. | We are many years away from the next big hydro unit and we need thermal as a backup in the interim. |
| I'm happy to see Yukon Energy has not given up on renewables. | Thanks for the feedback. |
| What about geothermal? | Yukon Energy explored geothermal technology as part of our 2016 Resource Plan. Two possible sites were identified, however those projects were not pursued because they were not found to be in the most cost-effective portfolio of resources needed to meet the increased demands for electricity. |
| Are four small windmills better than one large one? | Yes. Its spreads the risk (ex. If one goes down you still have 3) and large windmills are more expensive (building, maintenance etc.) |
| What happened to the Next Generation Hydro studies done years ago? | It failed. There was no First Nation support for the project on traditional territory. |
| Who pays for new hydro? Tax payers or Rate payers? | If there is no government contribution to the project, then it is left to electricity rate payers to pay for the project. If government were to provide a contribution to the project then it would also affect tax payers. |
| How does hydro fit into the plan? I'm concerned with demand and supply going forward. | We are exploring a number of project including hydro, battery, thermal, hydro upgrades and storage. There is also a Yukon Government Independent Power Production policy that allows small producers to generate renewable electricity and sell it back to the grid. |

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| What is our current capacity? | Referred to the Need poster. Showed past renewable vs. thermal graphs. Discussed the capacity line being show being in the case of an emergency (loss of Aishihik) requirements. Discussed how mines are not included as part of the demand shown on the graph. Explained how the demand line includes assumption of some use of electric heat and vehicles. |
| There should be demand management programs specifically for people with electric heat in their homes. | Smart girds and smart homes take time and money. Peaks have been growing faster than average top loads. We are piloting a Residential Demand Response Pilot later this year were we'll be asking for volunteers to install peak shaving systems on their hot water tank and/or electric heat. We're interested to see the uptake and results of that. |
| What are the regulatory issues with New Hydro? | There was very little support by First Nations for the project on their traditional territory. In addition to that any new electricity project, like Next Gen Hydro would need to be reviewed and approved by YESAB. |
| Are First Nations interested in IPP (Independent Power Production)? | Yes, however not Hydro. Some want nuclear. Interest in geothermal near Carmacks despite high risk. Wind interest from Carcross Tagish First Nation on Montana Mountain. There are also other projects being considered by other First Nations. |
| What IPP (Independent Power Production) are out there? | 4MW wind project on Haeckel Hill is in the works.<br>Requires federal funding. Government would set the rate at 15.8 cents. Dawson is looking at resurrecting old hydro. There are also other wind and solar projects being considered. |
| What is the viability of IPP (Independent Power Production) business plans? For example when they aren't supplying power (solar in the winter) | An agreement will be in place forehand and this creates more opportunities for others to fill in the gaps. |
| Why burn diesel when you can burn LNG? | The LNG supply cost continues to come down making it more cost effective (35% cheaper). It is quieter and cleaner. Diesel starts up faster and is better suited to the integration of |

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| | intermittent renewables (responds quicker to changing loads). |
| Can you explain the battery storage? | It would provide 40 MWH worth of power. Black start capabilities (start up from being completely off). System protection and benefits. Requires a small facility with seasonal control and can store renewables. We are exploring a grid-scale battery and have an application in front of the federal government to help us fund that project. A $19 million project with $10 million funded by the federal government. Battery is good for backup and to help levelize peak demands for power. |
| What are your plans for new hydro? | 7-10 years away from 2 small hydro facilitates able to produce 8-10 MW each. Looking at expanding the Atlin facility and Drury Creek project. |
| Are you working with First Nations on hydro development? | Yes. |
| What is the best option for rates? | Thermal is the most cost-effective option to address our capacity need. It is the lowest cost solution. All rates increases are subject to approval by the Yukon Utilities Board. |
| What's the difference between capacity and energy? | Capacity is instantaneous and meets our need/peak at a moment in time.<br>Energy is how much can be produced over the course of time. |
| What is the difference between LNG and diesel? | There are three main differences:<br>1. LNG emits fewer greenhouse gas emissions<br>2. Diesel engines start up faster<br>3. Diesel engines respond better to changes in electricity load and are better suited to the future integration of renewables<br>We've completed a detailed analysis between the three fuels. That information is available on a summary chart on our website, yukonenergy.ca/thermal. |
| Which fuel is cheaper to build? | Diesel. |
| What does BC use? | A mix of resources including thermal for backup. |

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| I don't have a preference for location, I just want fewer outages. | Thanks for the feedback. This project would certainly help prevent outages in case of an emergency or when peak demands for electricity outpace what is available with renewables. |
| What about biomass? | Biomass is one option we explored in our 2016 Resource Plan, but it isn't suitable to provide that quick, dependable, dispatchable power we need during an emergency. |
| Smart metering would be great for energy consumption | We are piloting a Residential Demand Response Program later this year which will help us see how much peak we can shift by remotely controlling the temperatures on hot water tanks and baseboard heat. |
| My LOCATION preference in order:<br>1. Across from LNG<br>2. Diesel Plant<br>3. Sewage Lagoon<br>4. Land fill (fire hazard and restricting access)<br>5. Takhini (noise for nearby residents)<br><br>I prefer Diesel to LNG | Thank you for the feedback. We will include this as part of our assessment of the project. |
| We need for more programs for smart metering and conservation. | Thank you for that feedback. We offer a suite of energy conservation products but costs to offer those programs were recently denied by the Yukon Utilities Board. We are asking them to review their decision. We are proceeding with a Residential Demand Response Program later this year. |
| Can this project support the mines in 5-10 years? | Yes. However it's not the purpose of this project. This project could possibly be used for that purpose in 10 years when more dependable renewables come on. |
| I want to facility to be away from residents. | Thank you for the feedback. We will include this as part of our assessment of the project. |
| Will you have to put extra storage in the facility? | Yes. Enough storage for one day's supply. |
| What is the sound/noise level? | If an LNG facility is built, it will be no louder than the existing LNG facility on Robert Service Way. |

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| | If a diesel facility is built we expect it to be around 75 decibels loud when it runs (assuming you're standing about 10 feet away). 75 decibels is just a little louder than a vacuum cleaner.<br><br>Regardless of its location, if a new diesel facility is found to be the best solution, it would be quieter than the existing diesel plant at the Whitehorse Rapids site. That site is louder because older and louder units are in there now. |
| Does biomass include recycling/garbage? | Yes. Biomass is one option we explored in our 2016 Resource Plan, but it isn't suitable to provide that quick, dependable, dispatchable power we need during an emergency. |
| What about solar panels? | A utility scale solar project is not great for dependable capacity which is our immediate need and would be addressed by this project. |
| What about battery? | We are exploring a grid-scale battery and have an application in front of the federal government to help us fund that project. A $19 million project with $10 million funded by the federal government. Battery is good for backup and to help levelize peak demands for power. |
| What about geothermal? | Yukon Energy explored geothermal technology as part of our 2016 Resource Plan. Two possible sites were identified, however those projects were not pursued because they were not found to be in the most cost-effective portfolio of resources needed to meet the increased demands for electricity. |
| The Takhini location contradicts why people move to country residential. | Thank you for the feedback. We will include this as part of our assessment of the project. |
| What about Industrial land downtown? | That would need to be near existing power lines and where land is available. |
| What is the cheapest option? | Takhini. But we need to listen to the opinion of customers in the area and to obtain social license. |

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| Population growth would drive this. | Yes, it certainly is one factor that we looked at to forecast the demand for electricity. |
| What two hydro projects are you considering? | Drury and Atlin. |
| What happened to wind? | The two units were over 20 years old. One unit is retired and the other is part of a proposed IPP project. |
| What about hydro? | We are looking at projects at Drury and Atlin. |
| What about biomass? | Biomass is one option we explored in our 2016 Resource Plan, but it isn't suitable to provide that quick, dependable, dispatchable power we need during an emergency. |
| Why is LNG now being used as the base load? | We are in a low water year where we need LNG is generate the electricity that hydro cannot. |
| Where are the renewables in the long term plan? | This project is one of many we are pursuing to meet current and future demands for electricity including a grid-scale battery, two small hydro developments, enhancements to our hydro storage capabilities, upgrades to our existing Whitehorse hydro facilities and energy conservation programs. |
| Why are we supplying the mine? Can't we let them create their own energy? | We have an obligation to serve all customers that require power. Mines are the reason for this project. They were not included in our demand forecasts because in case of an emergency we would disconnect the mine from the grid to be able to provide more power to other customers. |
| What if there was a policy with a stipulation that mines could not use thermal? | I expect it would drive up the cost of building and operating the mine. |
| It doesn't make sense to only run a $100 million plant for two weeks per year. | We need this plant to provide reliable power to Yukoners. Two weeks usage is based on normal conditions where there is average water levels. This plant may be used more in case of an emergency, to meet demands for power in low water years. |
| We are a small population on an isolated grid. If Yukon can't use renewables who can? | More than 90% of the electricity we generate today is renewable. |

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| Why not keep renting? | We believe there are benefits to owning the generators and new facility regardless of the location and fuel type selected.<br><br>Renting anything comes with risks. Think of it like renting a house vs. buying one.<br>• Will there be enough rentals available when you need them?<br>• Will the cost to rent increase?<br>• What state will the rentals be when you get them?<br>• And at what point does it make financial sense to invest the money you spend each year on a rental into an owned asset.<br><br>By investing in an owned solution we can ensure that this additional power is always available when we need it. By owning the facility, we'll also be in a position to make sure that it is always maintained and ready for service |
| Is there a risk of stranded assets? | Possibly but there is also a risk to strand rental infrastructure. |
| What would be involved in putting rentals at Takhini? | The land would need to be cleared to make room for the rentals and the area would need to be made secure and safe. |
| How much backup time do you need to plan for now? | We store three days of fuel (continuous 24/7 runtime). |
| Where does your diesel come from? | North 60. |
| What is the scope of input in the survey? | We are looking for public input on the preferred location and fuel type. |
| Is renting a recent phenomenon? | We have been renting the last couple of years. |
| Are you taking feedback on your larger portfolio? | Today's input is specific to this project. We conducted a Yukon-wide public engagement on our larger portfolio as we were building our 2016 Resource Plan. |
| I would like to see thermal decreasing. | Thank you for your input. This project is part of a larger portfolio that we are working on that includes renewables. |
| Is Aishihik's supply tenuous? | Not particularly, but as our largest hydro facility we must plan for the case in which that |

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| | plant goes down or we don't have access to it (transmission line failure). |
| What is your annual target for renewable use? | We aim to use the maximum of renewables we have currently each year. As part of our 2016 Resource Plan we identified a portfolio that is 98% renewable. This project and others we are working on are part of that plan. |
| Is the Yukon Utilities Board involved in this process? | Previously, yes as part of the Resource Plan. And costs for this project would need to be approved by them. |
| What's the deal with the battery? | Can hold 8 MW and provide a daily resource. We are exploring a grid-scale battery and have an application in front of the federal government to help us fund that project. A $19 million project with $10 million funded by the federal government. Battery is good for backup and to help levelize peak demands for power. |
| Are there solar farm sites being considered? | Solar was considered as part of our 2016 Resource Plan. Yukon Energy is not pursuing grid-scale solar because they only provide intermittent energy. Independent Power Producers are presently looking at constructing several solar farms. |
| Rentals create a problem of having less incentive to move toward renewables. | Thanks for that input. |
| Are we not vulnerable to climate change? | Changes such as permafrost will not affect the location site. |
| Why don't we have water meters to limit the amount of water we use? | That would be something that would need to be mandated by the City of Whitehorse. |
| I'm concerned that only fossil fuels are being considered as part of this project. | This project is one of many we are pursuing to meet current and future demands for electricity including a grid-scale battery, two small hydro developments, enhancements to our hydro storage capabilities, upgrades to our existing Whitehorse hydro facilities and energy conservation programs. |
| Are there subsidies for solar or wind development? | Through Yukon Government's Microgeneration and Independent Power Production Policies. |

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| The Takhini site is surrounded by muskeg. | Thank you for the feedback. We will include this as part of our assessment of the project. |
| What about noise? | If an LNG facility is built, it will be no louder than the existing LNG facility on Robert Service Way.<br><br>If a diesel facility is built we expect it to be around 75 decibels loud when it runs (assuming you're standing about 10 feet away). 75 decibels is just a little louder than a vacuum cleaner.<br><br>Regardless of its location, if a new diesel facility is found to be the best solution, it would be quieter than the existing diesel plant at the Whitehorse Rapids site. That site is louder because older and louder units are in there now. |
| Lots of wildlife in Takhini. | Thank you for the feedback. We will include this as part of our assessment of the project. |
| My preference is for the landfill or lagoon locations | Thank you for the feedback. We will include this as part of our assessment of the project. |
| I have concerns about road usage and possibility of spills near the Takhini site. | Thank you for the feedback. We will include this as part of our assessment of the project. In case of using LNG, there would be no spill to ground, the LNG would go into the air (with methane emissions). In case of a diesel spill, it would have an impact on the land. |
| Can LNG affect water supply? | Not specifically at this site. Some methods to extract LNG due require water resources. |
| Will this devalue property because of the noise? | If an LNG facility is built, it will be no louder than the existing LNG facility on Robert Service Way.<br><br>If a diesel facility is built we expect it to be around 75 decibels loud when it runs (assuming you're standing about 10 feet away). 75 decibels is just a little louder than a vacuum cleaner. |

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| | Regardless of its location, if a new diesel facility is found to be the best solution, it would be quieter than the existing diesel plant at the Whitehorse Rapids site. That site is louder because older and louder units are in there now. |
| Does Yukon Energy have a preferred location? | No. We are currently just trying to get feedback from the public and assessing all of the options. |
| Why assume the loss of Aishihik? | It's a liability question, let's say we lose the biggest generation producer, can we still manage? Would we still be able to keep the lights on? |
| Are there other hydro projects happening? | We are looking at two: Drury and Atlin. If all were to go ahead smoothly those projects are still at least seven years away. |
| Concern about building a new dam and the impact on wildlife and draining rivers. | There was certainly be some impact to land. That's why every project goes through a rigorous review and process and even when it is operating, there are water management plans. |
| What about smaller renewable projects? | Yukon Government's Independent Power Production policy was rolled out 6 months ago which allows smaller producers to sell to the grid. |
| I want nuclear. | The use of nuclear to generate power would need to be approved by the Yukon Government before it is something that we would be able to explore and implement. |
| Yukon Government is advocating for electric heating. | This was factored into our load forecasts. |
| I don't want LNG. I want a long term solution. I wants renewables. | This project is one of many we are pursuing to meet current and future demands for electricity including a grid-scale battery, two small hydro developments, enhancements to our hydro storage capabilities, upgrades to our existing Whitehorse hydro facilities and energy conservation programs. |
| Why does LNG across from Yukon Energy have a red spot (on summary slide)? | The exhaust plume may be a potential hazard for air traffic. |

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| Does peak power draw the current away from my appliances? My stove acts differently at 5:00pm. | No. |
| How much do know about biomass? Could this be an option?<br>There is lots of wood at the landfill from construction projects. | Biomass is one option we explored in our 2016 Resource Plan, but it isn't suitable to provide that quick, dependable, dispatchable power we need during an emergency. |
| I don't like this consultation forum. I would prefer others in a group setting hearing lots of questions from others. I drive an electric car, use solar energy and have taken down trees in my yard but I'm afraid that these efforts will not mitigate fire due to fossil fuels? | Thank you for the feedback. |
| General comments from one participant:<br>- Problems with ground water conditions<br>- Do not want it at the Takhini site<br>- Concern with the wildlife corridor around Takhini<br>- There are too many surveys to keep track of<br>- I'm concerned about the climate<br>- I want to see small nuclear plants.<br>- I don't want to see any more LNG<br>- The survey format forces you to make a decision<br>- GHG emissions a concern<br>- DSM should be a priority<br>- Need wind and energy storage and improved home insulation<br>- Peak shaving<br>- I'm concerned with GHGs | Thank you for the feedback. We will include this as part of our assessment of the project. |

# appendix a.1: post-it note comments on panels at open houses

June 1-6, 2019

| Participant comment/question | Yukon Energy Response |
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| TAKHINI LOCATION PANEL<br>• Dangerous corner and blind hill when trucks are turning (nicknamed, MACH I HILL for good reason)<br>• Takhini River Bridge is too small<br>• Lots of wildlife in the area<br>• Health and noise concerns<br>• County residential. Residents for a reason<br>• Increased traffic to the area<br>• Decreased property value<br>• Trails well used in that area<br>• Wellness Centre<br>• Muskeg in location<br>• Tourism operations<br>• Cranky hermits and artists<br>• Excellent area for future development<br>• Fire suppression<br>• Site is on the top of a hill<br>• Highway safety with trucks turning? | Thank you for your feedback. These comments will be considered as part of our project recommendation. |

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| LAGOON LOCATION PANEL<br>• Most preferred<br>• Driving across bridge<br>• Traffic congestion<br>• Big trucks | Thank you for your feedback. These comments will be considered as part of our project recommendation. |
| LANDFILL LOCATION PANEL<br>• Could improve dump road<br>• No negative traffic effect<br>• The landfill would increase the possibility of bio-mass generation on-site<br>• Incinerators?<br>• Would like to see upgrades to the road<br>• Best site<br>• Easy access for fuel trucks | Thank you for your feedback. These comments will be considered as part of our project recommendation. |
| DIESEL PLAN LOCATION PANEL<br>• Preference for existing site<br>• Use the waste heat in buildings | Thank you for your feedback. These comments will be considered as part of our project recommendation. |
| • Is there space? | |
| ACROSS FROM THE LNG STATION LOCATION PANEL<br>• Use the waste heat in buildings (Yukon College, CGC, New Developments) | Thank you for your feedback. These comments will be considered as part of our project recommendation. |
| OTHER COMMENTS<br>• Thorium small nuclear when available<br>• Yes (reference to nuclear)<br>• What about fugitive emissions of methane? How are they accounted for?<br>• Spills go straight into the atmosphere. False. Not good. 120 times more potent than Co2 when first released.<br>• Limited suppliers. | Thank you for your feedback. These comments will be considered as part of our project recommendation. |

# appendix b: door-knocking comments and questions

May 30-June 17, 2019

| Participant comment/question | Yukon Energy Response |
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| I want to see more renewables installed instead of fossil fuels. | I understand. We need this facility during emergencies, to meet peak demands for power, and for when hydroelectricity isn't available. We need a generation source that we can access immediately and that can be switched on at a moment's notice. Electricity generated using LNG, diesel or both (dual-fuel) is proven to be the most reliable and cost-effective solution to meet these needs. It's important to note that this new thermal facility will not provide all of the power we need to meet the increasing demands for power in Yukon. This project is one of many we are pursuing, some of which are renewables like the development of new sources of hydroelectricity. |
| I would like to see more renewables. What about geothermal? | Yukon Energy explored geothermal technology as part of our 2016 Resource Plan. Two possible sites were identified, however those projects were not pursued because they were not found to be in the most cost-effective portfolio of resources needed to meet the increased demands for electricity. |
| My preference is for the Takhini site. Next would be at the diesel plant. I don't like the options across from the LNG facility, Landfill or Lagoon because of possible future recreation development there. The fuel option you select should be the cheapest one. | Thank you for your feedback. These comments will be considered as part of our project recommendation. |

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| What about solar? | Building solar was considered as part of our 2016 Resource Plan. This project is specifically needed so that we can provide reliable power during emergencies, to help meet peak demands (especially during the winter), and when renewables aren't available. Solar is not a dependable source of power generation for these types of situations. |
| How loud will the new facility be? | If an LNG facility is built, it will be no louder than the existing LNG facility on Robert Service Way.<br><br>If a diesel facility is built we expect it to be around 75 decibels loud when it runs (assuming you're standing about 10 feet away). 75 decibels is just a little louder than a vacuum cleaner.<br><br>Regardless of its location, if a new diesel facility is found to be the best solution, it would be quieter than the existing diesel plant at the Whitehorse Rapids site. That site is louder because older and louder units are in there now. |
| I prefer that the generators stay where they are now (at the diesel plant in your parking lot) and for the dual-fuel option to be selected. I'm concerned about the increased traffic that might result at the other locations. | Thank you for your feedback. These comments will be considered as part of our project recommendation. |
| I would like there to be more renewables. | I understand. We need this facility during emergencies, to meet peak demands for power, and for when hydroelectricity isn't available. We need a generation source that we can access immediately and that can be switched on at a moment's notice. Electricity generated using LNG, diesel or both (dual-fuel) is proven to be the most reliable and cost-effective solution to meet these needs. It's important to note that this new thermal facility will not provide all of the power we need to meet the increasing demands for power in Yukon. This project is one of many we are pursuing, some of which are renewables like the development of new sources of hydroelectricity. |
| What about safety? | We're committed to employee and public safety. All of our facilities are equipped with safety measures as outlined for the type of work we do to minimize risks to employee and public safety. |
| Would extra people be employed by this project? | The facility will only be manned when it is being used. Building the facility would certainly require the employment of contractors and procurement of goods. |

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| Just keep the lights on. | Thank you for your feedback. These comments will be considered as part of our project recommendation. |
| Don't build the plant at your existing location (diesel plant). It would be like you're putting all of your eggs in one basket" | Thank you for your feedback. These comments will be considered as part of our project recommendation. |
| Just build it. | Thank you for your feedback. These comments will be considered as part of our project recommendation. |
| I'm new to the Yukon. Can I use LNG in my home like I use natural gas in Alberta? | That type of infrastructure doesn't exist now. Homes in Yukon are typically heated using diesel, propane, wood or electricity. |
| What is the cheapest option? | Over the 40-year life cycle, building and owning a diesel facility at the Takhini site. |
| Has a vendor been selected for this project? | No. We are still in the preliminary phases of this project. |
| What is the different between renting and owning? | We believe there are benefits to owning the generators and new facility regardless of the location and fuel type selected.<br><br>Renting anything comes with risks. Think of it like renting a house vs. buying one.<br>• Will there be enough rentals available when you need them?<br>• Will the cost to rent increase?<br>• What state will the rentals be when you get them?<br>• And at what point does it make financial sense to invest the money you spend each year on a rental into an owned asset.<br><br>By investing in an owned solution we can ensure that this additional power is always available when we need it. By owning the facility, we'll also be in a position to make sure that it is always maintained and ready for service |
| I'm disappointed that you are looking to use more fossil fuels. I would like there to be more renewables on the grid. My preference is for you to rent the generators so that the capital investment of building something new be used for the long-term development of renewables. The survey should have included more open-ended questions. | Thank you for your feedback. These comments will be considered as part of our project recommendation. |
| I am deeply concerned about the Takhini site. This would be a huge infringement on our quality of life. I think it makes sense to have it either at your existing site, across the street or at the Landfill. | Thank you for your feedback. These comments will be considered as part of our project recommendation. |

# appendix c: online survey results

**MAY 21 – JUNE 9, 2019**

**447 respondents**

## Q1. Tell us your preference for each of the following site location options for a new thermal electric generation facility. Put "1" for your first choice, followed by "2", "3", etc.

| | Weighted score |
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| At Yukon Energy's Whitehorse diesel plant | 23.65 |
| At the Whitehorse landfill | 22.94 |
| Beside Yukon Energy's Takhini Substation | 19.53 |
| Near the Whitehorse sewage lagoon | 17.12 |
| Across from Yukon Energy's LNG generating facilities | 16.77 |

## Q2. If you don't support any of these options, tell us why.

- 4 or 5
- Across from LNG - removes good usable land for residential, commercial and recreation.
- Air quality. If we need more toxins from LNG or diesel emissions at least move it out of Whitehorse valley.
- All of these are awesome. I especially like the Yukon Energy home near the dam because it's very visible and we should show it off!!!!
- Anywhere except beside the Takhini substation. This is a rural residential area and it will have direct impacts on those of us who live close to the substation.
- At very least, thus option process should not be considered without a more thorough inclusion of renewable integration. This to my mind is after the affect, more electrically heated homes, without much energy planning. We cannot underwrite continued climate change options of this nature to our energy menu. This very old school thinking and non-planning and support for petroleum options is not tenable in today's world climate crisis!
- Because we need to stop supporting fossil fuel usage and start constructing green energy projects
- Better to put the generators close to existing infrastructure
- Both the landfill site and lagoon site would require significant road upgrades. That's an unnecessary expense at the other site options.
- Carbon footprint, try solar, wind, or many other BETTER options that may cost a bit more upfront...why are we not looking forward?
- Contrary to the misconception of Yukon Energy that the only options are LNG and Diesel, far better options are available in non-fossil fuel alternatives. Why is Yukon Energy not taking a leadership role and developing alternate energy and storage solutions.
- Could we not use/expand the mine site backup systems to act as a redundant system?
- Demand will keep increasing the more power that is generated.

- Do NOT buy LNG plants.
- Do not take away the motocross track of the mud bog pits if you go across the road!
- Don't have enough info to choose
- Don't put it along Robert Service Way. This is the gateway to the city.
- Don't support any locations for further fossil fuel facilities. However, cumulative noise from the facility is already an issue in Riverdale - so lagoons or landfill are best options.
- Don't support your plan. You need to move forward with other sources: Geothermal Wind Solar... perhaps a new hydro damn (Skagway)
- Don't force your employees to work beside a landfill or a sewage lagoon.
- Don't live in Whitehorse so don't know those locations
- Don't want it inside the city limit
- Energy demand peaks are result of attracting mines and industries that get exempted from energy taxes. Residents get asked to reduce demand and still have to pay more because they aren't contributing significantly to economy like large industry. Utilities need to make money on energy supply and demand. No brainer. But industry doesn't keep the money in the Yukon but to shareholders investors (probably Yukon Energy is one) that aren't in the Yukon. Energy money escapes and that is not energy security.
- Generating energy with options which create additional carbon footprint is not something I support. If diesel is used in the valley it adds to the winter smog effect in Riverdale and downtown.
- Habitant Dawson je ne connais pas assez les enjeux de chaque secteur
- How big is this facility? 20MW?
- How can I choose an option if I don't know the pros and cons of each site and why are there only two choices: diesel or LNG. What about geo-thermal???? What about not putting all your eggs in one basket?
- I DON'T HAVE ANY PREFERENCES, YOU KNOW MORE THAN I DO WHERE TO PUT THE FACILITY, JUST DO IT.
- I absolutely do not support any addition of diesel or LNG. Please put this investment towards renewable energy!
- I am deeply disappointed to see Yukon Energy deploying more thermal energy without comparable progress on renewable energy projects.
- I am generally opposed to another electric generation facility that use non-renewable fuels, anywhere, no matter the location
- I am totally against generating more electricity from fossil fuels. Spend the budget you have on electrical generation that doesn't contribute to climate change and increasing your current problems with low water levels. You are just digging us deeper into a hole.
- I am totally opposed to another thermal electric generating facility. You should be investing in renewal energy on a large scale from now on
- I am uninformed and this not qualified to make this kind of choice. How many survey responders would be educated for this decision?
- I believe a lot of energy generated is wasted by the public, businesses and all levels of government here in the territory. Yukon Energy should be providing education and awareness regarding the use of energy. I am very frugal with my energy use so find it very frustrating that I have to pay for those who waste it.
- I believe that Yukon Energy should continue to use interim solutions until such time that it can bring renewable or sustainable resources on line such as wind, solar or bio-sourced. Work elsewhere in the world indicates that renewable and sustainable generation is now technically feasible and in the long term more

economical than burning fossil fuels. Most of the arguments about load balancing can be and are being addressed through some form of energy storage.

» I believe we need to look for alternative green energy solutions to help supply the Yukon's power. We are in a climate crisis and should not be building fuel reliant facilities in this day in age to move forward. Please offer more solar programming to households to generate more power to the grid.

» I do NOT support "thermal" generation of power. We do NOT need power generated by fossil fuel. Make a serious commitment to renewable energy. Use "smart metres" to even out peak loads e.g. incentives to use power in non-peak times. Invest in solar, wind, bio-mass, heat storage. Be an energy leader, not a dinosaur. Dawson Creek generates power with 32 windmills and contributes to the southern grid. Surely we could follow.

» I do not believe that constructing another thermal electric generation facility is the best choice for Yukonners. I believe that there are alternative, sustainable options that may be more expensive in the short term, but are better options. Prove to us that you have considered alternative energy generation and that they are all unfeasible. Feasibility based on lowest construction cost is not acceptable.

» I do not have enough information to make an intelligent choice.

» I do not support an investment in fossil fuel-based electricity. Why is there no discussion of Small Modular Reactors? https://smrroadmap.ca/ Has an analysis been done with regards to the benefits gained from $50million investment in energy conservation and storage?

» I do not support creating more infrastructure that generates energy that is poisoning our planet. We have potential for geothermal and solar - there must be battery capability available to store solar power. Sweden uses their landfill waste to generate electricity. There are a lot of alternatives.

» I do not support locating this proposed plant near the LNG generating facility or the diesel plant as there is already too much noise pollution and Visual eye sore there.

» I do not support new fossil fuel generation. We have a worsening situation with climate change and there is an urgent need to reduce energy consumption first, then focus on renewables such as solar, wind, pumped hydro, biomass, geothermal, etc.

» I do not support tahini substation because it would be the closest power generation to residential living. This should be the biggest consideration.

» I do not support the construction of a new facility that involves the use of either of the proposed fuels. We should be investing more in renewables to meet our electrical needs. Individuals can learn to reduce their power needs when necessary. I believe this whole initiative is in response to potential future industrial needs. This is a sham consultation as it is only giving people an opportunity to participate in a decision regarding location and not on how we would like to see power developed in the future.

» I do not support the idea of building generating station near Takhini substation. It is too far from town for servicing and as of a resident of the area, do not want to see a large facility at that location.

» I don't believe anything more should be added to near the end of the runway area. I tried to not include those but this form won't let me not give those options a value.

» I don't know enough to know which site makes the most sense or if this is a danger to the public so should be away from where people are.

» I don't really support these options because I believe that by now we should be doing renewables even if they are more expensive at least in the short term. And that is because

of the impending climate change crisis.

- I don't support LNG development, fracking is horrible for the environment and detrimental to the well-being of Yukon residents. Please consider renewable energy projects and investing in a clean sustainable future
- I don't support The Whitehorse Plant site or the LNG site for added infrastructure considering disaster planning (fire flood earthquake air or other transportation related incidents). As a Riverdale resident, trail and green space user, our enjoyment of our living space needs to be considered. The site and noise from additional generating stations should not be introduced. Installing capacity in other areas would seem to support contingencies in disaster planning as well as municipal / territorial growth and reduce future expansion of infrastructure to meet those demand scenarios.
- I don't support added thermal generation in general.
- I don't support adding more fossil fuel facilities at all. You and the YG need to move immediately to increase renewable energy availability, and to address demand side issue!
- I don't support any of these options. This is a step backwards. We need to start to use green renewable energy systems (not dams) for power. The new wind turbine project on Haeckle Hill was okayed two years ago and it's really time for this to be developed. Yukon Energy is greedy corporation that is more concerned with their profit than providing the territory with green renewable energy. It is absolutely a FACT that Yukon Energy wanted those trial wind turbines to fail, as the corporation failed to service them. Finalize the power purchase agreement and get those new turbines up.
- I don't support building a new thermal generating plant. Please look to renewable sources for supplementing electricity during times of high demand. Preferred location would depend on what kind of renewable energy source is chosen.
- I don't support non-renewable energy projects ANYWHERE
- I don't support the construction of this facility.
- I don't support these options, we need to act on climate change and follow the path of the future, which is generating electricity with green renewable energy systems.
- I don't believe that these are viable sustainable options with little foresight into the issue
- I don't know enough about it
- I don't support any of these options because installing fossil fuel generators in the middle of a climate emergency is an absolutely appalling decision. We should be investing this money in renewable energy.
- I don't support putting the site at the Takhini road location due to already increased traffic on the highway as-as, as well as interruption to water route use (canoe, jet boat, etc.)
- I don't think it should be adjacent to any residential areas
- I feel like you guys are the experts and should plan for where makes most sense... and where financial burden is less. You can make a more informed decision that joe blow on the street.
- I need more information -- does someone have to drive out to turn on the generators or is it just a question of turning a switch at the main office? If a person is needed, then the sewage lagoon location is the least practical. It would be nice to have fumes created away from the existing infrastructure though for those times when temperature inversions are in play.
- I only support putting any new generation at the Landfill, and also distribution generation beyond. Near the sewage lagoon is risky for fire. Across from the LNG plant is dangerously at the end of the runway

and further makes the Robert Service Way even more dangerous. If there was ever a fire at the south end of Whitehorse the YEC generating facilities, corporate offices, SCADA control system are all could go up in smoke. YEC's fire in 1996 should have taught YEC a lesson about putting all its diesel generating, offices, hydro, SCADA and LNG in all one place.

- I ranked the options because none of the above is not an option. However, the last thing the Yukon needs in a climate crisis is a discussion around new thermal capacity.
- I support having reliable source of electricity. I am sorry it has to be thermal but I accept this as a fact of life living in Yukon.
- I support only renewable energy
- I support renewable resources and am against long term investment on the reliance of fuel
- I support the city of Whitehorse
- I think it would be a much better idea to invest in wind energy and storage. There are a significant number of elders that have commented that windy days have increased and there is hardly a day that goes by where there is not a slight breeze.
- I think it would be good to focus resources on vertical / bladeless windmills and solar farms
- I think that you should be investing money in renewable resources - micro hydro, wind, solar, etc. - and not fossil fuels. Climate change is real, stop feeding the monster.
- I think we need to make more serious considerations into renewables in the nearer future
- I thought the new LNG plant was built as a backup?!
- I understand we need the energy, I would hope that perhaps in future the generation could be converted to using some of that 'garbage' at the landfill, so make access easy.
- I want to see liquid thorium reactor technology employed in the Yukon. Nuclear is reliable, and modern tech makes it safe. As for location, put it wherever makes the most sense.
- I would like to know why Yukon Energy is even considering Thermal energy. Thermal power plants play major role in energy generation and at the same time are also responsible for leaving a measurable carbon footprint in the atmosphere. Wood pellet/ chip boiler: They are a sustainable fuel source and wood pellet/chip heating will not produce carbon dioxide emissions to harm the environment. The amount of the carbon dioxide emitted during the burning process is equivalent to the amount absorbed during the growth of the trees. Wood pellet boilers are energy efficient. Can you imagine all the fire smarting that could be completed and said wood provided as an energy source? You could kill two birds with one stone.
- I would prefer Takhini substation as if anything may happen at the main diesel plant heaven forbid in theory there would be a chance to have backup from this location, plus it is more access able by emergency personnel if there was a need
- I would prefer other renewables!
- I would prefer that none of these options be used. Instead Yukon Energy should be investing in Wind, Solar and biomass. One of each of these could generate base load so that the water in the river could be stored for use when nothing else ids available
- I would prefer that we generate electricity from renewable sources, e.g. more use of solar panels, energy from burning trash (which, unfortunately, is terribly renewable), wind power, even wood burning plus energy conservation measures.
- I'd like to see a better and more detailed plan for alternative energy sources, not just Andrew saying "we're working on it."
- I'm not going to support any of these until I

see more information about how you came to this conclusion and the options that were considered, including better Demand-side Management.

- Instead of diesel/LNG power I'd rather like to see an upgrade of/addition to existing hydro along with pushing forward wind and solar. Fossil fuels are/should be a thing of the past. If you'd do/have done that asking for a new thermal electric generation facility location would be obsolete.
- It should be located out of town as the new LNG plant contributes a lot of excess fog in the winter.
- Items four and five to remote for access
- L'emplacement d'une nouvelle centrale thermique devrait etre examinee en considerant un complexe multi-fonction. Avec la quantite grandissante de dechets de toutes sortes au territoire, il serait bon de considerer la construction d'une fournaise oa[1] les dechets pourraient etre transformes et le chauffage produit par cette activite, distribuee comme energie supplementaire a la centrale thermique proposee. Il faut agir maintenant pour reparer les dommages et aide notre environnement a se 'guerir'.
- LNG is fracking- use renewable energy. More solar and wind power
- LNG is not a cleaner / transition fuel, I do not support increasing Yukon's dependence on any fossil fuels especially when diverse renewable options are proven to work. Spend the tens of millions on infrastructure (smart grid?) that enables Yukon to benefit from proven solutions like Taku River Tlingit.
- Lagoon site too isolated. Existing plant and across to it are both too close to downtown and residential areas. These options are not good a good choice at all. I do not agree that I have to add a number.
- My preference would be that Yukon Energy stop relying on fossil fuels so heavily. The last LNG plant was supposed to be the last one, a stop-gap solution. Stop with the stop-gap solutions and find something else.
- NO LNG
- NO new investment in fossil fuels!!! YE has ample time to begin investing in solar, wind, and biomass. The thermal generation facility will take the same amount of time to get up and running. It is unconscionable that YE has not yet invested in renewable energy, and is now, once again, considering an investment in fossil fuel infrastructure.
- No more burning in Riverdale! It's dirty enough with the wood smoke.
- No more fossil fuel burning... Build wind, solar and geothermal energy infrastructure...!!!
- No more fossil fuel generating! Anywhere in The Yukon
- No new thermal electric generation facilities; get on with renewables. We need to see how Yukon Energy is moving away from fossil fuels. The 2016 resource plan needs to be updated to specifically show us. Keep renting back-up until renewables are in place.
- None of the above We need to be using renewable energy source and not spending money on a new out of date form of production of energy
- Not a penny should be spent until an equivalent funding for wind, solar and other renewable energy is allocated as a number one priority. The entire project should be assigned to a First Nation, such as the Teslin First Nation. I expected that a civil and possibly criminal lawsuit will eventually be mounted against the Yukon Energy Board, whose vision. Doesn't reach past their noses!
- Not at Yukon Energy's Whitehorse diesel plant or across from Yukon Energy's LNG generating facilities. If there was a catastrophic event in that area, all 3 would be out then.
- Not at an existing facility. A more spread out system is more robust
- Not beside the Takhini substation. It's not fair

to people who live there, and moved to a rural area

- Not enough information to comment intelligently. Not below the dam, near down town. It is smelly or noisy?
- On South access to keep truck traffic out of town. Takhini is worst option for road safety with rise in grade giving poor visibility. Also if LNG or blend is an option ability to share storage is present which will support current storage constraints.
- Outdated technology. Understand and invest in renewable energy sources. You have all the info.
- Please do not install in the flight path or close to it. Avoid putting all the eggs in one basket by being downstream of the dam.
- Please do not invest all of this time and money into continuing the use of fossil fuel back up stations. It has been a reactionary response for decades. Please invest into modern, renewable, carbon reducing, sustainable and creative sources of energy production. Our populations and energy needs continue to grow. A wise and forward thinking response to our rapidly changing world is separately needed instead of band aid reactionary decisions made out of desperation.
- Possibly we could look at geothermal?
- Predominant south wind in the summer, winds must also be considered in the cold winter months. You could smoke out all of downtown Whitehorse with diesel smoke, much worse than wood smoke.
- Prefer non-fossil fuel options and/or incentives to reduce peak demand. Peak pricing, for example.
- Reno and replace old diesels AS NEEDED in the current plant...the less costly alternative.
- Rent again and build more hydro
- Rental makes more sense rather than tying us to fossil fuels. Yes, we need back-up but rental makes more sense as we transition to more renewables on grid and hopefully to better storage options and or new technologies for back up. In the big picture the cost of rental vs. a new thermal plant is not that different and we know how hard those numbers are to estimate that far in the future.
- Resources must be put to renewables. Canada has agreed to cut emissions, and this plan does the complete opposite.
- Sewage lagoon depends on the bridge-not a good idea. Out of the way at Takhini.
- Sewage lagoon road is not adequate
- Sewage lagoon site would be difficult to access.
- Should be building more hydro instead
- Should be investing in solar by making it mandatory on all new buildings and affordable to being on older structures
- Silly to build downstream from a dam. Silly to live downstream from a dam, but I do. Why does the gas plant scream? Stop it!
- Stop building power generators that require out dated fuels. Start to seriously produce power with renewable fuels.
- Takhini Substation is located on the crest of a blind hill on a section of highway known for high speed driving by freight trucks, clandestine racers and travellers from the communities rushing to Whitehorse and is also a major thoroughfare for tourists and vacationers. The area has no industrial activities as it is home to livestock ranching, and tourism related business that are only viable in a quiet wilderness setting. The site abuts on a major wildlife corridor for woodland caribou, moose, grey wolves, marten, lynx, black bear and grizzlies travelling on their migrations to and from the Yukon River.
- The Yukon, Yukon Energy, and Yukon Government need to replace diesel, dual-fuel, and LNG for power generation. They need to move quickly to geo-thermal power, wind

power generation, solar power generation and the use of utility-scale battery storage, or PSH pumped-storage hydroelectricity, compressed air energy storage, or thermal storage like hot salt.

- The assumption that a short term fossil fuel based solution to the peak load issue is questionable. There has been too little consideration that a ROBUST DSM program will address the short term peak situation and provide more time for both consideration and development of no-fossil fuel remedies.
- The best option is to place these in the present facilities as it SHOULD be the most economical and easiest transition. Not certain about across the road as would YEC have to buy this property????
- The dump is too close to where I live, and I think it will change the trail area too dramatically. The Mt Mac trails are a local resource, and many businesses depend on the "full wilderness" quality of them, minutes from city streets. The same thing goes for the Takhini Substation- it's a beautiful accessible area, and I don't want to see it ruined.
- The landfill site is a traffic problem
- The lowest cost options seem to be an owned diesel generating facility. For some reason, the cheapest location is Takhini ($98.1M) and the most expensive is the Whitehorse Diesel Plant ($123.0M). Without knowing the details, these costs seem skewed and don't make sense since the cheapest option should logically be close to the Whitehorse Diesel Plant. Therefore, with the information I have, it is not possible to support any of the options.
- The sewage Lagoon would be too expensive as it is not close to a substation. The Whitehorse Land Fill is also unsuitable for the same reason as the sewage Lagoon.
- The sewage lagoon is an important location for wildlife, particularly as a rest and re-fueling stop for migratory birds. Further development there would have a significant negative impact in this regard.
- Thermal generation should be seen as a last resort. There are huge hydro resources available - use them smartly
- These surveys are crazy, choose locations without knowing fuel type or any of the design considerations involved. You realize that the choice of location should be based on sound engineering judgement right? As such, would not favor any location near the existing facilities or in town. Best location is Takhini, reduces transportation if dangerous goods and offloading away from people and facilities and away from Yukon River.
- This investment needs to go into renewable energy projects. It is beyond ludicrous to be putting more money into fossil fuels at this time. There are plenty of renewable energy options that are NOT being explored or invested in and it's the time to do it.
- This is not the kind of electricity generation I want to see in the Yukon. I am against using even more fossil fuels we currently do, especially while there is so much untapped potential in terms of micro hydro and biomass.
- This is the time to invest in renewable energy, not more fossil fuel energy. The world is screaming to get off fossil fuels, and as we grow electrical needs, it is an imperative to make sure investment is future-proof.
- This money should be spent on developing renewable energy. It is past time.
- Until I see an ambitious and realistic strategy to develop renewable energy resources, I prefer not to comment nor support additional non-renewable resource energy capacity generation.
- Upgrade hydroelectric power by increasing the size of already existing power stations/ water storage. The environmental damage will be minimal as the facilities are already established and holding water creating lake habitats. Hydro is a clean renewable energy,

the naysayers are unusually uneducated or biased. There will be some environmental impact but it will be minimal compared to pumping exhaust fumes into the air. Tell the public what they need, and in this case just do it, stop bending over for the squeaky wheels who don't want to listen to reason.

- Use renewables
- We don't need a new thermal plant, we need a renewable option. Why not wait a few years (keep renting generators) and explore geothermal? It's a great resource with minimal impact and it is very likely that the Yukon has great potential. And on top of that invest in storage options and encourage people to use energy in off-peak hours (through different rates). Why having years of consultation about other options to just ignore all this work and go back to fossil fuels???? Is that what you call public consultation? I can't believe this is even being considered as a permanent option. How can you ignore what's going on with climate change and depletion of resources?
- We have known about the lack of planning for long term energy needs due to community growth and new mines coming online for probably ten years or longer. This issue even hit the news periodically. Why the Energy providers in the Yukon have not acted upon predictable energy needs and planned accordingly is inconceivable. Work with First Nations (TRTN is already trying to become a small energy provider), Yukon, and federal government departments, and the private sector to find renewable solutions instead. Subsidized energy savings and private micro energy production may provide another small measure of relief.
- We need to be going renewables. The world scientist are telling us we must wean from fossil fuels as soon as possible. What is Yukon Energy doing investing in fossil fuel development? We need to develop geothermal in the Yukon... YOUR KIDS AND GRAND KIDS NEED it as well as mine. It is outrageous that your energy plan does not even mention climate disaster looming or your efforts to green the grid. Shame on Yukon Energy for their full support of long term fossil fuel in the Yukon. You should be ashamed ...and feel guilty every time you look at your kids and grand kids
- We need to be looking at other energy options that do not include burning fossil fuels. We need to be looking at peak hours pricing to encourage people to delay using energy during peak periods.
- We need to facilitate the use of renewables, not diesel or LNG.....wind, solar, geothermal.
- We need to have a solution that doesn't require any fossil fuels. An energy solution such as solar or wind or using more of the hydro that we already have set up
- We need to stop burning fossil fuels and seek out renewable energy instead.
- We need to stop burning fossil fuels, search for a green solution instead.
- We need to use renewable energy like wind, solar, geothermal. Period. If you force mines to produce their own power, we may have enough already. I am tired of paying fuel riders and higher rates than mines to subsidize their profit margins.
- We should be doing more to create renewable energy sources.
- We should be doing renewable energy, not fossil fuels. 12 year UN Panel of Climate Change Scientists to avert disaster. This is an emergency
- We should be investing in solar or wind. It's cheaper, more sustainable, and we have vast resources for then here.
- We should build another HYDRO ELECTRIC DAM and generate power/ electricity from hydro..... more environmentally friendly.....
- Whichever is most cost effective?
- Why are you not investing in more renewable energy sources?

- Why don't to use wind power or solar power?
- Why plan for thermal energy??? Let's plan for a clean new hydro site!
- Would prefer you don't build a plant that will run on fossil fuels, especially LNG!
- YEC MUST focus on renewable energy suites such as wind and biomass, for future power generation. I support diesel generation as backup only, and only as an interim measure, this can be at the current YEC facility. Further LNG should not be installed anywhere for backup (which it isn't suitable for) or generation.
- YEC needs to take Demand Side Management, in plain language, energy efficiency and conservation, much more seriously, use those techniques to spread out the peak demand into off-peak hours. Techniques such as remotely turning off hot water tanks using FM radio or other techniques during the morning demand peak in Riverdale and other compact densely-populated neighbourhoods. Put in LED streetlamps to cut consumption, put them on motion detectors. Awareness campaigns for block-heater timers, water tank insulation programmers, timers in the building codes so hot waters refill at night, all of these are
- proven techniques used in other jurisdictions. As well, current YEC facilities are all too close to both floatplane and conventional aircraft flight paths, so don't put more infrastructure there.
- YEC should also looks at small-scale nuclear or medium-hydro as options.
- You have LOTS of existing hydro to backstop an increase in renewables. Install new wind and solar capacity and use Aishihik provide emergency capacity when the renewables are not producing.
- You mention in Social Conditions for the LNG site that there is an exhaust plume to consider in regards the airport, I would suggest that this is a visible impact in any of the areas, so I would want the site to be further away from residential/recreation areas. The Landfill as second choice is with the consideration that perhaps garbage can be used as a fuel source (as in other locations).
- You should be doing biomass, biomass will need to be close to downtown.
- Yukon Energy should be exploring renewable energy sources not wasting money making us dependent on fossil fuels
- Yukon needs to move away from fossil fuels. I support paying more for green energy such as solar, wind, and more hydro.
- Yukoners feel lied to by YEC. We were told the existing LNG were simply 'back up' energy. Now they run near constantly in the winter and here we are discussing the expansion of LNG/Diesel fuels in spite of all science, logic and moral duty. We recognize it will be difficult to provide a reliable year round energy supply without it, but it must be done. The planet cannot sustain further expansion of fossil fuels.
- are there any plans for renewable energies?
- because we need to have renewables energy. I do not support any diesel, gas, long.
- climate change, pollution,
- don't care either way, whichever is most cost efficient? Also no idea what the footprint of it is or what it will look like so hard to comment in an informed way
- I don't want to see any fossil fuel plants being built, period. You must find a solution and kick the fossil fuel habit.
- I don't really support any of them
- I support the options AWAY from people's houses. There is no need for an LNG plant to be by the substation, directly beside people's homes.
- no preference
- people live near substation
- Sounds great, thank you!

- the other 4 would not be readily accessible in case of major incidents
- Thermal electric generation is inefficient and costly, no mention on how the heat source is to be supplied. I don't support any form of fossil fuel use when we have so much local hydro potential
- use a geo thermal options
- use the money to develop solar/hydro/wind option
- We need power when we need it!
- would support more work done on alternate energy sources rather than fossil fuels
- You and YG have had 10 years or more to get ready for predicted population growth. And Yukon Energy and YG have done little to prepare; other than build an LNG plant. I do not support this project at all. Put the money into renewables at once, even if it is late.

## Q3. What is the ONE MOST IMPORTANT thing you would like Yukon Energy to consider regarding the location of a new thermal generation facility?

- Ability to be located near existing facilities to perhaps reduce FTE costs and ease of building without impacting neighbours as well as ease in supplying fuel and connecting to grid
- Ability to start units quickly when needed
- Access for the mechanics to service the equipment, the p126 diesel plant is ideal!!!
- Access to the site for maintenance and fueling
- Access, environmental impact of building a new site plus access.
- Accessibility
- Accessible for workers but not protesters. Probably important to consider not having it by the current facilities if it will be a backup.... but for refueling, maintenance and monitoring it makes sense to keep them close together.
- Air emissions.
- Air pollution. Noise pollution.
- Air quality for city residents, thermal energy is NOT clean energy
- Allocation and safety
- Allowing for even more growth in future
- As far as possible from residential neighbourhoods.
- Aside from the usual geo-technical considerations, the new facility should be located near current distribution facilities and lines.
- Away from the river
- Better to have the diesel plant and LNG generation facility in close proximity to each other. Easier and quicker to access in case of problems.
- Build or improve access roads.
- Choose a place where you can use wind or solar instead of fossil fuels.
- Climate Change = wildfires. Burn baby burn!
- Close to existing generating infrastructure I.e. the hydro plant in Whitehorse.
- Close to town
- Community impact during construction
- Compatibility with surrounding area of noise and emissions.
- Consider more renewable energy sources -- solar, wind, micro water power, geothermal. REDUCE DIESEL AND LNG!!!
- Consider the NIMBY factor. Keep it away from residences.
- Consider the accessibility and expansion room of the location. We continue to grow, and will continue to struggle to meet energy demands.
- Consider the location in terms of providing

back-up for the most people

- Consideration of this project as a short-term stepping stone toward the long-term use of renewable energy sources. The location should be amenable to eventually replacing the diesel generators with modern energy-storage solutions that become cost and space effective, be they batteries, compressed air, etc.
- Cost
- Cost and how that will impact my bill
- Cost effectiveness.
- Cost of access and maintenance.
- Cost, future possibility for expansion
- Cost, redundancy. Should all energy infrastructure be in one location? Better to have back up at another location.
- DONT BUILD IT!!!!
- Disturbing private property during and after construction.
- Do not build it anywhere. It is a false choice that citizens are being asked to make. The logical choice is renewable energy - NOW
- Do not build it.
- Do not diminish the esthetic beauty of Whitehorse and surrounding area. The LNG plant removed nice forested area right along the entryway to downtown Whitehorse and plunked a power plant there. Whitehorse... the wilderness city... Whitehorse has amazing visible beauty. Let's not let it slip away. It would be hard to get it back if it goes.
- Do not do it. Put the money into renewables. Wind/battery or other storage, more hydro. We should do demand
- Do not locate another fossil fuel burning plant in the Yukon anywhere.
- Don't build it on the Mayo Road by the Takhini substation
- Don't build it. Invest in renewables. Do it for the children.
- Don't build it. Invest in sustainable, renewable, green energy facilities: solar, wind, geothermal.
- Don't do it
- Don't do it.
- Don't place it under the approach flight path to the airport
- Don't put it where aircraft will crash into it.
- Don't build it.
- Don't put it in the city limits
- Ease of access and operational efficiencies.
- Ease of access from highway.
- Ease of access in case of emergency (fire at landfill, road washout towards sewage lagoon etc.)
- Ease of delivery of fuel. The lagoons or the dump would not be very nice in the winter to get fuel out there by b-train without tire chains for the hills and this is coming from a truck driver. The other options are all fine.
- Ease of operation and maintenance
- East to tie into the existing system.
- Easy Access
- Easy access
- Effective operation!
- Efficiencies, emissions and providing the backup needed for Whitehorse
- Efficiency
- Efficiency of power delivery
- Emergency. Do not like having all the electrical generation system in one place
- Engineering judgement
- Ensure that it requires minimal re-building of current infrastructure (e.g. roads) for access/delivery of fuel and relatively easy access in case of emergency (e.g. fire/spill cleanup).
- Ensuring that the visibility from the road is blocked. As well, having the ability to increase size in order to meet future demands.
- Environment and socio-economic impact

- Environmental impact
- Environmental safety/protection
- Existing infrastructure
- Financial burden and if it is a worth it band aid until a long term greener solution is found
- Find a better future solution: more hydro, connect to the B.C. grid, more renewable
- energy, etc. I think somebody saw this coming. Poor planning by Yukon Energy.
- Fire safety
- Fits into existing infrastructure (industrial zoning, existing similar use--as with YEC diesel plant)
- Fossil fuels are DIRTY AND NOISY. We need renewable energy
- Furthest distance from people, especially homes.
- Future expansion of facility
- Future LNG storage / retail sales. Down the road we would like to be able to form a gas co-op similar to elsewhere on the prairies and supply gas heat
- Future planning.
- GHG emissions
- Generator noise; tanker truck traffic; cost (capital as well as O&M)
- Green energy - it fossil fuels
- Handy, not affected by major disasters, accessible, some security
- Have far enough away so that if one is knocked out because if something like an earthquake, the other will still be operational.
- Hide it, and build it to replace it with practical (affordable) options in the future.
- How it looks and that it isn't close to our back up drinking water sources
- How to best support existing operations and reduce road safety hazard and increase road safety.
- How to generate additional electricity without it!
- I am 100% against locating it beside the Takhini substation. This is a rural residential area and it will have direct impacts on those of us who live close to the substation. The people on Vista Road will look directly into the plant not to mention all the other people who live close to it. This is an industrial development that should be located far away from houses. I feel very strongly about this. I hope Yukon energy will listen to mine and my neighbours's feedback and not locate the plant around here. Thank you.
- I do not support new thermal generation. YEC has had years to develop a suite of renewable energy generation options and work with government on the IPP policy so don't use it as an excuse to make foolish investments in fossil fuel generation now.
- I do not support tahini substation because it would be the closest power generation to residential living. This should be the biggest consideration.
- I don't understand why you would build it anywhere but where you already have a diesel plant/generating facilities? Wouldn't that make the most sense? What am I missing? You haven't provided the reasons for why you've chosen these 5 options. But 1 and 2 seem like they would make the most sense.
- I feel that we need to include in this "insurance plan" the consideration of a dam breach ad for that reason I would like to see strong consideration given to elevation and geographical distance between the primary and secondary generation sites. This will also help in the event of fire activity that could cause infrastructure damage to some areas of town while others remain viable.
- I see that this project is already going ahead so I would suggest that your capital investment in the new generators be minimal. We don't want to invest heavily in

what soon make be outdated technology.

- I support renewable resources and am against long term investment on the reliance of fuel. Consider short term options until you're in a situation to invest in long term renewable options.
- I think the farthest away from a person's property the better. Existing site seems appropriate
- I think these locations already generate thermal energy.
- I think yukon energy should consider other forms of sustainable resources
- I would like Yukon Energy to use their existing thermal plant buildings at Whitehorse and Faro before building on new locations.
- Ideally the facility would be located away from people's homes
- If it needs to be put somewhere, make sure it's sited in a way that doesn't impact future development in that area.
- If necessary rent generators as you invest in renewable power.
- If you are talking about gas or oil generators, you are living in the past. Let's try living in this century.
- If you're going to do something like this, place it somewhere where it can function as a backup to the existing grid. Away from the current site makes the most sense, and the dump has easy access.
- Impact on residents (country residential)
- Impact on wildlife in surrounding areas.
- Impacts caused to nearby environment
- Impacts on the environment
- Integration with long term urban plan
- Is this really your only option
- It looks like the only place that you have selected that is directly beside residences is the Takhini option. You should not be affecting residential areas. ALL the other options are in commercial areas
- It must be renewable.
- It should be front and centre as a reminder that we aren't doing a good enough job to divest from fossil fuels.
- It should be located out of town
- It should be where everyone can see it. We shouldn't be hiding the energy project.
- It should not be done in lieu of DSM improvements and expanding hydro development encourage more use of electric heat and vehicles.
- It's hard to make an informed choice when there is no description from YEC on the benefits and drawbacks of each proposed location. Which locations are easiest to integrate with the existing system? What are the O&M implications for each site? Ease of access for fuel delivery? Site conditions suitable for building foundations and fuel storage tanks? Risks of impact from fuel spills or equipment failure? Not enough information for people to make an informed choice. So the results of the survey are not very useful in my opinion. The public doesn't have enough knowledge to properly weigh in.
- Its impact to environment and people
- It's only wire put it as far from civilization as possible.
- Jobs, revenue, and economy
- Keep it setback and away from main roads
- Keep it to the Whitehorse core area
- Klondike Highway would be a blind hill and dangerous for workers, residents and tourists.
- L'impact environueutaux et l'impact sur les propriete pirne proche
- LOCATION AWAY FROM HOMES.
- LOCATION DOESN'T MATTER, THE NEED FOR THE FACILITY IS THE PRIORITY, NOT WHERE.
- La production d'energie propre,

renouvelable qui n'est pas dommageable a l'environnement et qui entend utiliser les materiaux de dechets de concert avec d'autres ressources pour produire l'energie necessaire a maintenir nos besoins energetiques.

- Large trucks causing traffic issues going to the landfill or the Takhini subdivision
- Le moins de polution possible
- Let's locate this new plant close to the existing diesel/LNG plants where workers can quickly access it. Also the Takhini location is an unsafe location for fuel delivery being at the top of a hill which would create traffic accidents and congestion anytime fuel delivery takes place. Also the safety of storing fuel like diesel could pollute our fresh water supplies if you happen to have a tank issue. If LNG is the fuel what if a forest fire or explosion happens what would that mean for any close by residents? Let's locate this new plant away from any residential properties! It would lower property values for anyone within site! Are we going to be compensated for this and any future issues YEC will cause? Having the plant located closer to the work force would also be financially beneficial for YEC!
- Leverage existing site characteristics to minimize cost (e.g. do not build it by the lagoons where road maintenance and upgrading are required)
- Located away from view of major roadway and away from populated area.
- Location
- Loin de la population
- Long term environmental impact
- Looking at options that don't include burning fossil fuels.
- Low impact on environment
- Lower cost to build and do not effect city infrastructure. So in future hydro prices won't go up significantly.
- Lowest cost
- Lowest emissions
- Make use of existing infrastructure and minimize environmental and socio-economic effects.
- Making sure it's not an eyesore like the LNG plant. I'm for anything to make power as long as it's not ok the side of a main road downtown
- Methods for incorporating other forms of renewable, thermal generation (e.g. biomass CHP) into the infrastructure at a later date to reduce the amount of diesel or LNG burned to produce electricity.
- Minimal impact to environment
- Minimizing incremental impact
- More renewable energy
- Movement of LNG trucks.
- N/A
- N/A. I don't support this project.
- NOT HAVING ANY MORE FOSSIL FUEL BASED THERMAL ELECTRICITY GENERATION.
- Neighbors. Please don't put it near where people live.
- Neighbours and environment
- No comments
- Noise
- Noise and emissions
- Noise and stink to neighbors
- Noise for nearby residents. Ease of service for YEC staff.
- Noise for people living in the area
- Noise impacts on nearby residents due to generator operation and truck traffic.
- Noise pollution. Also, less or no impact on existing or planned neighbourhoods. Put solar on government owned and leased buildings. Higher incentive for private buildings to install solar.
- Noise pollution/ visual impact

- Noise, and local pollution effects
- Noise, pollution, climate change, renewables.
- Noise.... noise..... noise
- Noise/traffic
- Not building it anywhere
- Not disturb residential subdivisions
- Not doing thermal generation. But if you must - away from residential development.
- Not enough info to comment. I prefer a movement to renewable.
- Not in downtown (the river valley) because the smell of rotting eggs from the LNG plant can be detected throughout downtown, especially when the windows are open on a warm day with a very slight breeze bringing it wafting in from the South.
- Not in the City
- Not near residences.
- Not to build any at all; move to green, renewable energy projects. Finalize the power purchase agreement for the new proposed and accepted Haeckle Hill wind turbine project and get them built.
- Not to build it! Do not continue going down this road. Make the hard decision and be a leader and invest in the future.
- Not to further impact the subdivision of Riverdale and Downtown
- Not using anything other than rental units accompanied by a ROBUST DSM. The YUB review being the one, but temporary, impediment.
- Not visible, not using public land like across from the existing generation facilities.
- Nuclear power!
- Nuke plant instead
- Ongoing costs. Oh one more. Ability to add onto if required.
- Out of sight
- Out of site out of mind. Please don't let this be another eye sore
- Out of town farther away
- Please consider only renting the unit, so that funds are available to invest in alternatives.
- Please do not put the plant near the Takhini substation. There are many residences in this area. This would also mean potentially more tanker truck traffic having to cross the dangerous Takhini River Bridge on the North Klondike Highway, increasing the risk of a hazardous substance into a river.
- Please don't put it near people who live on the Mayo Road. We moved out of town for a reason, and this would destroy the peace and quiet of our neighbourhood!
- Pollution
- Potential for damage to river and surrounding environment
- Probably ongoing associative costs or continued availability of use of the area.
- Proper integration in the environment (noise control, aesthetics)
- Proximity to existing facilities.
- Proximity to existing production facilities for ease and timeliness of emergency maintenance and for consolidation of facilities security and monitoring.
- Proximity to the highest users: downtown Whitehorse is growing with infill of homes, subdivisions and businesses that all demand heavy electricity use.
- Proximity to the river
- Proximity to values at risk of noise pollution and spills. Consider the transportation of diesel required for the generators.
- Public Safety
- Put up a wind farm instead.
- Putting generating plants near significant sources of geothermal.
- Regardless of the location, rental generators are preferred to purchase units because renting minimizes capital investment and enables future savings when alternatives are

implemented.

- Reliability/availability of power
- Renewable resource if economically feasible
- Renewables.
- Rethink to whole process and get your act together better for a better work!
- Riverdale already has terrible air quality in the winter. Driving past the LNG units on Robert service a yellow emission from the LNG units is seen. I don't think the largest subdivision in the Yukon needs any more air pollution.
- Safe distance from residential areas
- Safety
- Safety and environment
- Safety and reduction of environmental footprint
- Safety for people and wildlife.
- Safety in case of an emergency and access to the plane without requiring access from a third party
- Safety of residents and the surrounding environment (air, water, earth)
- Safety of the public
- Safety- the mayo road location is on the crest of a hill. The trucks going in and out will be blind to traffic coming. There will need to be considerable modifications to the highway. Yukon Energy has all the infrastructure at the current LNG and diesel sites, why is it not obvious that this is where the expansion should be?
- Safety. Continuous information to public in a timely manner.
- Safety. i.e. - ease of access for workers, access to grid structures, cost.
- Scrap the whole plan of more fossil fuel burning!
- Security
- Security.
- See above and are there no other alternatives that would include wind, geothermal, solar?
- See above for location. Should the dam fail? How do you recover?
- See answer for Q2
- Share information about noise, pollution, traffic, light and other emissions from any new plant to help people understand what impact it could have. Also what about the birds? What impact on the ecosystem could a new plant have in these different location?
- Should be a back-up location for generation if something happens to current facility.
- Should be as far away as possible from people's homes.
- Should not be on prime serviceable land, if it can be located in a more remote, low-value location
- Should not be on the east side of the river.
- Social Considerations. The Environmental and Economic factors are pretty similar in all locations except for the LNG site.
- Social and wildlife needs
- Spread the infrastructure out.
- Stop allowing entire subdivisions installing electric baseboard heaters!
- Stop asking loaded question. Instead of what where to put new thermal ask Yukoners (ratepayers) what TYPE of generation they wish to see?
- Stop using diesel, dual-fuel, and LNG for power generation, quickly move to renewable power generation. Other countries are doing this, and it is successful.
- Stop using fossil fuels. But if you are using LNG, consider the blast radius, should something go wrong.
- TO NOT BUILD THIS SHIT
- Taking advantage of site's current designation for energy use; ease of access in emergency.
- That disturbance for wildlife and people is minimal
- That is doesn't require much infrastructure to connect it to the grid

- That it be renewable resources
- That it be temporary.
- That it is a temporary impermanent measure - this is why short term rental of diesel back-up is the best "transition" fuel for Yukon.
- That it is time to invest in other forms of renewable energy on a larger scale.
- That it not burn fossil fuels. Come up with a green alternative.
- That it should be able to operate independently. If there were an earthquake, flood or fire this should be away from the current plant
- That the generating facility be located where it is operationally most efficient for YEC.
- That the site be earthquake proof and far from rivers and streams.
- That this is temporary!
- The Environment
- The cheapest option available. This is only for backup during the timeframe where there are no other sources of electrical generation are available. It should be made a priority at Yukon Energy to commence with the plans for a new hydroelectric generating facility as this takes a long time and it seems that we are in the situation now due to lack of planning with respect to electrical generation meetings the needs of Yukoners now and in the future.
- The environment as this plant could be around for a long time
- The environmental impacts to plants, animals and people
- The important part of this is economics as we build it at existing plant we can replace the old diesels only as they reach the end of life (to do this before makes no economic sense). If we agree with some company to purchase dual-use (diesel and LNG) generating engines at the times when needed to change (displace old diesels at end of life) we should be able to get a better deal. To place it in the other areas would require either new housing or new transmission lines which are costly. WHY NOT USE THE EXISTING INFRASTRUCTURE INTELLIGENTLY?
- The landfill seems perfect. Absolutely NO to the Takhini Substation. It would have a tremendous impact on the area between mowing the area down to acquire the footprint required, to the large vehicle traffic. That area may not have species at risk but it is the wells-used greenspace for four different neighbourhoods, and is one of the two most important watershed corridors to the Yukon River (the other being Wolf Creek) in the Wilderness City. No. No. No. No. Did I mention the Whitehorse landfill is perfect? Yes. Yes. Yes. Yes.
- The least amount of disturbance to the public for noise and fumes
- The location should, if possible, allow for electricity to be routed to individual portions of the network, so that in the event of a major loss of generating capacity, service can be provided on a rotating basis, rather than having a network wide extended shutdown.
- The need for renewable energy and the need to reduce dependence on fossil fuels.
- The noise factor, is there any risk to people's health, has enough studies been done?
- The potential for renewable energy inputs
- The potential to use dual-fuel engines for the generators
- The transition away from fossil fuels.
- The winds in the seasons we will need the capacity. Low lying air in the winter months.
- Thermal is a misnomer, be honest with us. You mean 'some type of fossil fuel' and it's absurd in the face of the impending climate crisis.
- Thermal should be built and used as a last resort.
- Think about environmental risk mitigation as a prime consideration

- Think of community disasters and not putting all the eggs in one basket.
- This should be done in a way that positions it specifically as a short term solution. Given the impacts of climate change in the north, this must be done in a way that emphasizes its nature as a stop-gap measure on the road to increased renewable power generation capacity. For example, rental of diesel generators, rather than outright purchase.
- This site should be located to allow growth and multiple uses. It should be planned for the future that may not include a thermal plant but could include battery storage or other technologies.
- To be able to meet the demand with minimal power outages
- To not consider it. Consider massive electrical storage facilities, stockpile electricity or water or other energy storage means during periods of hydro surplus. Be the future. Inspire the world now.
- To stay on the highway corridor for easier/ cheaper fuel delivery
- To think about future facilities for renewable energy
- Total project cost
- Traffic
- Traffic issues and closeness to residential areas.
- Transportation of LNG not going through residential areas
- Try to keep your footprint as small as possible , utilize locations you already have to minimize impact
- Use LNG from the Yukon to save on shipping costs
- Use renewable sources! Wind solar or geothermal!
- Use renewables
- Use the Alberta noise standard
- Visible to the public for awareness and education.
- What are the EXACT costs of this new facility? Be transparent with rate payers and not have the same situation as we had with the LNG Storage facility near Whitehorse dam.
- What is most efficient for Yukon energy!!
- What is the true purpose - if we look at the power we provide to the mine sites and remove that amount are we producing enough? If not then yes we need a redundant system - however maybe the current hydro should be the backup and spend the $ on solar wind and geothermal?
- Where there is room to locate additional generation equipment in the future
- Wherever it can be most easily tied to the grid.
- Whether it is actually needed or not. If it is absolutely needed then some sort of cogeneration facility should be considered where it can be used to provide heat for buildings.
- Why are we choosing thermal electric generation?
- Why are you choosing an option that leaves a measurable carbon footprint? Why are you not choosing a renewable resource? Look at Teslin and their success - https://www.youtube.com/watch?v=YjzRJcmtfSk
- Why aren't we looking at bio fuels or other options? We are going backwards.....instead of looking at reducing our consumption or using sustainable and alternative energy sources we'll be producing more greenhouse gasses.
- Why not enter into an agreement with Skagway and add lines rather than fuel burning generators
- Why they are not doing renewables - batteries too.
- Wind and solar power. Or something where there is not fossil fuels.

- YEC needs to distribute its diesel generation away from YEC headquarters and YEC must not invest in anymore LNG.
- You must consider the effect on residence no matter where you put it. I know it is needed. It is crucially important that it is located in space that does not interfere with any current or future residential prospects.
- Yukon Energy should be choosing rented generators to minimize capital investment. It will also mean future savings as alternative energy sources are implemented.
- Yukon Energy should be exploring renewable energy sources not wasting money making us dependent on fossil fuels
- Yukon Energy needs to be investing in renewable energy rather than Thermal electricity generation
- Ability to co-gen: use waste heat from the diesels for other uses.
- am not seeing anywhere in this survey input options regarding rental or owning equipment
- avoid sound of diesel in town
- away from residents and in an already established area
- close to current facilities
- cost
- cost of operation & ownership renting short to long term is least desirable as all will cost many millions with no long term value
- costs
- Dangerous to put it near the dam. If it can be cheaply integrated into the Takhini substation that might be strategically better.
- do not build it
- Don't bother with a location. Go renewable. A new hydro dam.
- don't build it at all
- don't want one
- easy accessibility in case of emergencies and you need to get to the plant asap
- easy to access/maintain (for Yukon Energy), safe and secure
- efficiency of location (ability to use existing infrastructure, through-ways, access)
- ensure it's atmospheric pollution is minimized
- fast troubleshooting
- good access
- How does it impact local enviro re sound and sight? maybe best place is sewage lagoon
- impact on surrounding neighbourhoods, people and property
- increase capacity to 30KW for lower incremental cost or enable easy/cheap expansion
- invest in clean energy
- invest in renewable resources
- it is LNG free
- it is short sighted to consider additional use fossil fuel energy generation for the yukon
- it should not be near a populated area
- Keep Whitehorse power generation in one location.
- keep it as far away from residential areas as possible
- Keep it away from river. Dam is getting older. Good place for redundancy.
- keep it out of site
- Look into burning bio waste. Anything that cannot be composted may be burned at a very high temperature and these systems can expel very little toxins into the air. The hospital burns biohazards all the time.
- lowest cost for ongoing maintenance and capacity to expand
- lowest cost for purchase & upkeep
- noise
- noise and air pollution effects on nearby residents and land users
- Not to place it in a potential flood area in the

event of an earthquake. Below the level of the existing dam at the existing diesel plant is a bad location.

- not using nonrenewable sources so choose a location where renewables could be used or converted to in future
- operational certainty-----i.e. that operation would not be affected by problems at other power generating locations
- Our carbon footprint and the need for government to support efforts in moving away from our dependence on fossil fuels.
- pollution
- Practical and cost efficient.
- proximity to existing facilities for flexibility in switching and maintenance
- proximity to existing power grid
- Put it where it makes the most overall "sense". While the Takhini substation may be the most appealing to most people if the infrastructure is not there to carry the power back into the grid without a substantial upgrade, perhaps site 4 or 5 does make the most overall "sense"
- safety
- Secure redundancy in the event of some catastrophic event that knocks down part of the generating capacity.
- sustainability, community wellness
- That it doesn't directly impact air quality of residents nearby, and doesn't devastate the natural setting of our "wilderness city".
- the noise factor, it would have to be really quiet
- they should be leaders, not followers, in planning for the future of electricity generation
- up front cost
- use it only as a back-up and try to establish a strong renewable energy system
- visual incongruity
- who owns the land/ location relative to noise

## Q4. Tell us your level of support for each of the following options:

LNG powered

| | Frequency | Percent |
|---|---|---|
| Low support | 191 | 42.73 |
| Medium support | 89 | 19.91 |
| Strong support | 132 | 29.53 |
| Undecided | 18 | 4.03 |
| Not answered | 17 | 3.80 |

Diesel powered

| | Frequency | Percent |
|---|---|---|
| Low support | 222 | 49.66 |
| Medium support | 118 | 26.40 |
| Strong support | 76 | 17.00 |
| Undecided | 14 | 3.13 |
| Not answered | 17 | 3.80 |

Dual-fuel powered (LNG + Diesel)

| | Frequency | Percent |
|---|---|---|
| Low support | 201 | 44.97 |
| Medium support | 102 | 22.82 |
| Strong support | 99 | 22.15 |
| Undecided | 25 | 5.59 |
| Not answered | 20 | 4.47 |

## Q5. If you don't prefer any of these options tell us why.

- Again with the leading questions, how to have a preference when the fuel use has not been quantified...how much power? Is it base loaded, peak, only emergency? How could anyone have an opinion if this isn't identified?
- Again, the rest of the planet is getting away from fossil fuels. We have more renewable options available to us here than many places in the world. Wind conditions similar to Wind Valley in California, 360 known geothermal hot springs , more solar hours than many places currently using solar...yet we keep on the fuel bandwagon. It is time to try a little progress.
- Against increased use of fossil fuels. You lied to the public about the purpose of the LNG plant you have already installed. Yukon Energy has not been honest in assessing the carbon footprint of the LNG you have been buying already -- fugitive emissions from fracking and production have been ignored.
- Aren't we supposed to be going towards green energy?
- As before, would like more consideration given to alternate energy sources
- As long as this 'insurance plan' takes into consideration the ability to one-day reduce the use of diesel in the future.
- As mentioned previously, wind generation is long overdue and with the ability to store the energy in a much more efficient fashion it is a win. Wind generation would eliminate the need and any concerns with trucking in the fuel for diesel or LNG to the power plant, it is often windy here. Solar is not ideal because of the low light levels in the winter and frequent cloud cover.
- Avoid more LNG at all costs because of Fracking
- Because there are better options to protect our planet too,
- Because these are not green or renewable; this is contradictory to our future - economically and environmentally.
- Because we are in climate crisis we need to find alternative energy sources to help supply the grid
- Can we burn our garbage / mass-burn technology? http://www.metrovancouver.org/services/solid-waste/garbage-recycling/waste-to-energy-facility/what-is-wte/Pages/default.aspx Biochar? Hemp crops? Can we use solar panels? https://www.science.org.au/curious/video/ivanpah-solar-power-plant
- Can we please, for the love of Pete, start creating renewable energy sources? If this is only supposed to be backup energy, it seems like a good place to start.
- Climate change. It's time to move on from fossil fuels.
- Diesel because it would have the lowest carbon footprint if purchased from Alaska and have the least amount of trucking.
- Diesel is more carbon intensive
- Don't over complicate your engines with dual fuel. Choose a manufacturer that can supply local parts and service. This will save extreme costs over time.
- Each thermal option for emergency requirement is dependent on a fuel Yukon does not produce locally. In the event of highway closures or market disruption what storage requirements must be considered to satisfy a "worse case event"?
- En 2019, da» au changements climatiques et la pollution, nous devrions envisager un autre type d'energie. Deja durant les grands froids beaucoup de gens chauffent au bois, il faudrait limiter les emanations, particules, polluants dans l'air
- Energy consumption reductions should be more stringent. The use of renewable energy should be prioritized, and developed with a decentralization approach

- Environmentally - I suspect at local source of LNG would be the best (cleanest/efficient) solution. I don't know the environmental impact of an alternative fuel sources like garbage, or the feasibility of other sources like geothermal or wind/solar.
- Every one of these fuels needs to be hauled up the highway. Not to mention that they are in limited supply and pollute our environment. We need to be looking at trying to be more self sufficient. Why are we not looking at using solar, wind or even geothermal?
- Fossil fuels are literally destroying our planet - how can you be so closed minded to continue pursuing them? You're experts in energy - figure it out - do better! The Yukon is small and flexible, we should be a leader in renewable and creative energy solutions, not a laggard.
- Fossil fuels that aren't even generated locally. These options should be opened to the large industry users you are trying to float and generated at their locations. Sorry Whitehorse you need to curb your population of energy users to be truly effective on climate change and emergencies.
- Give the people a sign that renewable energy is soon being developed. Announce a project that will give the people hope that renewables are on the way. The windmills on Haeckel Hill not turning when we have an abundance of wind available is not showing us that renewable energy is an option that Yukon Energy is entertaining.
- Given the seriousness of the climate issue, we should be doing everything we can to move in the opposite direction of any of these fuel sources. I understand the importance of easily dispatched power, but we're past the point where that should be the primary concern.
- Go to renewables. i.e. water storage, geothermal, solar, wind etc. Any fossil fuel use will harm the environment and will keep us Canadians from reaching the Paris Agreement.
- Greener energy should be used.
- Hydro
- Hydro is the way to go.
- I am OK with both if it is used for emergency situations. For other situations, I strongly believe that we can plan for low water situations ... long term goal at least ... and get started with renewable energies. Look at Norway. While we cannot 100% copy their system, we can at least learn from them.
- I am concerned that the options of renewable (wind, solar) energy are not in the mix, nor another attempt at convincing Marsh Lakers to hold back an additional 2" of water to minimize the risk of low water in winter. PLUS someone needs to work on demand side management -- otherwise you can add to the power supply and
- people will gladly use it all up.
- I am deeply disappointed in the progress YEC has made in adding renewable energy capacity, and in promoting reduced demand.
- I am not overly supportive of any of the three options because I need more information. Is this additional capacity needed to support a growing residential market or is it simply to support new mines such as Victoria Gold to continue selling them cheaper electricity?
- I attended a meeting about using all the beetle killed trees for bio fuel (which would also be a fire smart initiative) just this winter. Why did we have a room full of people listening to this proposal and now we're talking about burning more fossil fuels?
- I believe that Yukon Energy should be developing more renewable energy, especially wind energy which is more abundant in winter. Our grid needs to have a more diverse supply portfolio and a larger buffer supply of renewable energy to help cover droughts.
- I do not like the options because we are still

relying on fossil fuels. The earth is on fire and climate change is all around us. We need to remove ourselves from finite resources and look at 100% renewable resources for our energy sources or we as a human population will cease to exist because of a made up intangible figure known as money. The model we have been using of bring cost effective is no longer valid. We need to be looking at long term stability for the human race while we still live this life of luxury

- I do not support any kind of these. only renewable energy
- I do not support any of these because the Yukon is at the forefront of climate change and we should be moving to making significant changes towards renewable energy. Show me Bio mass, show me solar, show me wind, and show me more hydro! What about Drury Creek?
- I do not support anymore the use of diesel, dual-fuel, and LNG for power generation. The Yukon, Yukon Energy, and Yukon Government needs to move quickly to geo-thermal power, wind power generation, solar power generation and the use of utility-scale battery storage, or PSH pumped-storage hydroelectricity, compressed air energy storage, or thermal storage like hot salt.
- I do not support fossil fuel generation as a first option. Further reductions in consumption through efficiency improvements and then renewables should come
- before fossil fuels
- I do not support investment in fossil fuels for Yukon, we are a jurisdiction heavily impacted by climate change. While this may be an economical option in the short term, heavy investment in renewable energy is preferred.
- I do not support the use of fossil fuels.
- I do not want to see fracking in the territory - This would be the next step in order to support increased LNG use. Re diesel - I would rather see my dollars being spent on alternative and renewable energy sources - diesel and LNG are easy fixes but have huge environmental impacts.
- I doesn't matter, they are all fossil fuels. Choose what is best for you from a balance of resilience (ease of use and reliability) and lower GHGs.
- I don't know enough about either to make an informed decision
- I don't prefer LNG because the Yukon government is trying to build a business case for gas exploration in the Yukon.
- I don't support options that include the burning of more fossil fuels. Get a system in place that supports proven renewable energy options such as wind, solar, hydro or in-stream/ current fed hydro.
- I don't think either of these options is a good investment in the future and may take away our capacity and even desire to move towards renewable energy.
- I don't think that increasing dependence on fossil fuel (either LNG or Diesel) is a responsible choice. We know that climate change is happening and that we need to reduce carbon emissions to mitigate the worst effects of climate change. Even if fossil fuels represents a small(ish) portion of our energy usage during peak times and emergencies, we need to take a leadership role and aim to reduce or even eliminate that portion, not increase it.
- I need more information. Can we consider more DSM and getting by with the backup facilities we have? Can we consider financing residential battery storage systems or Electric Vehicles as short term backup? Rather than using any existing permanent or rented thermal generation for regular loads (such as we have done all winter), why not consider a new cogeneration facility (or facilities) to provide this capacity and use existing thermal for backup.
- I only support renewable energy resources

- I prefer a capacity focused Demand Side Management program to greatly reduce or even remove the need for more diesel backup. This needs to be provided as
- an alternative.
- I prefer a wind / solar option and it's unbelievable that neither wind or solar has been considered as a viable option or backup.
- I prefer capacity focused demand side management program to remove the need for more fossil fuel backup.
- I prefer greener energy such as hydro/wind/solar/ETS
- I still think there could be more efforts in managing our existing infrastructure, such as a smarter grid, premium for power at certain times of the day, and discounts at others to help reduce peaking. Also, can we not use our existing water more efficiently but using smaller wheels, vs, few large wheels?
- I strongly believe that the Yukon should be putting effort toward renewable sources of energy, such as solar or wind, due to climate change. Thermal power generation is a half-hearted effort, and does not do very much in reducing emissions.
- I strongly prefer renewable energy sources, but I appreciate the need for backup. Diesel is best suited for backup, while LNG is best suited for base load. Burning fossil fuels for base load is an unacceptable plan to meet Yukon's energy needs. Also, this survey didn't ask me if I prefer YEC to rent or buy. This is the most important question, as renting minimizes upfront investment and keeps a strong financial incentive to shift to renewables. If we can install more hydro 5 years from now, we can rent fewer generators and avoid the major sunk cost of a stranded asset.
- I support all options for reliable energy.
- I support my investing in renewable energy, not fossil fuels.
- I support practical energy solutions. These are reliable. Solar and wind is unreliable. Storage is expensive. It is important to consider the overall economics and the cost to the consumer.
- I support renewable resources and am against long term investment on the reliance of fuel
- I support this
- I think there are alternative options beside fossil fuels - what happened to the Hydro projects that government invested in?
- I think there are very good options out there for fuel consumption that are
- renewable. We simply cannot continue to invest in oil and gas and must do our part to stop a climate collapse in the near future. Our lives depend on it as do our children.
- I think we should address the potential shortfall in energy but we should also begin working on the top rated sites for hydro generation such as Finlayson. It takes about 10 years for a totally new hydro facility to be build and we are part way through that 10 years as Finlayson has been identified as a top site. Let's cut a deal with the Kaska and get on with it.
- I understand the need for dependable capacity but don't support the use of fossil fuels. I'd like to see Yukon energy investing in renewable energy technologies.
- I want to know that you have considered alternatives. If a possible location is at the Whitehorse Landfill, have you considered a gasification plant at the land fill to produce a synthetic fuel that can be used for power generation? Direct immediate costs are not the most important thing to me.
- I want to see liquid thorium reactor technology employed in the Yukon. Nuclear is reliable, and modern tech makes it safe. The Yukon would be the perfect place to reply it, allowing us to have steady, reliable energy any time of the year. I know you

have a team of well-educated and informed people, but please don't ignore nuclear energy as an option just because you believe public opinion won't support it. Many didn't support the LNG plant, and you moved forward with it anyways.

- I want to see more renewables, particularly wind.
- I would actually prefer we go right to expanding generation from renewable sources. Presumably you don't think that is practical - I would like to know why. From my perspective, investing in expanding generation from wind, solar, geothermal and additional hydro is far preferable to investing more money in fossil fuel based generation.
- I would increase my level of support for LNG if it could be guaranteed NOT to be sourced from hydraulic fracturing. Also, your background material provided plant capital costs but not operational (energy) costs for the three fuel options - this would be useful information in ranking the fuels too.
- I would like Yukon Energy to look into renewables (solar? geothermal?) as options for additional energy.
- I would prefer an option that isn't related to fossil fuels at all. Solar storage? Wind storage? We absolutely need to invest in non-fossil fuel options, and stop the dependence on fossil fuels. Increase rates? Something to encourage people to
- make smarter choices with the power they use.
- I would prefer seeing non-fossil fuel as a backup.
- I would prefer that Yukon Energy continues to rent a generator as a backup. This provides an insurance plan, but ensures that developing alternative, long term solutions that shift our dependence away from fossil fuels remain a high priority.
- I would prefer that Yukon Energy would invest in installations that would use wind, solar and biomass to assist with the base load. If we had 25% of the energy generated by green (not Hydro) means it would take the pressure off of the hydro and allow us to take advantage of its energy storage capacity
- I would prefer that we would increase our use of renewable energy and decrease our use of fossil fuels
- I would prefer to see an increase in demand side management programs to reduce the need for thermal backup.
- I'd like to see a move away from fossil fuels. A nuclear facility in the old anvil mine site would be amazing.
- I'd prefer that you look at renewable alternatives, working towards phasing out diesel and not just substituting with another gas/oil option. LNG is still gas, not renewable, not environmentally conscious.
- I'm no expert.
- Ideally Yukon could explore zero-carbon options like small nuclear, but I know Yukon hippies aren't going to go for that. So the next best is LNG.
- If you have to have another emergency backup plant, then chose the one with the least emissions. Then build a biomass plant, we have a surplus of that and the ability to grow it.
- In your statement at top of the page you mention ZERO about the greenhouse gases problems associated with both diesel and natural gases far as climate change catastrophe goes. How dare you as an energy leader not also acknowledge the ongoing immense problems with the continued use of fossil fuels?
- Instead of diesel/LNG power I'd rather like to see an upgrade of/addition to existing hydro along with pushing forward wind and solar. Fossil fuels are/should be a thing of the past. If you'd do/have done that asking for a new thermal electric generation facility location would be obsolete.

- It does not appear that we have any choice, but to choose diesel or LNG. I just hope that efforts will continue to be made to reduce our dependency of fossil fuels by using alternate energy sources.
- It is essential that Yukon Energy work to integrate more renewable energy in to the Yukon grid, rather than building more thermal. This is a step in the wrong direction. If more energy is needed, there is a need to focus on demand-side management to reduce energy use overall, rather than just building more thermal generation.
- It is important to use renewable resources such as wind or solar or non-dam hydro even if cost is more.
- It is time to finally start investing only in renewable energy.
- It is time to move away from fossil fuels.
- It is time to utilize solar wind and fish friendly hydro production - time to actually take action on climate change issues!
- It is understandable that the need for meet power requirements for the Yukon is becoming critical, especially given the possibility of the loss of hydro from Aishihik. However, there should be every effort made to being on non-GHC emitting power sources on line to solve this issue. The effects of climate change are already being exerted in this region in a prominent manner and committing to an additional 40 year thermal program is entirely ill advised. Efforts and resources should be directed toward bringing online other renewable power sources and/or small-scale nuclear to make up the deficiency.
- It makes no sense to build a facility that relies on fuels that will become less available and hopefully next to obsolete in the future. Whitehorse and Yukon residents want clean solutions. We are innovators and should lead the pack. To invest in a large scale fossil fuel plant is as regressive as it gets. And remember: Yukoners said NO to fracking, so don't make us reliant on LNG.
- I'd actually prefer a mini-nuke but that's not on the table.
- I'm not against the use of fossil fuels but I would like to see the territory explore ways to lessen our reliance on them.
- L'aspect de la rentabilite devrait etre secondaire a la sauvegarde de l'environnement.
- LNG is terrible option and not more cost effective. Perpetual supply/inventory issues. Diesel infrastructure is robust in North with support systems established
- and readily available, unlike LNG.
- LNG is unstable and highly explosive, transport and storage is riskier than diesel which visibly pollutes, both have equal negatives.
- Lack of progress on renewable sources of energy is appalling. Thermal is short sighted and a stop-gap at best. This issue has been known for years, why hasn't actual effort gone into renewables?
- Lazy, not taking environmental concerns seriously
- LNG cause it is better for the environment
- Look at wind and solar
- More energy demand management is needed rather than more diesel back-ups. This needs to be an alternative.
- My concern on any of the above is are they coming from a clean source and as for the LNG not from fracking!
- Need to get off using dirty fuels
- Need to think of using water turbines and solar and no wind mills....
- Neither LNG nor diesel are ideal, but at least diesel avoids the use of fracking and released methane, as is the case with LNG.
- Neither are green solutions
- No LNG at all
- No More LNG. YEC has been promoting LNG as being easier on the Climate which

is absolutely false. LNG is created from Fracked methane and that industry has never accounted for the massive amounts of fugitive emissions of methane. Methane is 120 X more potent ghg that CO2 when it is first released and degrades to 80X after 20 years, it has to be in the atmosphere for 100 years before it degrades to the Oil Industry's claim of 32X more potent. YEC's LNG plant and all the associated methane spillage that has occurred when trucking it up in open thermos tanks from Delta BC and the most recent methane spill on the Alaska Highway have made YEC the biggest GHG emitter in Yukon history if you take the potency of unburned methane. YEC LNG Plant is nothing but a climate change machine and it is the reason why our hydro plants are challenged. We need to build energy storage in everyone's homes and businesses. We need a smart grid, we need YEC to supply us with renewable energy that meets all our needs for transportation

- Non-renewable energy would prefer a renewable source
- Non-renewable fuels contribute to climate change. Yukon should have a global responsibility to reduce emissions.
- None are nuclear
- None of them are renewable sources
- None of them are renewable. Start taking wind, hydrothermal and other generation options seriously.
- None of these are green! These are all fossil fuels. Given that our average temperature is raising faster than the rest of the world, we need to make a strong stand AGAINST fossil fuels.
- Not sustainable carbon emissions
- Nuclear is cleaner - Yukon needs to move into the future not keep using old dirty tech
- Partner with Skagway
- Per comments made in earlier responses. Diesel is better than LNG in ANY instance due to well established methane considerations. The limited cost considerations by YEC and YUB to date are known to be insufficient.
- Please consider climate change- no fossil fuels!
- Please do not invest all of this time and money into continuing the use of fossil fuel back up stations. It has been a reactionary response for decades. Please invest into modern, renewable, carbon reducing, sustainable and creative sources of energy production. Our populations and energy needs continue to grow. A wise and forward thinking response to our rapidly changing world is separately needed instead of band aid reactionary decisions made out of desperation.
- Please explore other options but not ground heat. Complete disaster in Riverdale in the early 2000s with broken water and sewer pipes.
- Please invest in renewables. Our planet and our children's futures are at risk. Please do not build this facility
- Polluting fuels are contributing to climate change. We should be developing large scale renewable energy projects instead
- Pollution & unreliable transport of fuel if the highway closes.
- Preclude alternatives for 40 years
- Refer back to question one....
- Relying on fossil fuels that are transported up the highway increases our dependence not only on fossil fuels but on the transportation corridor. I support investing in producing energy locally.
- Relying on fossil fuels that have to be extracted by fracking or conventional means is like taking a giant step backwards in this era of awareness of the impacts of climate change. Then having to burn huge amounts of diesel fuel to truck the fossil fuels up the highway thousands of kilometers does not make any sense to me. It seems

unconscionable to me, given the cost and carbon footprint of this method. Please explore renewable sources of resources that we have plenty of right here in the Yukon: wind and solar.

- Renewable energy is preferred.
- Renewable energy makes more sense in the long term. Geothermal in particular has the advantage of steady draw without having a large dependence on wind or solar events.
- Renewable energy prices are now cheaper than fossil fuels. Build a massive battery energy storage facility and charge it up ready to use in emergencies and in peak times. We have the technology, it would be foolish to build more fossil fuel burning generators!
- Renewable please, long term resilient time-proof solutions. Higher cost up front, lower cost long term, on more fronts than monetary.
- See above
- See answer for Q2
- See previous answers
- See previous answers. Any new infrastructure development MUST be for renewable energy. Rent diesel generators, if necessary, in the meantime. There has been ample time already, to get renewable energy (wind, solar, and biomass) installed for the increasing needs of Yukoners.
- Should not be building more fossil fuel generation. Base load renewables should be augmented so that existing thermal can cover peak again (instead of using LNG to cover base load as YEC is currently doing)
- Should spend the $ on solar wind or geothermal
- So much investment in fossil fuels is disappointing.
- Solar or wind?
- Still prefer renewables.
- Stop investing in fossil fuels. If you don't stop, Yukoners are going to make sure that you can no longer have a monopoly on power. Invest in biomass.
- Stop using fossil fuels
- Strengthen the medium to long term strategy for increased renewables instead of continuing on the short sighted fossil fuel strategy
- Support all. But it's really time to consider nuclear throughout Yukon. Also, especially given that Site C in BC is going ahead, we should also look at tying into the BC grid.
- Sweden uses bio-fuels to generate electricity. In Germany solar produces less power per square foot of PV than the Yukon can, yet Germany produces massive amounts of solar on their grid. Micro-hydro streams abound in the Yukon near grids, yet they are not developed. Wind is practically being ignored. Yukon Energy always explains why they are not pursuing these renewable options, yet others are doing them. Yukon Energy needs to understand and accept that CO2 is going to destroy our climate and economies, and that they have to play a role in solving the problem of CO2 and not contribute to it. Please start thinking outside your limited scope of vision.
- Tapering off in investments into LNG may rise purchase cost of fuel/transportation. The Social Cost of Carbon will increase as the effects of climate change worsen. Why would we go non-renewable when we have enough renewable energy in our own backyard? There is no focus on being more self-sustaining while also going green. I understand we are outpacing our electricity output, but a lack of investment in renewable energy will short us in the long run. YE can see the energy growth needs and projections but has only now decided to take action. If we needed something done 10 years ago it should be up to YEC to make things work. Now we are in a tight position and I feel as though I am being pushed towards two options I do not want because we lack the time to create a proper facility. If we build

LNG/Diesel/Dual now, when will we ever get a renewable plant? In 40 years when we have outpaced ourselves again? Not having a green option anywhere in this survey is insulting. I want to see a continuation into geothermal e

- The LNG plant was grossly overpriced coming in at over 50 million dollars for only 15 MW of generation and it has been mechanically unreliable and very
- costly since it was constructed. With no black start capabilities it would be a big mistake to repeat the situation!
- The Yukon needs to move to renewable and sustainable energy sources. This can and should be done. It should be the priority for Yukon Energy!
- The current approach does nothing to address the urgent need to reduce dependence on fossil fuels. Time to get into the 21 century and put all that engineering expertise to work towards renewables.
- The first LNG was sold to the public as replacement for the old diesels, now we have opened the door to fracking in the Yukon to save transportation costs. No surprise to anyone who was listening. Writing was on the wall when we were misled from the start. We still breathe and listen to diesel generators all winter and now spring, summer and fall.
- The most cost effective method should be used.
- There are other options including charging more for high-peak electricity use so people would do laundry and some other activities at low-peak times. Also more wind and solar and the extension from Atlin not to mention putting some money into geothermal research. The test site at the Hot Springs looks like it warrants further research. There is a map prepared by geologists of likely sites. It would save a lot of money, lessen our carbon footprint and be available as long as the earth is viable.
- Thermal power is responsible for leaving a measurable carbon footprint in the atmosphere. Wood pellet/chip boilers: They are a sustainable fuel source and wood pellet/chip heating will not produce carbon dioxide emissions to harm the environment. The amount of the carbon dioxide emitted during the burning process is equivalent to the amount absorbed during the growth of the trees. They are energy efficient. Can you imagine all the fire smarting that could be completed and said wood provided as an energy source? You could kill two birds with one stone. https://www.youtube.com/watch?v=YjzRJcmtfSk
- They are all nonrenewable and are destructive in many different ways
- They are all petroleum based and I see no evidence of an integrated energy supply plan. And, much of these petroleum products are being fracked and over supported by government subsidies, both in Northern BC and Alberta!
- They are non-renewable.
- Think diesel can be used by itself while long needs diesel to get ‘started’
- This is a business as usual solution. We need to be divesting from fossil fuels.
- This is a typical one-option after the fact survey by a government entity: Politicians, government officials and management at YEC have been avoiding decisions for years - while being busy with inefficient and unending consultation, and political correct statements. The Yukon has a huge hydropower potential - the options are clear and were recently documented. But in a territory the size of Spain and only 37,000 people we appear to be unable to build a single new run of the river project? Any new power plant will be a negotiated compromise - of which a new thermal plant is clearly the worst. It has a negative triple bottom line. Too high a price for political indecision.
- This is not the kind of electricity generation

I want to see in the Yukon. I am against using even more fossil fuels we currently do, especially while there is so much untapped potential in terms of micro hydro and biomass.

- This is supposed to be only in the short term and only as required. Therefore, these methods of producing power should not be used very much and therefore the emissions should be relatively low. A long term plan needs to be made to produce electricity in the future that meets our needs without the use of diesel and/or LNG sources.
- This should be temporary...
- This very survey is trapped in old school approaches to energy. The government needs to get out of the 20th century and think about the climate crisis. There are other options -- get creative.
- Too expensive for customers.
- Unfortunately as an isolated grid we need RELIABLE back-up even if YEC will use this to power up the mines as we all well know.
- Unfortunately you did not offer â€œno supportâ€in question 4. As explained in my answer to question 2, the current energy shortage is a result of extremely poor planning. I agree thermal power could be a quick fix to a problem that need not exist today if you had done your planning. However, as Northerners we already have an extreme carbon footprint. To even consider enlarging this footprint is a terribly wrong policy decision. Put more resources into R&D of solutions that are less environmentally devastating.
- Use renewable energy sources, allow for more Micro generation
- Use renewables
- Use solar and wind use renewable energy that does not pollute.
- We are in a climate crisis. It is time for 100% renewable energy.
- We have renewable energy options in Yukon. The energy is free, once the infrastructure is built. LNG has far too many externalized costs: water contamination, methane escapement. The fossil fuel industry is over-subsidized, and over-polluting. Per-capita, Canadians are huge GHG emitters. We want the viable options that exist.
- We have to start research and development on alternate energy solutions - solar, wind. To just go with the "traditional" methods as above selections indicate is not good enough for a future Yukon.
- We must explore alternatives to fossil fuels
- We need more renewable energy. We need incentives to shift power use so we don't have extreme peaks.
- We need to be exploring other energy options that do not include the burning of fossil fuels.
- We need to focus on renewal energy! I'd rather spend MORE on something renewal and more ecofriendly than further contributing to global warming. I'm disappointed in Yukon energy for going this route.
- We need to move forward along with other progressive countries, like Norway, Germany, and Costa Rica. Let us be an example for Canada. Both Diesel and LNG are outdated, finite, and come with a heavy price paid for transport, and extraction. Wind and Sun are free, and although may seem expensive to set up at the start, will be more economical in the long run.
- We need to stop burning fossil fuels.
- We really need to be building a future for energy for the territory that moves away from fossil fuels. I understand the need, and it's imperative that we change our energy structure.
- We should be build up more renewables in a climate emergency. As we get closer to the end of the 12 yrs, electricity generators will not be allowed to use thermal, I predict.

- We should be building another Hydroelectric Dam. Clean energy.
- We should be developing alternative sources of non-fossil fuel derived power to combat climate change (e.g. geo-thermal, solar). As a back-up source fossil fuel
- is fine but for long-term planning this is an irresponsible choice.
- We should be doing more to use renewable energy sources
- We should be investing in renewable sources and storage options!
- We should be investing in renewables and storage instead of thermal. There is a climate emergency on!
- We should be investing in solar and wind. We have so much sunlight and wind in Whitehorse. Alberta is building solar facilities to generate 100MW for $100 million. That is five times the power for cheaper than the proposals I see here.
- We should be looking at renewable energy sources, such as geothermal or hydro
- We should be moving away from fossil fuels not spending tons of money on new generation. Why is all the installed solar not allowing for extra storage of water in summer? What happened to the southern lakes enhancement? That needs to be back on the table. With first nations proving alternative green energies can work in the North, Yukon Energy needs to be doing the same.
- We should build pumped storage that drains upstream of the Whitehorse dam, so the water gets used twice
- We should investigate mini nuclear
- We should not be putting public money into more fossil fuel consumption. Energy efficiency and conservation can free up significant 'negawatts' of currently-wasted KWHRS of power, it is in fact, the cheapest source of energy. Energy storage, including thermal storage, needs to be investigated.
- We should use renewables for the reasons I stated earlier.
- We urgently need to move away from fossil-fuels, both for political and environmental reasons. There are alternatives: A- Micro hydro power plants. B- Existing hydro power plant(s) could generate hydrogen through electrolysis during low demand seasons, and store it in existing LNG tanks to be used in high demand seasons. C- Plastic garbage is a big problem in the Yukon. Why not use this plastic for generating power. The technology exists. Melted plastic is used much like diesel fuel. Install catalytic converters to reduce air pollution. D- How about thorium generators, a low risk non-polluting nuclear type of reactor. It's been in existence for decades. The north would be ideal for investing in a long-term thorium plant.
- While I support temporarily diesel I feel that Yukon has to move toward renewable energy. I have lived 35 years in Yukon. People have talked about renewable energy for many years. There were plans for wind energy facilities that were ready to roll. I even work as a wildlife technician to evaluate impact of wind tower on migratory birds in 1997 and there were no impacts. That has been a long time to come. How come we still have to wait for actions on which the rest of the world is moving on? Yukon we can do better.
- Why does it makes sense to put in a diesel plant when millions have just been invested in LNG generating plant? Why not stick with that?
- Why is there not a "no support" option? We do not support LNG at all.
- Why not explore renewables. Solar and wind and geothermal. Our territory is experiencing unprecedented impacts as a result of climate change. I work in northern Yukon where the permafrost is melting out. Why are we becoming more dependent on fossil fuels when we could be exploring alternative energy sources in Yukon?

- Why not investigate more renewable options and if you have already done so this message hasn't been effectively communicate.
- Why not look at a few other alternatives: - use waste plastic etc. for thermal generation. Can be done with suitable investment in scrubbers so there is no pollution impact and will solve two problems with one plant. If not enough waste, can import instead of Canada sending it abroad. - use excess power in summer to produce hydrogen, store for peak demands
- Why not look at options that would reduce dependency on fossil fuel? Take the time to plan other options. Residents have been requesting this for years.
- Why not nuclear?
- Why not nuclear? Or steam generators... have we looked into all available options?
- Worried about the health impact
- Would love to see a greener solution happen
- Would prefer some other form of back-up and an emphasis on new seasonal storage options and more renewables on grid (to support heating and transportation loads)
- You need to develop renewable sources of energy, not fossil fuel.
- You should be focusing on renewable energy such as micro hydro, solar or wind,
- and not fossil fuels. Thanks for trying to destroy the planet faster. Be a leader!
- Yukon Conservation Society indicates that this is the most environmentally friendly fuel source, when all is considered.
- Yukon Energy is supposed to be working away from Fossil Fuels. The spikes in charges for diesel in the winter are unacceptable. I would rather pay more for good energy all year than have unexpected charges. It is easier to plan a budget on consistent monthly bills. These spikes really hurts those on limited incomes, particularly seniors, single parents and those who work in industries that don't work during the cold snaps when the electric bill spikes. Looking at your stats, hydro is surprisingly low. Is there no way to invest to make the hydro more efficient? There's so much water spilling out and all that energy is going downstream uncaptured. Could additional generation occur downstream of the dam? Investing in fossil fuels seems short-sighted, and I imagine the price of diesel is going to rise to a point that is unaffordable.
- Yukon Energy must focus on developing reliable renewable sources - and do it now. Calling this an 'emergency' contingency is just an excuse to burn more fossil fuels.
- Yukon Energy should be exploring renewable energy sources not wasting money making us dependent on fossil fuels
- Yukon Energy should be paving the way for a renewable Yukon. I don't support the ongoing and INCREASED use of fossil fuels.
- Zero support for LNG - not low. Diesel only as backup and only as interim. Dual - no because absolutely do not support LNG, it is not a backup fuel and we must invest in renewable energy not fossil fuels.
- another hydro plant would be more environmentally friendly
- because we don't need to increase our dependence in dirty and costly energy production
- burning fossil fuels is not the way to support--develop and use non-fossil fuel sources
- climate change
- climate change, pollution
- In 2019 we must consider future GHG emissions when choosing a power source. Although I appreciate the difficult conditions that Whitehorse faces especially during the winter, I strong believe that a renewable option would be much better. Considering options such as other hydro sources (Taku River Tlingit First Nation has a surplus of

electricity and would love to be hooked up to the Yukon grid if I am not mistaken...) or other alternative renewable generation's options. Battery storage? Innovative storage technologies are coming out of Canadian universities and this could be a great option to put a call out to see if something could be suitable. ANYTHING that removes reliance on fossil fuels would be preferable.

- it would be noisy and smelly
- les options ve sout pas bonne pou environment et out de besain de source exterue
- no comment to add here
- non renouvelable
- None of them are environmentally friendly; they will all only increase our carbon footprint.
- nuclear is much better
- preferred location next to the landfill for future options of moving into RNG i.e. methane from combustibles
- The best solution is the southern lake storage concept. However well connected NIMBYS prevent this concept from going forward
- The fact diesel is being used as an option shows that people are stuck in the Stone Age...embarrassing.
- there are better options using renewable resources
- They all need fossil fuels; and I say no to their use.
- they are not renewable or green
- What about geothermal energy? Is it possible here?

## Q6. What is the ONE MOST IMPORTANT thing you would like Yukon Energy to consider regarding the type of fuel to be used to power a new thermal electricity generation facility?

- 100% geothermal
- Access to fuel. I think someday diesel will become in short supply
- Adequate long term fuel supply at low cost.
- Again thermal electricity generation is outdate and not environmentally sensible!
- Again, not enough information for the public to have an opinion on this subject. What are the cost differences between fuel sources? Is reliability and maintainability comparable? What it the advantage of a dual fuel system? Why not just diesel? Too many questions, not enough information for the survey results to be useful. The public has no clue about this. Actually I don't know why the public opinion should affect the decision which is ultimately up to the utility to provide safe, reliable, and economical power supply. Too much consultation just adds confusion and slows down the process. YEC already knows the best technical and economical option. You have my support. Just stay away from more solar and wind PLEASE. That will only lead to more expensive and less reliable energy. The public doesn't get it. The emissions from the 10% of our energy coming from fuel sources for a population of 35k people are insignificant. We need reliable energy so we don't freeze in the dark.
- Air pollution.
- Air, ground water (fracking) and noise pollution
- All carbon based fuels are contributing to climate change which is now a dangerous situation. I don't support using any of these kind of fuels in a new facility

- Any type of fossil fuel use undermines our future, we need to use less, not more.
- Apparently, diesel is better suited to supporting the integration of renewables and avoids the fracking and methane emissions of LNG
- Availability of the fuel
- Availability, multiple suppliers to have competitive pricing
- Battery retention of renewables
- Be frank about who the real users and demand are - industry not residents
- Being forward thinking and look at what we have in the Yukon for natural resources we can use....
- Black start capability!
- Build adequate fuel containment infrastructure against spills. Build state of the art emission control facilities (off gas pollutants to comply with regulations).
- CLIMATE CHANGE. Where are the renewable resources?
- CLIMATE CRISIS.
- Capital investment and fuel costs need to factor into Yukon Energy's ability to adopt alternative sources of energy in the future. If fuels costs are low and capital investment high (such as LNG), we will likely not have the resources to adopt cleaner sources of energy in the future. Capital investment in diesel is lower and fuel costs are higher, keeping the financial incentive to use alternative renewable energy there.
- Carbon footprint
- Certainly not diesel. But please consider the source and its effect on our environment. Fracked gas is a danger to us all.
- Cheapest and most effective
- Clean
- Clean, efficiency, and productivity
- Clean, efficient and readily available.
- Cleanest but LNG
- Cleanest emissions.
- Climate Change. Those LNG plants are baseload, they are not appropriate for back-up, YEC deceived the Yukon people during the YUB and YESAB processes about how dispatchable LNG is. We need to stop burning fossil fuels, but because diesel is stable, can be ramped up to meet peaks and it works well with hydro, wind energy, and solar I will accept diesel. LNG is worse than coal when it comes to full life cycle GHG emissions. YEC can try to deceive the population about emissions, the low water levels, the hot fire season we are about to have, that YEC LNG plant has set in motion a carbon bomb, that our children's future is in jeopardy. Smarten up. YEC used to value Yukon people's opinion about diversifying our electrical grid, but ever since YTG got caught trying to privatize it back in 2008, and half the YEC board quit, YEC has just been a pawn of the oil industry. Mayo B was very expensive and it never worked the way YEC promised it would, now Mayo Lake is low. We need winter energy, and that is wind. Yukonners
- Climate change
- Climate change.
- Climate crisis
- Coercing us into such a choice is wrong and short-sighted
- Common sense if it exists?
- Compatibility with renewables.
- Consider scrapping this project and work with the Climate Change Secretariat and their integrated strategy team to come up with an â€insurance policy' that supports clean energy generation and a green economy.
- Consider the impact of GHC emissions and do not bring online any additional thermal/ combustion generation...
- Consider this as a very temporary solution

so that we move rapidly toward Renewable energy.

- Containment in the event of a spill (I support diesel despite this, as LNG does not store well and must be burned or lost). Therefore diesel complements renewables better than LNG due to its start-up, ramp-up and storage capabilities. Renewables must be accommodated as well as possible despite our need for fossil fuelled back-up.
- Cost
- Cost and availability to stable supply
- Cost of fuel. With dual fuel you have the flexibility to go with what's cheapest at the time
- Cost of generators
- Cost or availability
- Cost overall including initial infrastructure repair + maintenance + fuel
- Cost should not be the only factor and we should have batteries that store for power disruption not fossil fuels.
- Cost, safety
- Cost, then environmental implications
- Cost.
- Cost. Environmental friendly
- Cout et le plus ecologique
- Current & future price. Can we develop our own gas supply
- DO NOT USE FOSSIL FUELS.
- Diesel - rapid response on start up
- Diesel has lower capital costs and higher fuel costs. It should therefore be more easily replaced by renewable sources earlier and at a greater incentive.
- Diesel is a better choice than LNG because it has lower capital costs and higher fuel costs. Lower capital cost means more money for clean energy, and high fuel costs are an incentive for using renewable alternatives. LNG is harder to use with integration of future renewables.
- Diesel is better suited to supporting the integration of renewables and avoids the fracking and methane emissions of LNG
- Diesel is easy to store and also has a strategic importance. It can also be flown if needed. It starts fast and assumes the load immediately, it's safer to store in bulk.
- Do not build further dependence on any fossil fuels Invest in diverse renewable energy options and plan how to make it work through a smart grid
- Do not commit to buying generating facilities because that will hamper investment in future green energy options that may become available. Consider further demand side management to help reduce power requirements
- Do not use hydrocarbon fuels delivered on trucks to produce power here.
- Does one work better in the cold or is easier to have access to at all times?
- Don't build another facility that relies on fossil fuels. Invest in sustainable, renewable, green energy facilities: solar, wind, geothermal.
- Don't use fossil fuels.
- Don't use fossil fuels
- Duel fuel source please! I understand the desire for LNG, but using diesel means less trucks coming up the highway a long distance, and may local jobs.
- Ease of future integration of intermittent renewables.
- Ease of supply.
- Easy transport of fuel
- Economic efficiency.
- Effectiveness of facility
- Emissions
- Energy conversion from fuel to electricity to reduce truck travel on highways

- Environment
- Environmental impact
- Environmental impact and ghg emissions
- Environmentally friendly
- Exhaust output
- Existing supply inventory and support services.
- Expand on the backup systems at the mind sites
- Explore more of the possibilities of geothermal
- First, don't add any more thermal capacity unless it is biomass. The infrastructure you are suggesting will be with us for 20 to 40 years, do not build more petroleum based infrastructure.
- Flexibility, common sense and cost
- Fossil fuel free.
- Fossil fuels need to be phased out immediately. The Yukon has a lot of potential for micro hydro, wind and biomass all year round, and solar in summer. We also need to focus on consuming LESS electricity, as opposed to generating more.
- Fuel costs and emissions, hopefully having a dual fueled station will provide cost effective options, as long as the costs associated with building a dual
- fueled station makes sense.
- Fuel emissions and air quality for the surrounding areas.
- Fuel supply flexibility. That's why I prefer the dual fuel option.
- Fuel that can be easily used in other generating systems.
- Future of climate change! Be part of the solution not part of the problem.
- Future resources
- GHG emissions
- GHG's and the environment.
- Get off petro
- Go renewable, or get out.
- Green energy
- Greenhouse gas emissions from LNG are lower than diesel
- HEALTH
- Has there been any renewable energy explored and what were those results?
- Have you looked into Geo thermal solutions?
- How does it get here and what is the carbon footprint of these two comparatively? I want low emissions and lower environmental impact.
- How does the use of fossil fuels support Old Crow's climate emergency? I am very concerned that the territory is not concerned about its carbon footprint
- Hydro.
- I believe Yukon should move to Nuclear option, new systems are safe and reliable
- I do not agree with Yukon energy proceeding with this new facility. I believe there are better options for our community and this planet.
- I do not support anymore the use of diesel, dual-fuel, and LNG for power generation. The president and CEO, the vice-president and all senior management at Yukon Energy should be replaced, with leaders who can
- think outside of the box and listen to the public. The public are tired of dinosaur thinkers...
- I don't want fracking here, so I can't support it in other places
- I like to see the opportunity for our "insurance plan" to remain flexible so to me the obvious choice is for dual fuel. This will also allow us to maximize our financial investment maxing fuel choices depending on market prices.
- I prefer diesel over LNG because of its higher cost. I believe this will drive YEC towards using renewable alternatives. I have heard it

also lowers the initial capital cost.

- I support practical energy solutions. These are reliable. Solar and wind is unreliable. Storage is expensive. It is important to consider the overall economics and the cost to the consumer.
- I support renewable resources and am against long term investment on the reliance of fuel
- I want the Yukon to consider to only using this for emergency situations. Other plans should be created to plan for low water years, peak consumptions. I am disappointed that these options are not part of your plan.
- I want to see more information about the options considered and the costs of those options. You are not giving us enough information to make informed comments about this.
- I would like methane to be captured from the Whitehorse landfill and used to power the thermal plant.
- I would like you to generate electricity using chipped wood from fire smarted forests and recent burns.
- IT NEEDS TO BE RENEWABLE ENERGY
- If N60 is still supplying Diesel to the plant it's only a two hour drive out of Skagway. VS a two day drive from Vancouver or Edmonton. Diesel generators burn VERY cleanly now that they use DEF. Would be nice to see more Diesel gen sets then LNG. Plus LNG has to be fracked out of the ground... How honestly likes the idea of messing up someone else back yard to give us a little bit of power.
- If diesel or LNG has to be used, consider the option that is the less prone to GHG emissions from extraction to transportation to use.
- If it has to be thermal, make it geothermal.
- If the new station locates at the Landfill, consider the merit of developing an incineration generator with carbon capture technology for future power needs. If the station is locate at the Sewage lagoon investigate drawing thermal from the settling ponds.
- If you're going with petro-chemicals, please stick to diesel -- avoid fracking and water contamination.
- If, because of your mismanagement in the past, there is no way around fossil fuel powered electricity generation now, obviously, the type of fossil fuel with the smaller carbon footprint should be chosen: LNG
- Il serait bon d'explorer les avancees sur le plan de la production energetique en Islande et dans le nord du Japon (qui ont subi de trÃ¨s gros dommages dans l'accident nucleaire de 2011). Le Yukon se fie trop aux formules nord-americaines lorsqu'il s'agit de faire des choix.
- In a part of the world that is MOST effected by climate change, I'd like Yukon Energy to consider contribution to climate change/fossil fuel emissions in this choice.
- Integrate it into an energy use plan which more completely considers environmental effects here and where it's coming from and being mined.
- Investment and integration of renewable energy
- Is this for baseline or backup? If the latter, then diesel is more appropriate. Can this new massive investment firm up/allow for the addition of more intermittent renewables on the grid? It should.
- It is most important to me that a balance of the cleanest burning and reliability of the fuel source be taken into account as well as safety for the public.
- It must be renewable, and it is staring us all in the face. It is called our forests, and an ambition plan to create renewable fire-breaks will allow you to create a renewable plan for bio-fuels with sustainable harvesting for many generations (unless climate change does us in).

- It must not be fossil fuel of any type.
- It's a 20 year temporary plan to get us to a more economical and earth friendly option.
- I don't know the pros and cons of these choices - I wish you had given us more information we could base our choices on. My preference is whichever is least polluting (including lowest carbon emissions, though these are both fossil fuels).
- Keep carbon emissions to a minimum.
- Keep it simple! Complex machinery and controls are difficult to troubleshoot and service. Keep it simple!
- Keep looking at new technology as you move forward. There are more supporters than nay-sayers for LNG.
- Keeping cost effective and reliability in top priority
- Known significant problems with use of LNG even for a short term fix.
- L'impact environmentant
- LNG is cheaper and has lower emissions; design of the system should ideally find a way to make LNG-only work, because of these benefits
- Least particulates at point of use.
- Less noise, low impact, high yield. Education.
- LNG isn't ideal but pollutes a bit less than diesel
- Long term carbon footprint.
- Long term impact on environment
- Long term sustainability
- Longevity
- Longevity. Price and supply.
- Look at the total cost, including environmental effects.
- Look at wind or solar
- Low carbon footprint
- Low carbon footprint and clean exhaust.
- Low operating cost
- Low operating cost / compromise on capital cost.
- Lowest cost
- Maintain the lowest possible investment in fossil fuel power generation. We do not support LNG at all.
- Make a different decision entirely! Our planet is warming and the Canadian North is warming faster than anywhere else on the planet. We need to take real action now and adding more CO2 is not the answer!
- Make it renewable, or as a last resort, a facility that can be transformed to use renewable rather than fossil fuels.
- Minimal impact on carbon emissions, and minimal impact in resource extraction.
- Minimizing CO2 production.
- Minimizing greenhouse gas emissions.
- Moins de pollution et d'impact environmental global
- Most cost efficient and most intelligent for the future of the growing Yukon.
- Move towards non-fossil fuel based power generation
- Must be renewable!!
- My understanding of a hybrid system is quick startup. This would be beneficial.
- NO FOSSIL FUELS.
- NOT TO USE DIESEL OR LNG.
- No LNG
- No LNG, invest in renewable energy.
- No comments
- No fossil fuels
- No fossil fuels, please. Hydro, wind, solar, river, etc.
- No fossil fuels. No fracked gas. No GHG emissions. ONLY renewable energy.
- No fuel sourced from oil and gas extraction, the worst polluter there is, beginning with

the extraction process.

- Not burning more fossil fuels to provide electricity.
- Not coming from fracking sources (i.e. not LNG)
- Not to consider it at all. Plan for sustainable, dependable, clean hydro power generation.
- Our climate
- Our responsibility to future generations in supporting renewable energy options that have lower carbon emissions.
- Our social responsibility to create self-sustaining, renewable energy as a long term solution. None of the options listed give me the chance to give input towards sustainable energy.
- Planet
- Please consider more than the immediate future. Nuclear is the only sustainable way to survive as climate change marches forward.
- Please provide a Cost Benefit Analysis for all rate payers to review prior to making a final decision on any of the three options provided above.
- Please save the water and don't use fuels that require fracking.
- Please stop burning fossil fuels please look for cleaner energy sources
- Pollution
- Price. Cost implications for rate payers.
- Produce clean energy with readily available continuous supply of fuel
- Public safety
- REDUCE DEPENDENCY ON FOSSIL FUELS. We are in crisis mode, and it's not clear whether you have considered alternative options. If it's not feasible, explain why!!! And if it is feasible, you NEED to consider it.
- Rapid spin up, minimal use of LNG, potential to use existing infrastructure
- Reduce CO2 emissions and environmental risks associated with transport and storage.
- Reduce pollution & GHG
- Reliability and emissions
- Renewable
- Renewable PLEASE
- Renewable energy
- Renewable energy is a must.
- Renewable energy!
- Renewable or low emissions energy
- Renewable resources(solar energy, wind turbines)
- Renewable sources no more reliance on fossil fuels
- Renewable, non-fossil fuel.
- Renewables
- Renewables.
- Responsible and sustainable energy
- Risk for spills/storage issues
- Safe transportation and storage of fuel
- Safety
- Safety of the public
- Safety to the public and noise factors
- See above - Climate change and global warming are very real here in the north - we must look at alternative and renewable sources of energy that do not contribute to climate change and global warming,
- See above.
- See answer for Q2
- See past comment
- See previous reasons. Support DSM and more hydro
- Should be looking at pumped storage and solar for peak demand
- Since it should be "Emergency" use only or at peak hours, cheapest and most efficient fuel should be used. Diesel. LNG is Ecofriendly but in
- Whitehorse case we can handle it.
- Since the decision has already been made,

is it possible to have several smaller units so you can scale them up as needed, versus starting up the big old power plant? Natural gas would be preferred.

- Small Modular Reactors
- Smallest carbon footprint possible
- Solar or wind preferably.
- Solar, hydro, wind, geothermal
- Something with long term price stability and which can be transitioned/repurposed as other options come on line.
- Something, somehow, some way, that we can produce ourselves rather than truck up, and that does not involve further removing fossil fuels from the ground as we have been clearly told by top scientists and organizations around the world that in order for us to be able to have even a chance at mitigating climate change, we need to leave all remaining fossil fuels in the ground, and that we have only 11 years to turn our way of producing and consuming everything, including energy, around if our species would like to possibly survive.
- Stop using fossil fuels and start looking for renewable options
- Storage Safety
- Storage for power to be able to offer greener energy sources and a mass campaign for to empower reduced use and to implement peak power fees
- Storage of LNG, risk of stability of LNG and firefighting suppression of LNG all big considerations
- Straight diesel will probably be cheaper to maintain, more reliable and cost effective to operate than gas or dual fuel options. Probably be almost as clean as gas units, don't forget to factor in the gas gets trucked up here via diesel powered Kenworth, whereas diesel gets barged to Skagway and trucked only a short distance to Whitehorse.
- Supply line
- Sustainability
- THE ENVIRONMENT
- TO NOT USE FOSSIL FUELS
- TYPE OF FUEL DOESN'T MATTER, AS LONG AS FACILITY GETS BUILT.
- Tap a gas well a d keep it local.
- That Yukon and Whitehorse would work more towards decreasing fossil fuel use
- That fuel choice is made by people with a deep understanding of the technical and financial considerations, rather than the "average Yukoner" who may not have a sufficient understanding of the subject.
- That it be reduced at a later date via an uptick in the use of renewable energy sources.
- That it can be easily stored in the event of an emergency - in case we are cut off from the rest of Canada for some reason
- That it is a short term solution and more effort put into alternatives to fossil fuels
- That it is a short-term solution, with the view to incorporate wind and solar energy and viable energy producers.
- That it is renewable. Personally I prefer fusion from the sun- either solar PV or Wind, backed up with lavish supplies of batteries and a couple of pumped storage facilities.
- That it's green and renewable, which neither diesel nor LNG are.
- That you ask the advice of climate change scientists and find solutions that are thinking ahead 7 generations and fir the earth. Use wind or solar or water that doesn't require more dams.
- The LNG is not from a fracking source as we do not need any more earthquakes "man made" as we are doing enough harm to mother earth already
- The ability to use different fuels
- The cheapest and most efficient type of fuel.
- The dual fuel approach (engines that can

burn either diesel or LNG) provides flexibility, and should be a serious consideration, if there is little or no impact on engine efficiency.

- The environment
- The environment.
- The environment. No fracking, no fuel emissions, no carbon footprint
- The environmental impact!
- The fact that YE is far behind in its thinking and acting on investment in renewable energy. NOW is the time - not later. NO NEW INVESTMENTS in FOSSIL FUELS!! Do not give people choices between various planet destroying fuels. Instead, help them to install renewable energy in their homes and workplaces.
- The filthy and environmentally harmful nature of fracked natural gas should preclude it from further consideration as a fuel source.
- The future. Diesel and LNG are not the future.
- The impact that it will have on habitats and wildlife
- The lowest cost possible. This facility is not meant to be used all the time - it is for backup only.
- The most clean type of fuel please.
- The most important consideration is the long term impact on Yukon Energy's ability to integrate renewable energy sources. Diesel is vastly preferable to LNG in this case due to lower capital costs and higher fuel costs. The higher fuel cost provides a stronger financial incentive to rely on clean alternatives and the lower capital costs leave dollars available for investment in clean energy.
- The option of conversion to renewable energy sources.
- There MUST be other options considered. LNG is coming from where? It's not a smart choice.
- They should consider that adding a fossil fuel based plant is regressive.
- Think outside the box. Consider green initiatives for sustainable energy sources.
- This is Yukon Energy's chance to become a world leader in developing renewable energy sources in the north. We are already seeing the effects of climate change at a rate far greater than in the south. Please do the responsible thing consider alternative "green" sources of energy. I DO NOT
- SUPPORT THE CONSTRUCTION AND USE OF ANOTHER THERMAL GENERATING SYSTEM.
- This is choosing the lesser of two evils. Diesel is preferable to LNG because it is less of a long-term commitment to fossil fuels, at a time when the world needs to be rapidly moving to clean energy sources. Yukon Energy should prioritize demand side management, renewable energy and clean energy storage over fossil fuels, but if investments in fossil fuels are unavoidable then Yukon Energy should opt for diesel.
- This survey is not giving Yukoners a "choice". It's like asking us to choose the colour of the car, not the engine.
- Total carbon footprint.
- Transitioning to green energy down the road. Need petroleum products for now but need to keep adding green technology to the system.
- Two better than 1 in an emergency
- Until we have a local gas pipeline choose diesel. Easier storage and handling also many more options for local diesel suppliers.
- Use LNG less carbon
- Use Yukon LNG
- Use a fuel source that has the lowest emissions but can handle our climate
- Use a renewable resource.
- Use a renewable resource. (Wind, geothermal, etc...)
- Use renewables

- Use solar and wind use renewable energy that does not pollute.
- Useless question
- We need more hydro power
- We need renewable energy solutions NOW.
- We need to address long term power supplies not relying on oil and gas. We need to travel two roads, as it were - using LNG/ diesel while developing wind, solar.
- We should be using these fuels. This is outdated thinking and expensive.
- Invest in cheaper more sustainable generation facilities.
- We should move to renewable power sources.
- We should not be investing in fossil fuel powered infrastructure in 2019. The increasing power needs and impacts of climate change on the capacity of the Whitehorse dam should have been predicted and action taken earlier. Given it has apparently come to this, the temporary addition of diesel generator capacity is the least worst option.
- What is the environmental cost?
- What the waste products are doing to the environment
- What works best for a long term growth
- Whichever has the lowest greenhouse gas emissions, and can be most easily pulled from service once renewables become broadly employed.
- Whichever one moves us towards a green energy future
- While it is too bad that some cleaner energy solutions (wind & solar for example) are not necessarily feasible for various reasons I think it is important that whatever system is put in will be as "clean" as possible.
- Why are we using thermal electricity? "The environmental benefits of heating with highly-efficient biomass wood-chip boilers over traditional fossil-fuel boilers are without a doubt self-evident (higher efficiency, waste-utilization, GHG reduction, etc.). But what is uniquely important about this project in the Teslin region is the community danger currently posed by the extremely high fire-risk assessment that was always known but recently confirmed by UNBC researcher in 2014. The forest surrounding the community has not experienced any significant forest fires in over a hundred years, resulting in significant over-growth and a serious potential for out-of-control burns in the future. With this understanding, our community will undertake brushing, fire-smarting, and other sustainable selective-harvesting methods that will assist with both objectives of supplying biomass feedstock and the enhancement of the forest ecosystem surrounding our community and throughout our traditional territory."
- Will it harm the environment? We're on fire, folks!
- Wind generation, and not locating any new generators in the downtown (river valley)
- Zero greenhouse gas emissions!
- again, safety of people, protection of surrounding environment, keep noise pollution down, keep air pollution down,
- availability and reduced emissions
- Availability of fuel, how far will it have to be transported, how safe is the transportation.
- clean energy
- cleaner energy
- climate change
- cost
- cost and dependability of supply
- cost and effect on environment
- cost and supply
- cost to consumer
- costs
- ditto
- do not build this facility

- do not support fuels sourced through fracking
- efficiency
- greenhouse gas
- greenhouse gas emissions / long term environmental impact
- important in an emergency to be responsive in providing power so there are no 'disasters' in cold weather
- It has to be 100% renewable combined with battery storage.
- It is sustainable...biomass can be...LNG and diesel are not.
- it should be a renewable resource--solar, wind, water
- it would have to be environmentally friendly
- just don't build it
- keep the grid up, prevent brown outs and outages
- local availability
- low carbon emissions
- Lowest carbon footprint.
- lowest cost
- lowest cost and highest stability of pricing
- making sure it is temporary
- Minimal impact on climate change - LNG is bad because it has serious impacts on the earth when it is mined/removed.
- n/a
- No thermal facility at all. Dust off your old studies and put them to use for renewables.
- nuclear
- operational certainty----- like availability, ease of startup, cold weather reliability
- pollution
- potential impact to environment and people's health and safety in the event of an accident (e.g.: spill)
- price
- Projected fuel costs, availability and environmental impact of a worst case scenario spill. There is not much that Yukoner's value more than environmental health of our waterways and the public would likely be willing to pay more for added security.
- reliability
- reliable supply
- Renewables!
- safety and reliable source to provide fuel
- safety in storage of volumes to meet beyond normal anticipated consumption
- Simplicity: it's an "insurance plan". Keep it simple and reliable.
- spin up time utilization of fuel when needed i.e. problem with boil off
- Sustainable and renewable sources. Geothermal?? More turbines?
- that the fuel source is better suited to supporting the integration of renewables (basically not encourage fuel sources that will just lead to more greenhouse gas emissions like LNG)
- the most cost efficient
- Ultimately, the consumer will pay for whatever fuel the new facility will use, so I would say the most cheaply way we can get power :)
- use fuel from eagle plains
- which has lowest greenhouse gas emissions end of day, including cost of transport to yxy
- Energie renouvelable (bois, geothermique)

## Q7. Do you recall seeing an information brochure from Yukon Energy regarding new thermal powered electrical generation?

| | Frequency | Percent |
|---|---|---|
| Yes | 159 | 35.57 |
| No | 259 | 57.94 |
| Not sure | 29 | 6.49 |

## Q8. If you recall seeing an information brochure on new thermal powered electricity generation, how helpful was it in informing you about site location and fuel source options?

| | Frequency | Percent |
|---|---|---|
| Not very helpful | 23 | 14.47 |
| Somewhat helpful | 74 | 46.54 |
| Very helpful | 44 | 27.67 |
| Not sure / No opinion | 18 | 11.32 |

## Q9. Did you attend an Open House hosted by Yukon Energy regarding new thermal powered electrical generation?

| | Frequency | Percent |
|---|---|---|
| Yes | 44 | 9.84 |
| No | 392 | 87.7 |
| Not sure | 11 | 2.46 |

## Q10. If you attended an Open House on new thermal powered electricity generation, how helpful was it in informing you about site location and fuel source options?

| | Frequency | Percent |
|---|---|---|
| Not sure / No opinion | 2 | 4.55 |
| Not very helpful | 4 | 9.09 |
| Somewhat helpful | 13 | 29.55 |
| Very helpful | 25 | 56.82 |

## Q11. Do you agree or disagree with the following statements:

a. Yukon Energy values and respects public input.

| | Frequency | Percent |
|---|---|---|
| Strongly disagree | 68 | 15.21 |
| Somewhat disagree | 93 | 20.81 |
| Neutral / No opinion | 136 | 30.43 |
| Somewhat agree | 106 | 23.71 |
| Strongly agree | 44 | 9.84 |

b. I know how to provide input into Yukon Energy.

| | Frequency | Percent |
|---|---|---|
| Strongly disagree | 25 | 5.59 |
| Somewhat disagree | 87 | 19.46 |
| Neutral / No opinion | 90 | 20.13 |
| Somewhat agree | 175 | 39.15 |
| Strongly agree | 68 | 15.21 |
| Not answered | 2 | 0.45 |

c. I know how to access information about Yukon Energy to provide informed input.

| | Frequency | Percent |
|---|---|---|
| Strongly disagree | 23 | 5.15 |
| Somewhat disagree | 78 | 17.45 |
| Neutral / No opinion | 83 | 18.57 |
| Somewhat agree | 182 | 40.72 |
| Strongly agree | 78 | 17.45 |
| Not answered | 3 | 0.67 |

d. Yukon Energy works in the best interests of Yukon residents.

| | Frequency | Percent |
|---|---|---|
| Strongly disagree | 82 | 18.34 |
| Somewhat disagree | 108 | 24.16 |
| Neutral / No opinion | 96 | 21.48 |
| Somewhat agree | 97 | 21.7 |

## Q12. In which community is your primary residence?

| | Frequency | Percent |
|---|---|---|
| Dawson City | 14 | 3.13 |
| Marsh Lake | 9 | 2.01 |
| Other Yukon | 17 | 3.8 |
| Whitehorse area (including Mount Lorne, Lake Laberge) | 407 | 91.05 |

## Q13. Are you a member or citizen of a Yukon First Nation or a transboundary First Nation (British Columbia, Northwest Territories)?

| | Frequency | Percent |
|---|---|---|
| Yes | 10 | 2.24 |
| No | 387 | 86.58 |
| Prefer not to say | 50 | 11.19 |

## Q14. What is your age?

| | Frequency | Percent |
|---|---|---|
| 18 or under | 5 | 1.12 |
| 19-29 | 26 | 5.82 |
| 30-39 | 108 | 24.16 |
| 40-49 | 88 | 19.69 |
| 50-59 | 95 | 21.25 |
| 60-69 | 96 | 21.48 |
| 70 or over | 29 | 6.49 |

## Q15. What is your gender?

| | Frequency | Percent |
|---|---|---|
| Male | 243 | 54.36 |
| Female | 139 | 31.1 |
| Gender diverse or non-binary | 3 | 0.67 |
| Prefer not to say | 62 | 13.87 |

## Q16. How long have you been a Yukon resident?

| | Frequency | Percent |
|---|---|---|
| Less than 1 year | 4 | 0.89 |
| 1 to 5 years | 38 | 8.5 |
| 6 to 10 years | 54 | 12.08 |
| 11 to 15 years | 39 | 8.72 |
| 16 to 20 years | 43 | 9.62 |
| More than 20 years | 269 | 60.18 |

# appendix d: emails, letters and phone calls

May 27 – July 15, 2019

Some comments have been summarized due to length

| Participant comment/question | Yukon Energy Response |
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| I'm concerned with the company's use of more fossil fuels. I want to see more renewables, particularly wind developed. | Not available to provide response as no name or phone numbers was left with voice mail. |
| I don't understand why you would invest in fossil fuels when that technology seems outdated. You should be looking at technologies and examples being used outside of Canada. | Thank you for your feedback. These comments will be considered as part of our project recommendation. |
| We need to urgently move away from fossil fuels both for political and environmental reasons. There are other alternatives that you should explore including hydro, generating hydrogen, using plastic garbage to generate power, and thorium generators. | Thank you for your feedback. These comments will be considered as part of our project recommendation. We also appreciate the other examples of power generation you shared with us. This project is one of many we are pursuing to meet current and future demands for electricity including a grid-scale battery, two small hydro developments, enhancements to our hydro storage capabilities, upgrades to our existing Whitehorse hydro facilities and energy conservation programs. |
| We feel that the new facility should avoid the proximity of existing LNG and diesel infrastructure. We also don't want to see this beside residents as it is capable of introducing large amounts of airborne emissions. It would be unwise to locate back-up generate near the airport or Schwatka Lake. We are indifferent to the fuel you choose. We propose you build this near the Takhini substation. | Thank you for your feedback. These comments will be considered as part of our project recommendation. |
| What about biomass and geothermal for base load energy? Solar can fill the gap in March, April, May and June. What about wind? Yukon Energy never foresaw the transition of homes to electric heat. I don't see evidence of Yukon Energy trying to aspire to anything new. Your thinking is outdated. Customers and businesses like me want more renewables. Don't try to convince me that LNG or diesel is the solution. I am disappointed in Yukon Energy. | Thank you for your feedback. These comments will be considered as part of our project recommendation. Thank you for your views on other electricity sources we should be exploring. We explored each of these possible options in our 2016 Resource Plan. As part of that plan, we also considered the increased use of electric heat and vehicles in Yukon. This project is one of many we are pursuing to meet current and future demands for electricity including a grid-scale battery, two small hydro developments, enhancements to our hydro storage capabilities, upgrades to our existing Whitehorse hydro facilities and energy conservation programs. |

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| I'm disappointed to see Yukon Energy deploy more thermal energy without equal progress and investment in renewable energy projects. Of the options provided, I strongly prefer diesel to LNG as diesel is better suited to supporting the integration of renewables and avoids fracking and methane emissions. I strongly also prefer rental generator to purchased units to minimize Yukon's investment in fossil fuels. I implore Yukon Energy to begin deploying conservation and renewable energy projects needed to achieve territory-wide GHG reductions consistent with the Intergovernmental Panel on Climate Change on limiting global heating and the need to reduce GHGs by 50% by 2030 and 100% by 2050. | Thank you for your feedback. These comments will be considered as part of our project recommendation. Like many Yukoners, we are proud that more than 90% of the electricity generated in Yukon comes from hydro. We are exploring this project because we need to ensure the availability of safe, sustainable, reliable and affordable power to Yukoners. This project is one of many we are pursuing to meet current and future demands for electricity including a grid-scale battery, two small hydro developments, enhancements to our hydro storage capabilities, upgrades to our existing Whitehorse hydro facilities and energy conservation programs. |
| Investing in this type of infrastructure is a shame and I'm honestly disappointed. I feel real questions would have occurred many years ago to have had proper planning, not a stop gap new energy source; looked at a variety of energy sources and how a combination of them would work to meet the need; how we can continue to reduce our need with creative solutions like peak and off peak power. In encourage you to think bigger and better. | Thank you for your feedback. These comments will be considered as part of our project recommendation. |
| I believe Yukon Energy should have a greater reserve or buffer of renewable energy capability to cover droughts, load growth and other risks Yukon Energy presently has. Exactly is open to discussion, but I suggest at least 10% of the anticipated annual load as starting point; a good portion could be sold into secondary sales). There is no diversity in Yukon Energy's renewable energy supply; it is essentially all hydro. In my view winter dominant wind energy should compromise at least 10% of Yukon's electricity supply. I consider LNG and diesel as equally polluting and contrary to any meaningful action to mitigate climate change. For the short term, I prefer the use of dual fuel generators in P126 (diesel plant retrofit) and diesel everywhere else. We must prepare for more intermittent renewable energy use on the grid, especially wind, but other forms too, and for that (and outage restoration) higher ramp rates for load following are key and only diesel can do the job.<br>If there were no debt cap restriction on Yukon Energy my preference would be for Yukon Energy to install dual fuel generators in the existing Whitehorse diesel plant. I would also like to see the Faro diesel plant and associated infrastructure continue to be fully utilized. With P126 and Faro full utilized, I believe Takhini | Thank you for your feedback. These comments will be considered as part of our project recommendation. |

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| switchyard / substation is the next best location. This site should be designed to be expandable to accommodate future growth. In my mind it would also reduce the risk on the grid to have some generation supply on the north side of this facility (instead of all at Whitehorse Rapids). But what about Dawson and Mayo City too?<br>If Yukon government debt cap is an issue, YG should do whatever they can so that he debt cap is not a constraining issue on Yukon Energy. Number 1 choice would be to put diesel units outside P126 and then build a facility for rental diesel units at the Takhini switchyard/substation, minimizing Yukon Energy's capital costs so that available capital can be allocated to new renewable energy supplies. A second close would be the Whitehorse landfill; my next option (though distant) would be the Lagoon | |
| Email to YG. I am deeply concerned about the proposed Yukon Energy Thermal Plant. It is irresponsible of our government to continue investing in fossil fuel energy when our communities face a climate crisis. Why isn't the government investing in renewable energy? If we are encouraging more ownership of electric vehicles and more electric home heating, then shouldn't we also ensure that the electricity they draw from comes from a clean source? The changing climate could also mean the Yukon Energy's hydroelectric projects aren't reliably able to provide as much energy as needed. We need to invest in other renewable energy projects. There is a demand for more energy now, and this is the ideal moment to take firm action on climate change | Response provided by YG |
| Email to YG. I understand the reluctance to rent diesel generators for years. But I don't believe that investing in a new diesel/LNG generator is the wisest choice. I'm sure Yukon Energy has been careful in their study of Yukon's energy needs. It is only human to have a preference for known solutions and practices, however this looks like a case of only having a hammer so everything looks like a nail. As Kate White pointed out at the June 10th Yukoners Concerned Meeting, the high cost of a diesel/LNG electric generator will make serious investment in renewables impossible and will lock us into fossil fuels for a generation. Given our climate change crisis, this is not the time to go with what is seen too be tried and true. Renting diesel generators will give us the time we need to develop alternative energy sources, Perhaps we will have to frack to find out if | Response provided by YG |

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| geothermal is a good answer for the Whitehorse basin. | |
| I am 100% against LNG and Diesel and would rather have long power outages or rotating power rather than have his electricity generated by fossil fuels. I feel that both of these options are environmental disasters and we should be looking at creative hydro alternatives (i.e. Hydro with a pump to run water through the unit multiple times). I also feel like the term "Thermal" used in our media campaigns was deliberate political misspeak and that it was done intentionally to throw off the public because when people hear "thermal" they automatically think "geothermal". | Response provided by YG |
| I would like to register my utter disagreement with Yukon Energy's proposed approach. I do not want to see any further non-renewable energy development in Yukon. In addition, more particulates expelled into our valley are not preferred. I want Yukon Energy to continue to rent diesel generators as backup until wind, solar and geothermal energy sources are developed to cover the current and future energy needs of Yukon. In addition, I want to see a plan to phase out use of the current diesel and natural gas generating capacity... keeping the natural gas or diesel for backup. | Thank you for your feedback. These comments will be considered as part of our project recommendation. |
| Yukon Conservation Society provides this feedback as a member of the Technical Advisory Committee and an organization representing a membership of approximately 300 Yukoners. We are of the view that Yukon Energy and Yukon government need to collaborate to grow Yukon's renewable energy capacity and enable GHG emissions reductions in Yukon's heating and transportation sectors. Major investments in fossil fuels is counterproductive to meeting the science based GHG emissions targets required to avoid the worst effects of global heating. YCS's specific comments are as follows (the following is paraphrased by the transcriber for length).<br>1. Alternative solutions have not been adequately considered. The combined use of Demand-Side Management (DSM) and Electric Thermal Storage (ETS) can reduce peaks loads by up to 16 MW Further capacity-focused programs such as hot water tanks timers, thermostat set back and time of use electricity pricing can drive significant further reductions. DSM programs would reduce the number | Thank you for your feedback. These comments will be considered as part of our project recommendation. |

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| of rental generators required over time, resulting in long-term financial savings and positive socioenvironmental outcomes.<br>2. Yukon Energy has not assessed the impact of the proposed options on the avoided costs of thermal, the metric used to set prices for the Independent Power Producer Policy. This metric drives the financial viability for all potential IPPS. Ignoring this metric could have significant long-term adverse impact on the effectiveness of the IPP policy.<br>3. Yukon Energy has not assessed the impact of the proposed options on Yukon Government debt cap, which directly impacts Yukon Energy's ability to develop renewable energy projects in the future. It is critical that the debt ca implications of each option (rent/own) be assessed to understand the future impact on the corporation's ability to invest in clean energy infrastructure and ambitious DSM programming.<br>4. Having considered the issues above, the Yukon Conversation Society is of the view that diesel generators are the preferred solutions. Key reasons are as follows:<br>• Diesel avoids the hydraulic fracturing and methane emissions associated with LNG extraction and transport.<br>• Operational characteristics of diesel generators make them better suited to the integration of intermittent renewable energy sources.<br>• The generators, fuel storage, and other infrastructure costs are lower for diesel systems, resulting in lower capital investment in fossil fuel energy and more capital available for clean energy alternatives.<br>• The lower capital cost of a rental facility results in more capital available for clean alternatives.<br>• The flexible nature of generator rentals results in a significant financial incentive for Yukon Energy to reduce reliance by investing in clean electric capacity alternatives such as DSM and energy storage.<br>Since the "avoided cost of thermal" metric is based solely on fuel costs, the use of diesel rather than LNG will result in better economics for Independent Power Producers. | |

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| Dear Mr. Hall, Please accept these written comments as the Yukon NOP Caucus response to the New Thermal Generation Project.<br>General Comments: While we were disappointed to hear that the Yukon Energy Corporation would be beginning the construction of a new Thermal Generation Plant, we recognize the realities Yukon faces when it comes to power generation. Our comments are not meant to call into question the need for more electrical generating capacity to address emergency scenarios, baseload and peak winter load, nor are they intended to call into question the commitment Yukon Energy has made towards moving towards greener energy production infrastructure. Rather they are rooted in our belief that the Yukon, and the planet as a whole, need to take swift action to transition away from fossil fuels, if we hope to meet the IPCC target of 50% GHG reductions by 2030 to limit the extreme effects of climate change. We believe that Yukon Energy's proposal to invest in a long term, permanent thermal generating facility is short sighted and will harm Yukon's ability to meet critical emissions reductions targets and harm our ability to easily switch to renewable generation technologies.<br>Rent vs. Own: It is the firm belief of the Yukon NDP that the Yukon Energy Corporation should rent thermal generators, rather than construct a permanent thermal generation facility. We believe that tying Yukon's energy future to fossil fuels for the next 40 years is counterproductive and short-sighted. This long term investment will inhibit the Yukon from effectively transitioning to a GHG emissions free energy infrastructure. This proposal of a long term investments in thermal generation is a line in the sand for the Yukon NDP. We have faith that good decision making, planning and advancements in technology can get us to a greener future. After a lively discussion at one of the YEC open houses on the new thermal generation plant options, we believe that renting the required generators needed is the answer. One of the YEC representatives present suggested that if generator rental was the direction chosen, that option should be coupled with the purchase of the necessary supporting infrastructure (including transformers, fuel tanks and cables). We agree. The Yukon NOP is supportive of any options that gives the Yukon the ability to more easily decommission this proposed thermal generation plant as we transition towards renewable options. It is our hope that renting | Thank you for your feedback. These comments will be considered as part of our project recommendation. |

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| generators in the short term would allow Yukon Energy to take the steps necessary to establish renewable alternatives to fossil fuels.<br>LNG vs. Diesel: The Yukon NOP fundamentally disagree with the practice of hydraulic fracturing within our borders, if this isn't acceptable in Yukon, then we shouldn't think it acceptable elsewhere. Therefore, the Yukon NOP is opposed to any new investments in LNG infrastructure. The Yukon NOP is also concerned about the impact that building more LNG generating capacity could have on Yukon's renewable energy future. Currently the IPP policy's avoided cost of a blend of diesel and LNG is approximately 16 cents a kilowatt hour. It is our understanding that prior to the installation of the LNG generators in 2015, Yukon's avoided cost of fuel was to be approximately 28 cents a kilowatt hour. While LNG has some cost and GHG benefits, we believe that its introduction into the Yukon has created a situation in which renewables have and will continue to struggle to gain traction. It is our opinion that further LNG investments have to potential to keep the IPP purchase rates low and therefore harm the ability of renewables to compete. It we need to use fossil fuels, diesel is our only choice.<br>Location: It is the opinion of the Yukon NDP Caucus that, based on a reading and discussions of the potential site options, situating the new thermal generating plant at the Whitehorse Landfill would be the ideal location. We would also advise you to consult with the City of Whitehorse to consider the implications the project may have to the City OCP. This site would easily allow for the use of biomass as a heating source for the rental generators.<br>Sincerely, MLA Takhini-Kopper King | |
| Email to YG. Please find below a copy of Yukoners Concerned May 28/19 Newsletter. Yukoners Concerned is shocked by Yukon Energy's plan to build another permanent thermal generation facility in the Whitehorse area. We accept the fact that we need thermal backup energy but we are now moving into Load production. This means the Yukon will see very little major renewable energy for the next 30 years. During the past 10 years Yukon Energy and the Governments of the day have held workshops on alternative energy and with rapid Climate Change the need to get off Fossil fuels is a must to save our environment for future generations. A major concern around thermal generation especially the burning of LNG is the safety of the sites as well, as the | Response provided by YG |

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| transportation, and the impact of air quality in the area. Our government Leaders have not understood that Climate Change is a reality, and World experts state that we have only 10 years left to change the catastrophic results of doing nothing? If we need more back up then we should rent the units rather than build and maintain them and get on with a major Wind, Solar, Biomass etc., and generation facility. Before the last Territorial election over 8000 Yukoners signed a petition to ban LNG to generate electricity. Once again Yukoners must be heard by the politicians and do the right thing. Yukoners Concerned. | |
| Email to YG. Re: Consultation on Thermal Generation Facility<br>I am writing you today to request that you extend the consultations for your government's proposed 20 megawatt thermal generation facility. The Official Opposition has heard concerns from many Yukoners regarding the very short and limited ability to be properly consulted on your government's proposals. The majority of the concerns that we have heard relate to the short length of the consultations, the short notice for the open houses, and the fact that rural Yukon was completely left out of the open house portion of the consultation process. As you know, during the summer Yukoners are very busy either with work or personal matters and are not necessarily checking EngageYukon.ca on a daily basis to see if there are any open or planned consultations on significant matters. Further, Yukoners require and deserve an adequate length of time to be notified that a consultation is taking place so that they can make the necessary plans and adjustments to their schedule which would allow them to participate. Notification for the open houses only began on May 21st, with the first open house taking place on June 1st and the final open house taking place on June 6th. That is only a total of 13 business days from the beginning of the consultation to the conclusion of the consultation and we do not believe that can be considered meaningful engagement. In fact, we have heard from many Yukoners who were not even aware that there were open houses taking place until after they had concluded. Finally, all four of the open houses were held in Whitehorse only. Any decision on Yukon's energy future will have short-term and long-term impacts on all Yukoners, not just those who live in the city, so in the interest of fairness, all communities | Response provided by YG |

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| deserve to have their voices, concerns, and questions heard as well. These impacts go beyond simply the location or source of energy, but also the budgetary impacts that a multi-million dollar investment would have on the government's debt or deficit. As such, the Yukon Party Official Opposition is requesting that your government extend the consultations and open houses on this important topic to ensure that all Yukoners are able to be heard. I understand that the Yukon Chamber of Commerce previously wrote your government suggesting a 30 day standard for consultations, and I believe this would be a fair length of consultation in this instance. Finally I would request that you host an open house regarding this proposal in all Yukon communities to ensure all Yukoners are able to participate.<br>Thank you for your consideration in this matter.<br>Sincerely, Official Opposition Critic for Yukon Energy Corporation | |

# appendix e: social media

May 27-June 14, 2019

| Participant comment/question | Yukon Energy Response |
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| Confused as to the thermal part of this. You're just offering diesel or gas | Yes, at this point we are proposing the development of a new permanent LNG, diesel or dual-fuel (runs on both) facility. |
| So then why try and brand it as a thermal solution, why not be honest with Yukoners? | No response posted. |
| What about solar, geothermal, wind, biomass? Like the youth are saying, "you die of old age, we die of climate change." | Solar, wind, geothermal, biomass and other renewable projects were all explored as possible options to help meet our need for more dependable power supply when we worked on our 2016 Resource Plan. These options were ruled out of the portfolio of resources we're on now for two reasons: first, these sources of renewable power don't provide the dependable electricity supply we need during winter months; second, these resources were too expensive to build at the scale we needed them to be. The portfolio of resources we're pursuing now (new small hydro, hydro storage enhancements, hydro upgrades, new battery, new LNG or diesel, and connecting Independent Power Producers) meets our need for dependable winter supply in the most cost-effective way. Here's a link to our 2016 Resource Plan. |
| No it's time we diversify our sources! We have highly qualified people in our community to help do so! Why are they not part of the process? | We agree, we need a mix of energy sources available to ensure we can continue to deliver safe, reliable and affordable power. We also agree that the Yukon is rich with energy experts. That's why we're talking to a number of different local groups, experts and stakeholders about this project to collect theirs views and perspectives. |
| Why thermal? What happened to the plan building a new hydro dam? Yes this would have a larger footprint. But hydro is a reliable renewable energy we have right here in the Yukon! | The proposed new thermal facility is needed to help keep the lights on during emergencies and low water cycles, and when the demand for power is larger than what we can meet with our hydro power. We are also exploring ways to bring more renewables onto the grid including two small-scale hydro developments, a grid scale battery, hydro storage enhancements, and upgrades at our Whitehorse hydro facilities. |
| That is what we were told about LNG too. There has been ample time to move to renewables between that very unwise investment in LNG infrastructure and now. Any additional source of energy for the Yukon will take time to install. Use renewables NOW. | No response posted. |

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| Nothing will be an immediate "emergency" source of power. Stop trying to scare people into accepting more investment in fossil fuels. | |
| Yes go to natural gas | No response posted. |
| Canada is considering declaring a Climate Emergency, the west is choking and people are dying from fires, the east is flooding and the north is affected by Climate Change more than most of the rest of the world. What are you considering? | We're committed to making the most of the renewable resources we already have (primarily hydro), and building and integrating more onto the grid. We're exploring two possible new hydro developments, the installation of a grid-scale battery, as well as enhancing our storage capabilities in our Whitehorse and Mayo reservoirs. We also working with a number of Independent Power Producers to help them integrate the renewables they are building onto our system. More information about the portfolio of projects we're looking at is available here. |
| If you fill up the survey. Just remember that it is a conducive questionnaire where they just get the answers that they want. So remember in the comments that you can suggest a more clean energy. | No response posted. |
| Yukoners! There are options given in this survey... but maybe there are non-fossil fuel based options that aren't mentioned? Whatever you think, if you have the time and inclination, please fill out this survey! | Comment included as part of a shared post. No response posted. |
| Get off the fossil fuels. The Yukon has an abundance of geothermal energy just waiting to be tapped into. http://www.energy.gov.yk.ca/geothermal.html These reports date back to 2016, what is being done by Yukon energy to pursue geothermal energy? | We explored geothermal technology as part of our 2016 Resource Plan. Two possible sites were identified, however those projects were not pursued because they were not found to be in the most cost-effective portfolio of resources needed to meet the increased demands for electricity. |
| Do you ever come out of Whitehorse for these meetings? | Thanks for your question. For these types of projects we typically host open houses in communities where the proposed facility may be located. In this case, because the five proposed locations are in or very close to Whitehorse, our open houses will be in Whitehorse. We certainly want to hear the views and opinions of residents living outside of Whitehorse on this project too. To help facilitate that there is an online survey that anyone can take to let us know what they think about the project. Here's a link. |
| If it involves more fossil fuels, keep thinking | No response posted. |
| Is there a future for those disabled windmills on Haeckel Hill? It cost a small fortune for the study to decide the best place to put them and again to replace a worn out bearing. They were supposed to be enough to power 300 houses but the power they did generate just went back into the energy grid so there was no visible end use we could all appreciate. We | The Haeckel Hill wind project Michael linked to is a great example of the opportunities available through the Yukon Government's Independent Power Production policy. https://yukon.ca/.../government-yukons-independent-power...<br><br>We're excited to work with this and future |

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| could have a greenhouse complex up there they plug into in which many of us could be happily employed growing essential nutrients cutting some of the shipping requirements to get food here from parts south. We could add more windmills and some solar collectors besides. We could also take advantage of river current for some energy too. | proponents to integrate more renewables into our isolated grid as we continue to work on building more renewables ourselves. This proposed New Thermal generation facility will help us ensure the availability of reliable power when existing and future renewables aren't available |
| When does the online survey close? | June 9. |
| I recognize the need and have contributed my views on new reliable thermal, but as a point of reference, what would $50m in renewable investment get us? Asking for most Yukoners | The cost of renewables depends on the type, location, size, distance to grid, etc. For dependable capacity, we'd likely get less than 5 MW of hydro for $50M in comparison to the 20 MW we are designing for about the same price for thermal. The other big difference is that to build hydro often takes at least 5-7 years. We expect this LNG/Diesel/Dual-Fuel facility can be ready in about 3.5 yrs. This helps us meet growing demand sooner. 2/2 |
| Good stuff, thanks. This is important for having the public understand the why, and to communicate that you know how the renewable option compares. Worth getting that message out alongside this. | No response posted. |
| Where on earth did you get the social license to not make developing our renewable resources a priority? The 2016 Resource Plan is a flawed document. We need winter renewable energy and storage that means wind and electrical thermal storage and a smart grid. Please modernize your approach YEC. | No response posted. |

Yukon Energy Corporation
#2 Miles Canyon Road,
Box 5920, Whitehorse, Yukon Y1A 6S7

communications@yec.yk.ca

October 2019

# APPENDIX

## Appendix B: 2025 Letter from Chief Massie

Ta'an Kwäch'än Council

117 Industrial Road • Whitehorse, Yukon • Y1A 2T8
Telephone: 867.668.3613 • Facsimile: 867.667.4295 • E-mail: taan@taan.ca

May 13, 2025

Premier Ranj Pillai
Yukon Government
Box 2703
Whitehorse, Yukon Y1A 2C6

Dear Premier Pillai,

**RE: YUKON ENERGY STRATEGIC PLAN – WHITEHORSE THERMAL GENERATION**

As Chief of the Ta'an Kwäch'än Council (TKC), I am writing to confirm my support for Da Daghay Development Corporation (DDDC), our development arm, as it begins work with Yukon Energy and the Yukon Government to develop, own, and operate the Whitehorse thermal generation assets identified in the Yukon Energy Strategic Plan.

These projects are located within TKC Traditional Territory and present a critical opportunity to deliver long-term benefits to TKC Citizens through Yukon First Nation ownership and control—aligned with the Umbrella Final Agreement, TKC's Self-Government Agreement, and DDDC's mandate.

Shäw Níthän

Chief Ruth Massie
Ta'an Kwäch'än Council