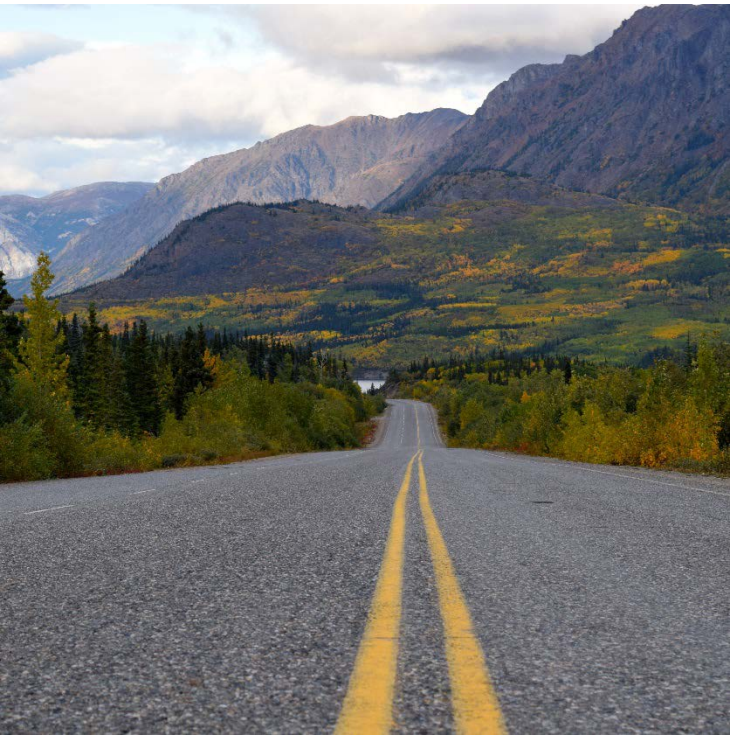
Yukon Energy Corporation
Southern Lakes Enhanced Storage Project

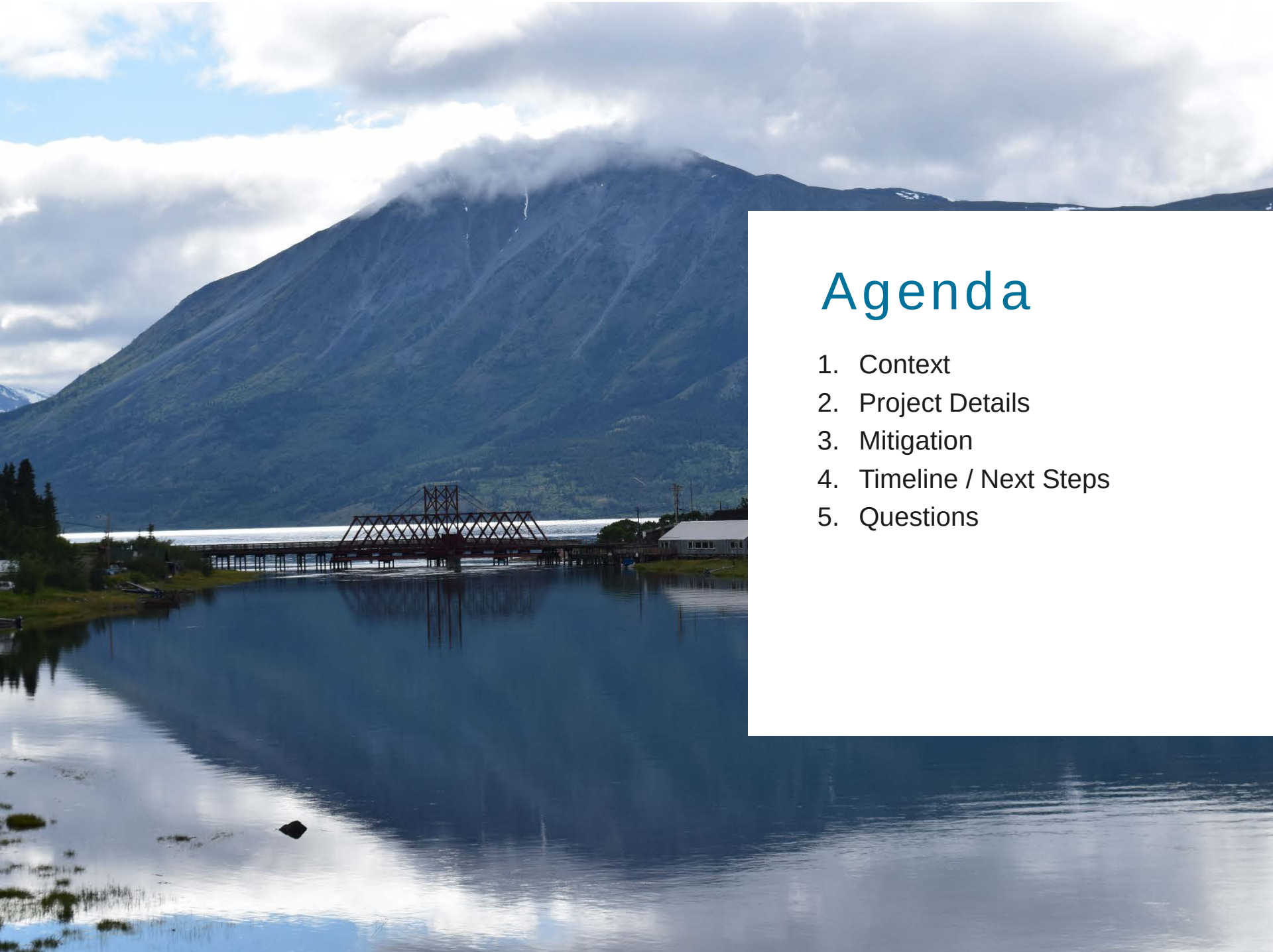
Community Meeting

Stantec

Our Team



- Stantec
- Yukon Energy Corporation
- Hemmera



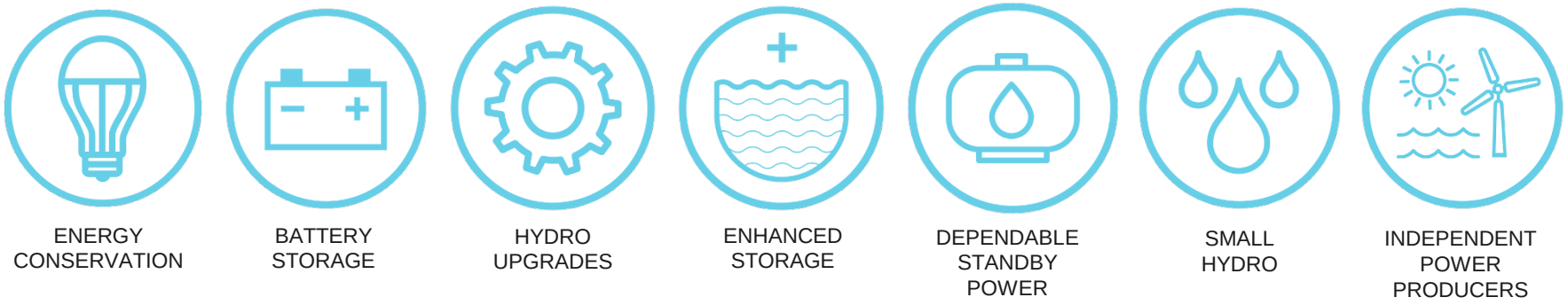
Agenda

1. Context
2. Project Details
3. Mitigation
4. Timeline / Next Steps
5. Questions

Context

Future Focused Portfolio

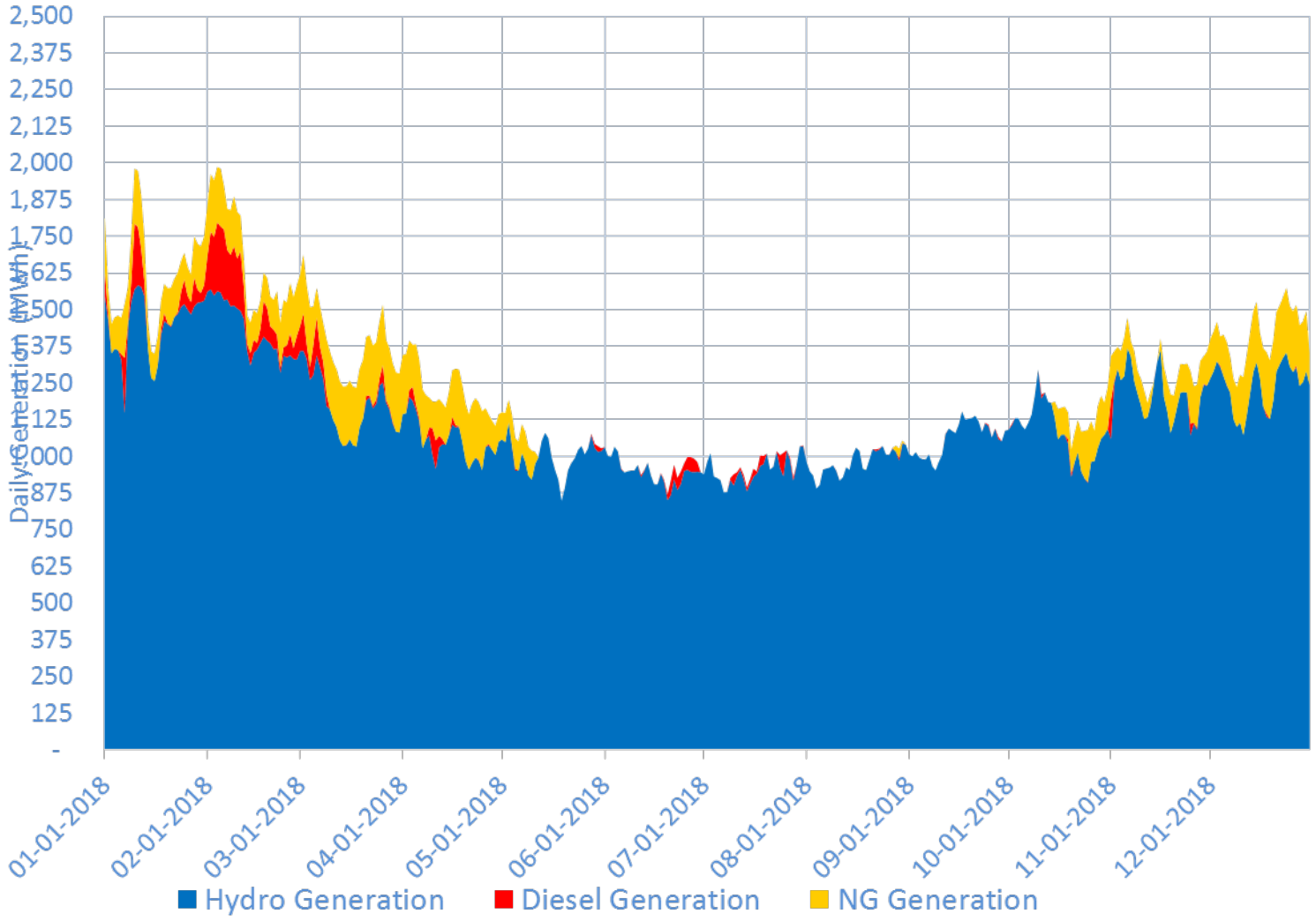
- Yukon Energy is building a sustainable, reliable and affordable energy future
- A mix of new energy projects is needed to meet demand and support growth



Project Purpose

- Increase amount of renewable electricity generated in winter
- Decrease the use of LNG and diesel
- Make the most of existing infrastructure

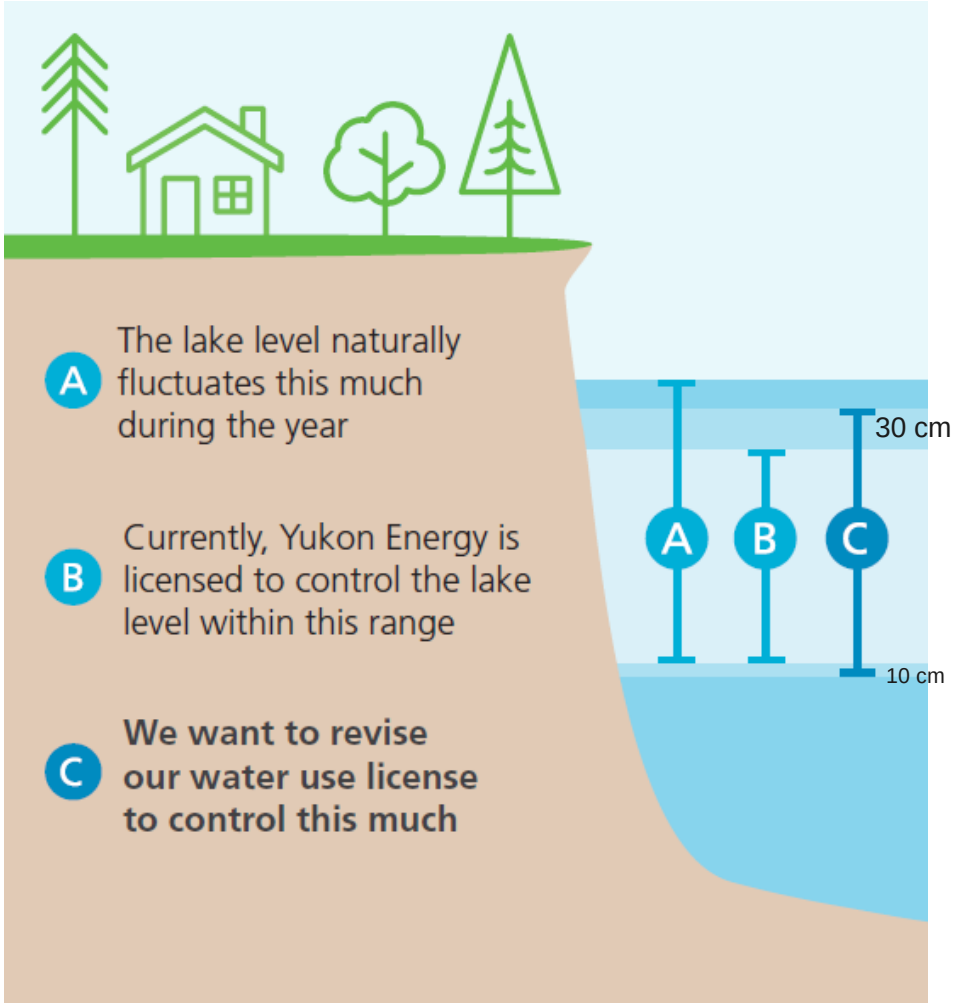
More Water Reduces Reliance on LNG/Diesel



Project Details

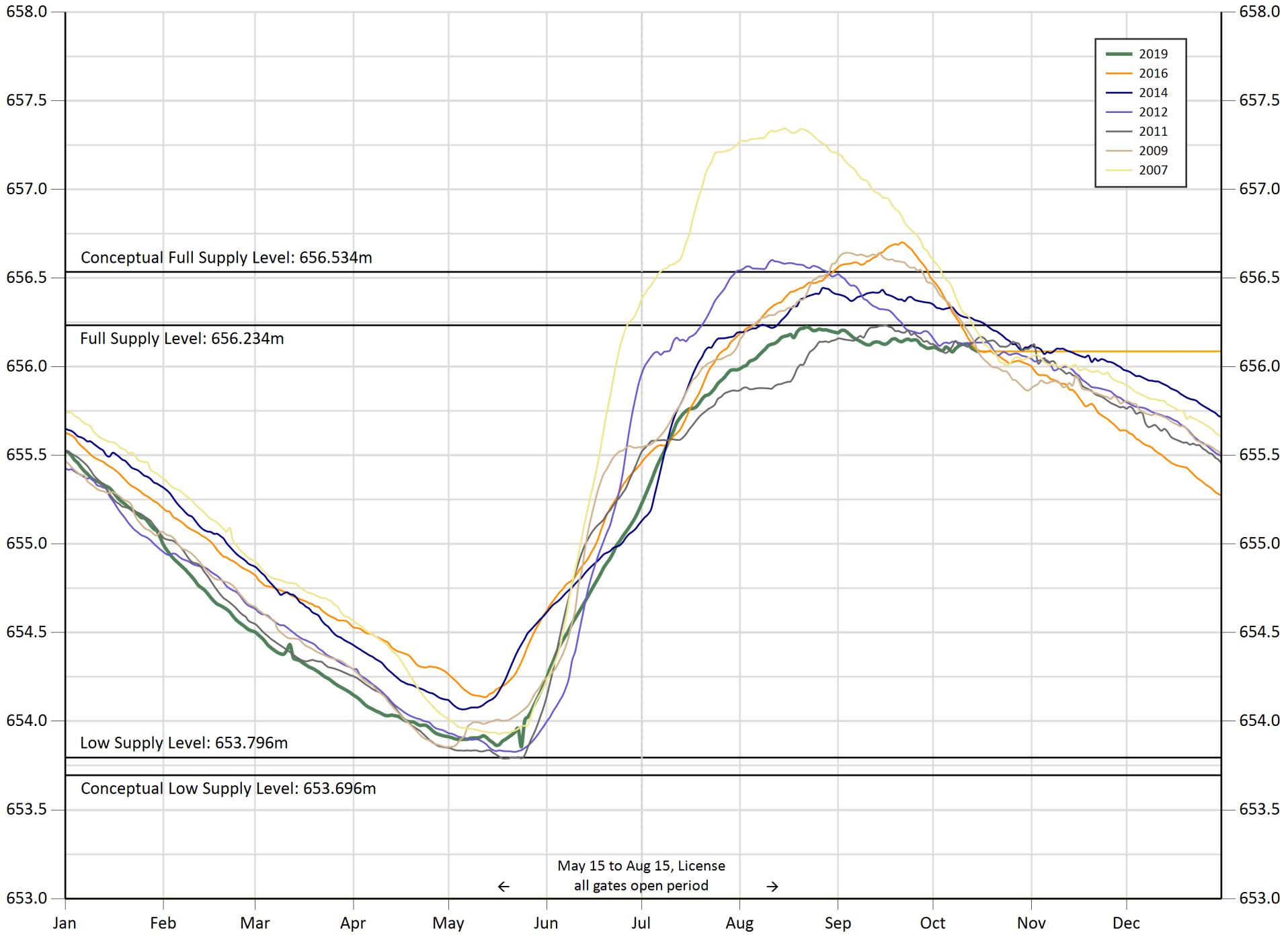
Proposed Project

- Storing more water in Marsh, Tagish, and Bennett Lakes in fall & early winter
- Water managed within existing natural range
- Lake levels would not be higher than they already are naturally
- Fall & early winter lake levels would be like late summer levels



Marsh Lake Level

656.08m @ 10/15/2019 1PM



Project Benefits

- Generate an additional 6.5 gigawatt hours of renewable winter electricity (enough to power 500 homes)
- Reduce GHG emissions by 3,100 tonnes a year (650 cars off the road for a year)
- Save Yukoners about $1 million/year at current LNG and diesel prices
- Maximizes existing resources
- Requires no new infrastructure

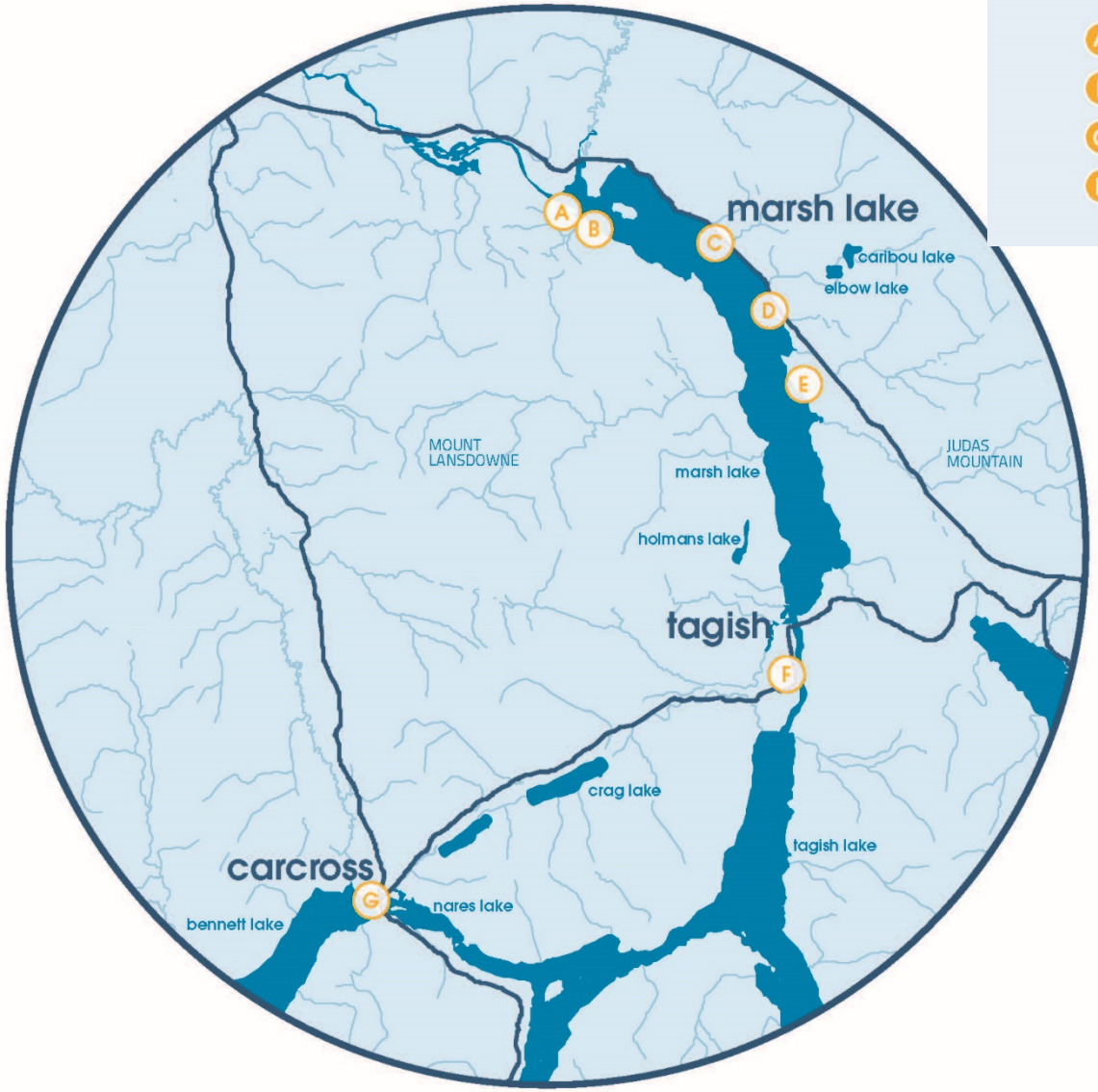
Impacts and Mitigation

Understanding Groundwater Impacts

- Some properties will be affected by slightly longer duration of seasonal groundwater
- Hemmera used an elevation model and a screening tool to predict impacts
- GIS-based screening tool to identify low lying properties
- Focus was on impacts to sub-surface infrastructure
- Site visits and property surveys were used to refine work
- 57 properties will be impacted

properties potentially affected by groundwater

- A SOUTH M'CLINTOCK (16)
- B ARMY BEACH (21)
- C M'CLINTOCK PLACE (3)
- D OLD CONSTABULARY (4)
- E JUDAS CREEK (3)
- F TAGISH (9)
- G CARCROSS (1)



Groundwater Mitigation

- Yukon Energy has discussed solutions with affected residents
- Only mitigation of sub-surface infrastructure
- Solutions will vary based on conditions - raised septic fields, septic tank replacement, installation of sump pumps
- Yukon Energy will install solutions and cover costs
- Expected mitigation cost = $1.2M
- More work to finalize, if project goes ahead

Understanding Erosion Impacts

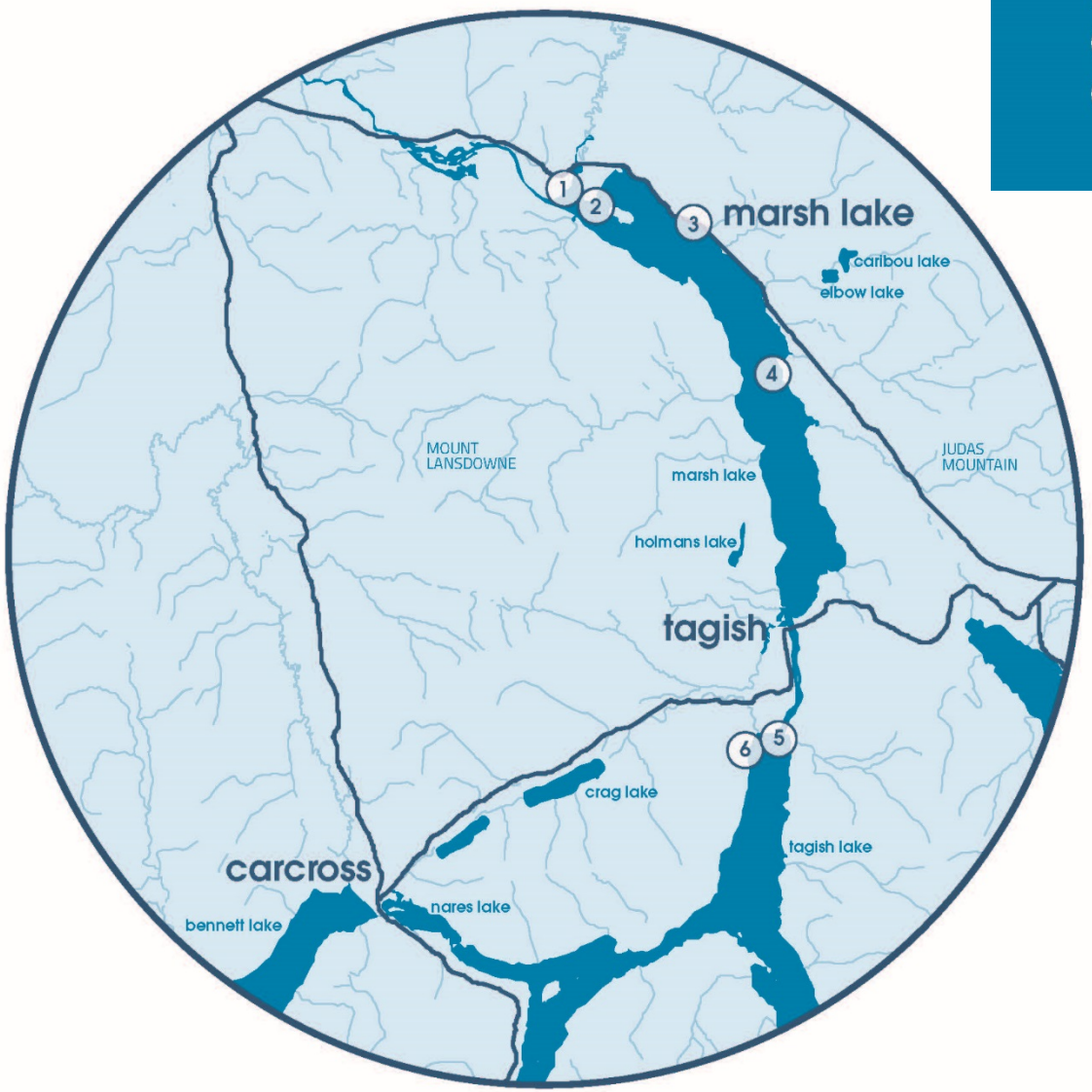
- Erosion already occurring in some areas
- AECOM identified areas for erosion protection; work refined by Hemmera and Northwest Hydraulics
- Identification and mapping of sites experiencing erosion
- Measuring and modelling of wind and waves
- Airborne and ground assessment of shorelines
- River erosion assessment and beach sediment sampling
- Determined which properties would experience an increased rate of erosion with project

Erosion Impacts

- Divided into areas that need mitigation, areas to monitor and areas that won’t be impacted
- 69 shoreline properties potentially impacted in six areas
- Assessment and mitigation was focused on titled lots

shorelines at risk of additional erosion

1. NORTH M'CLINTOCK (14)
2. ARMY BEACH (16)
3. ALASKA HWY SECTION AND S-206 (1)
4. JUDAS CREEK (4)
5. TAGISH LAKE OUTLET (6)
6. TAKU SUBDIVISION NORTH (28)



Erosion Mitigation

- Yukon Energy would build engineered protection along affected shorelines
- Many meetings; worked with group of impacted land-owners to identify preferred solutions
- Used evaluation criteria developed by land-owners
- Most groups preferred rip-rap
- Yukon Energy would cover costs for mitigation
- Expected mitigation cost = $6.0M
- More work to finalize, if project goes ahead

Fish, Wildlife, Waterfowl & Wetlands

- Studies looked at more than 200 species of plants and animals
- Studies concluded that the project would have minimal impacts on fish, wildlife, waterfowl and wetlands in the project area

Traditional Land Uses & Heritage Resources

- Yukon Energy recognizes that importance of the lakes to local First Nations
- Yukon Energy continues to have discussions with the Carcross/Tagish First Nation, Kwanlin Dün First Nation and Ta’an Kwäch'än Council to understand and mitigate impacts on their lands

Community Engagement History

Since 2009:

- Researching, collecting data and reviewing impacts, and addressing issues
- Numerous community meetings and workshops
- Two rounds of meetings with property owners potentially affected by erosion
- Phone and face-to-face meetings with residents potentially affected by groundwater; lots surveyed and site-specific mitigation designed
- Technical reviews conducted by affected First Nations

Now:

- Get update on attitudes and perspectives before Yukon Energy's Board decides whether to proceed

Monitoring and Adaptive Management

- Impacts of the project would be carefully monitored
- Limits of acceptable/unacceptable changes would be set
- Project would be adjusted to address any issues that might arise

Timelines / Next Steps

Get Involved

- Community sessions
  - Tagish Community Centre – October 2, 5:30 to 7:30 pm; 6 pm presentation
  - Carcross Learning Centre – October 7, 5:30 to 7:30 pm; 6 pm presentation
  - Whitehorse High Country Inn– October 15, 5:30 to 7:30 pm; 6 pm presentation
  - Marsh Lake Community Centre – October 16, 6:30 to 8:30 pm; 7 pm presentation
- Public Surveys – October to end of November
  - Southern Lakes survey
  - Yukon-wide survey
- Email and online form – yukonenergy.ca/southernlakes
- Pop-up information stands – October

Next Steps

- What We Heard Report – Early 2020
- Final Decision – Spring 2020
- If approved:
  - Submit YESAA project proposal – Fall 2020
  - Water Licensing process – 2020 and 2021
  - Mitigation installed – 2021 and 2022
  - More winter renewable electricity generated – 2022

Questions?