

Mactaquac Project

George Porter

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Mactaquac Generating Station

- operational since 1968
- provides 20 per cent of peak energy needs in New Brunswick
- annually produces electric energy for approximately 12 per cent of New Brunswick's homes & businesses (2020 renewable requirement of 40%)
- provides essential services to support a safe and reliable power grid (regulation, load following, reserves, black start, etc.)



The AAR problem at Mactaquac

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- Alkali-Aggregate Reaction (AAR) causes expansion of the concrete
- Hundreds of stations affected worldwide
- Various techniques are used to address effects of expanding concrete
- Mactaquac currently is expected to reach the end of its life by 2030

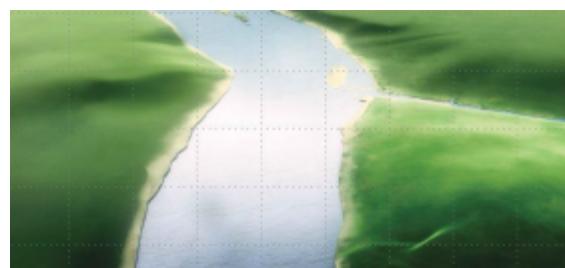
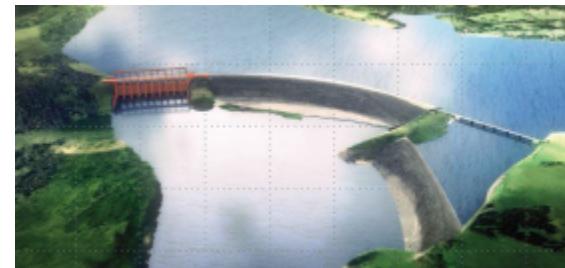
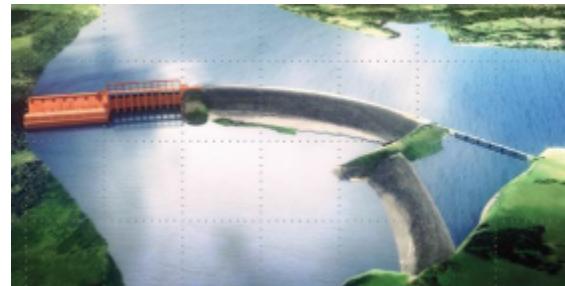




The future of Mactaquac could be ...

- **Repower**, with a new powerhouse, switchyard, fish passage facility and spillways.
- **Retain the Headpond**, with new spillways and a new fish passage facility.
- **Restore the River**, by removing all existing structures, including the earthen dam.

Life Achievement, extending operation of the existing concrete facilities beyond 2030.





What is Life Achievement?

- Continued operations beyond 2030, perhaps to original lifespan.
- Detailed modelling suggests concrete's structural integrity better than previously understood.
- Consistent with ongoing tests of concrete samples from station.
- Requires ongoing work and investment.
- Require mechanical and electrical equipment in the station be replaced due to age and wear.



What next?

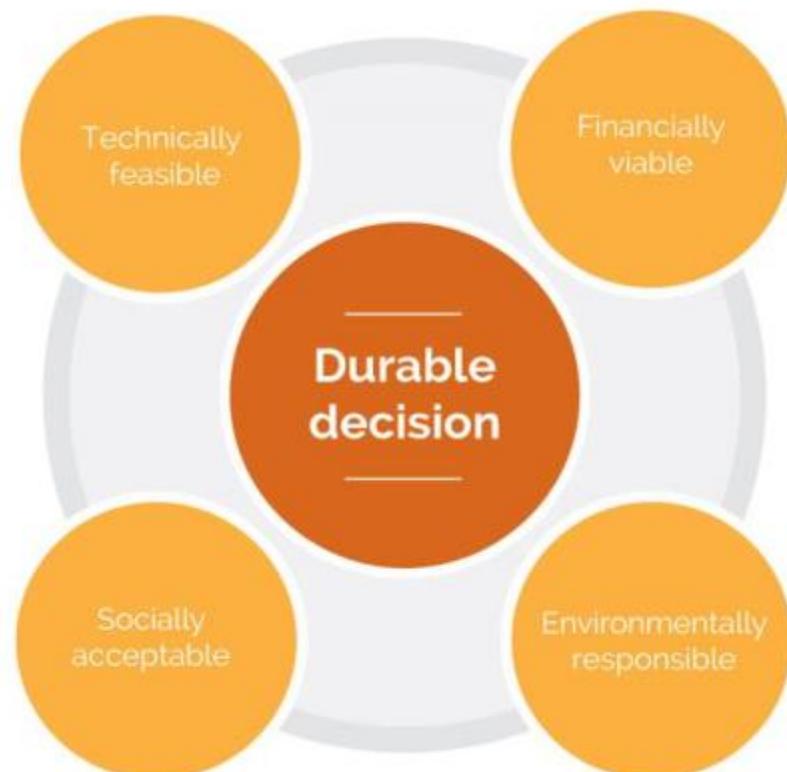
- No decision has been made.
- Refine analysis and business case of all options.
- Business case is a work in progress as we gather estimates related to construction, environmental, social factors.
- Each option is expensive. There is no low-cost option for Mactaquac.



Durable decision

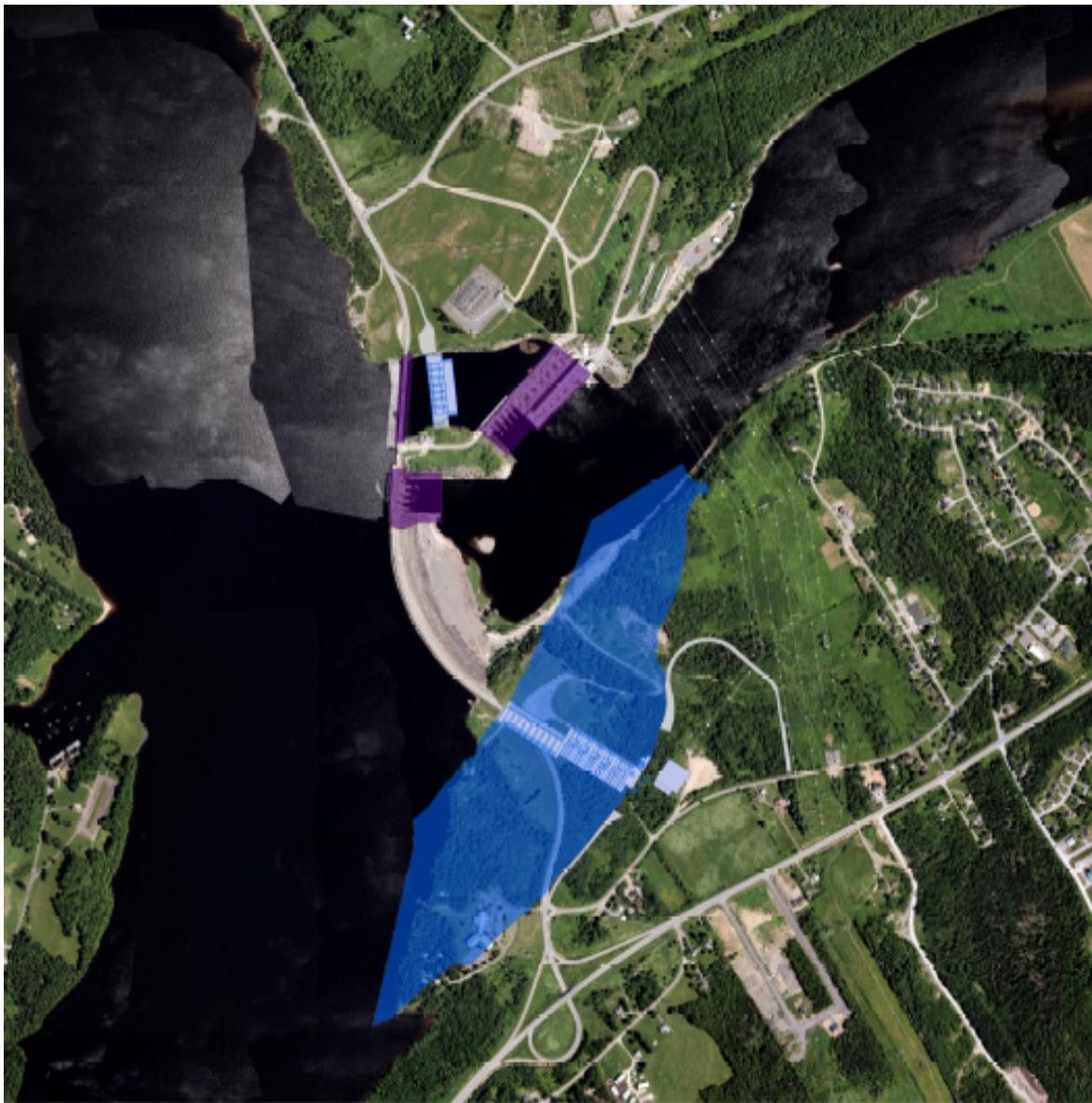
**What we are doing to gather
information for a durable decision:**

- Comparative Environmental Review
- Social Impact Comparative Review
- Engineering
- Mactaquac Aquatic Ecosystem Study
- First Nations Engagement
- Public Engagement





Repower footprint





River restoration





River restoration

- Residential Water Wells (~700 locations)
- Regulated Water Intake Extensions (~10 locations)
- Dust Control Measures (~11 locations)
- Wastewater Outfall Extensions (~14 locations)
- Culvert Replacement (~25 locations)
- Surface Water Management (~133 locations)
- Shoreline Protection (~11 locations)
- Shaping and Grading Slopes (~22 locations)

Potential Land Exposed (~ 54 km² (13,350 acres))

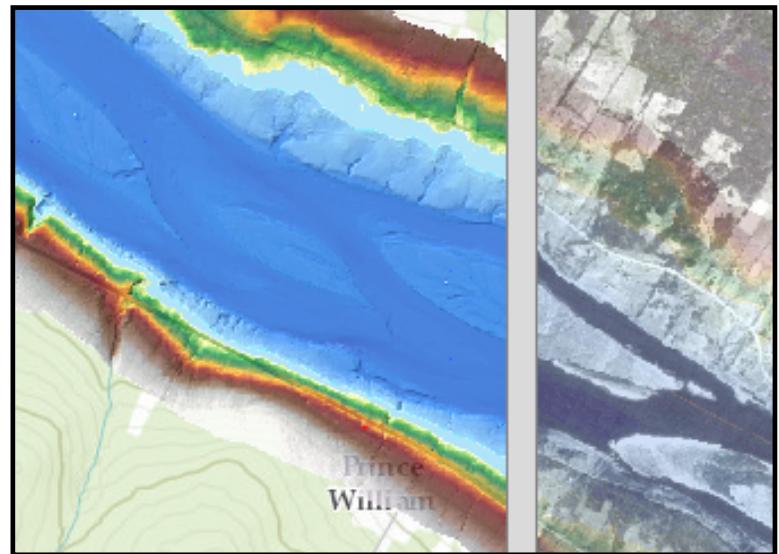
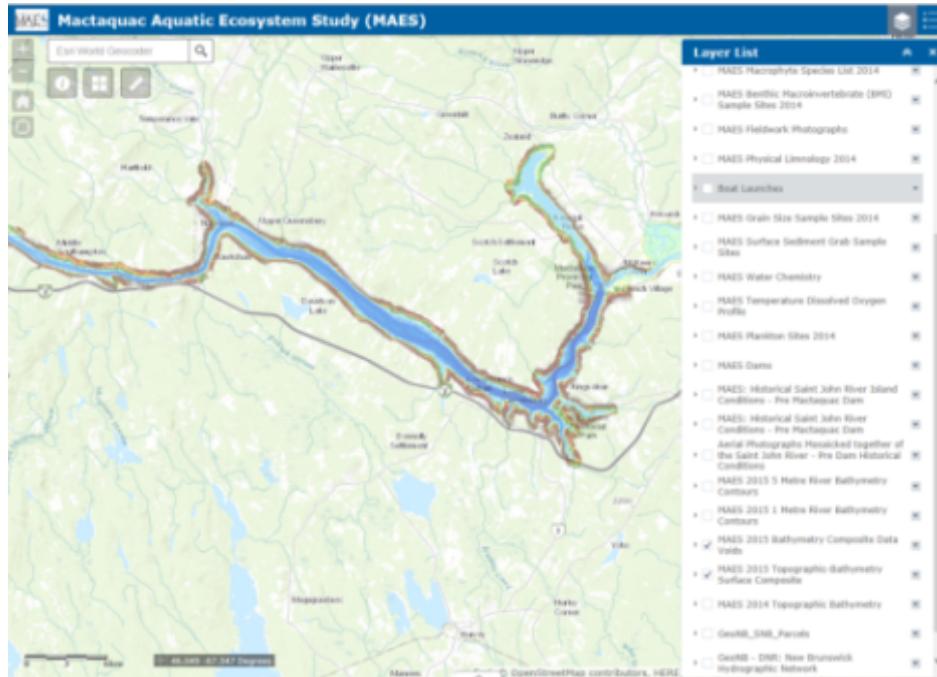
Mactaquac Aquatic Ecosystem Studies



Three themes in this work by the Canadian Rivers Institute

- Whole River Ecosystem Studies
- Fish Passage
- Environmental Flows

See <http://canadarivers-gis.maps.arcgis.com/home/index.html>



Comparative Environmental Review



- Atmospheric environment
- Acoustic environment
- Surface water
- Groundwater
- Aquatic environment
- Vegetation and wetlands
- Wildlife and wildlife habitat
- Economy and employment
- Human occupancy and resource use
- Infrastructure and services
- Transportation
- Heritage resources
- Current use of land and resources for traditional purposes by Aboriginal persons.



Social issues associated primarily with **construction** activities include:

- nuisance effects (noise, vibration, dust, odour)
- transportation effects (access, traffic, safety, road wear)
- community services, infrastructure and housing
- land acquisition
- employment, expenditures and businesses

Social Impact Comparative Review



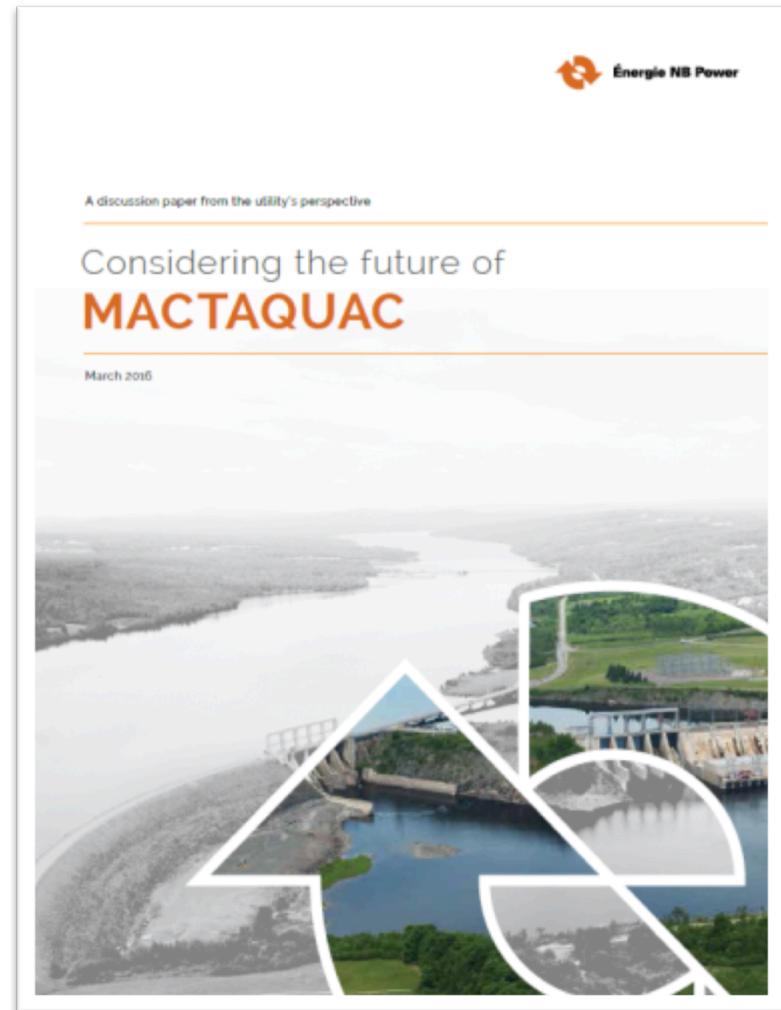
Social issues identified that relate primarily to the **headpond drawdown** include:

- community identity
- changes to recreational uses
- view shed changes
- property value impacts
- reduced river access
- exposure of lands
- intakes and outfalls impacts
- changes to water supplies/private wells
- ice damage to downstream infrastructure
- potential downstream flooding from ice jams



Discussion paper

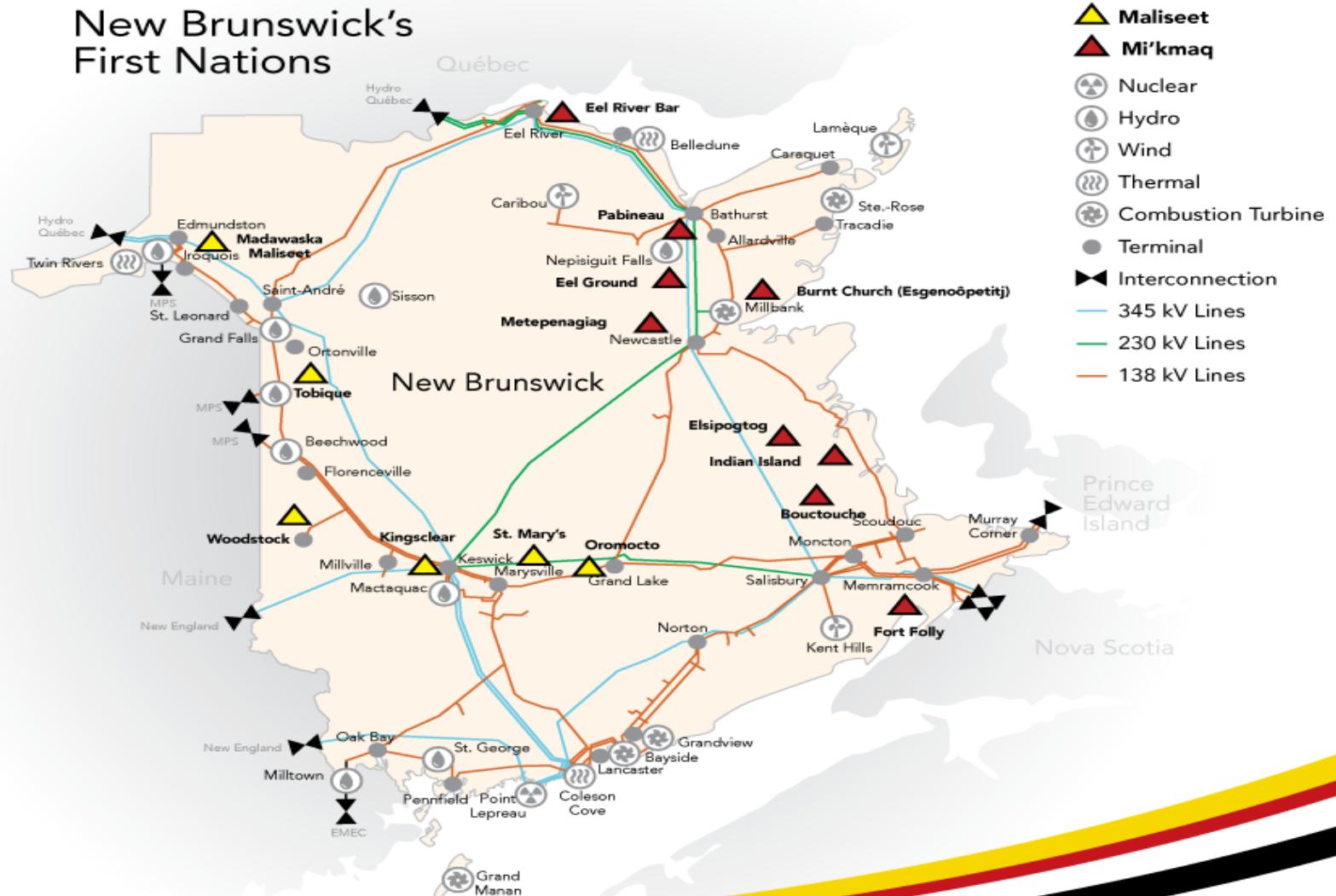
- **Purpose:** to help New Brunswickers understand the kinds of choices ahead and create a shared understanding of the potential risks and benefits of each
- **Key considerations**
 - Energy Policy
 - Financial Considerations
 - Replacement Services
 - External Factors
 - Risk
- **NB Power must seek a best-cost solution that meets safety, reliability, environmental and financial goals.**



Overview of New Brunswick First Nations



New Brunswick's First Nations





First Nations engagement activities

- Corporate Aboriginal Affairs department
- First Nations engagement strategy with Dillon
- First Nations expertise on environmental advisory committee
- First Nations Liaison/Field Monitor
- First Nations representation on Community Liaison Committee
- NB Power funded activities for 6 Maliseet Communities of NB
 - Consultation protocol development
 - Traditional Knowledge/Traditional Land Use study
 - Technical analysis of comparative environmental review



Quick review

Topics the public can influence

- Common values identified during engagement process will be reflected in option selection
- How we engage with New Brunswickers (process and techniques)
- New information uncovered during engagement process will be considered

Topics the public cannot influence

- Continued provision of safe, reliable electricity at low and stable rates
- Compliant with environmental regulations
- A decision must be made by 2016
- Respectful of First Nation's rights and interests



What we are asking about

How important are the following considerations to you?



Cost to New Brunswickers



Potential economic activity



Community impacts



The environment (existing and future)

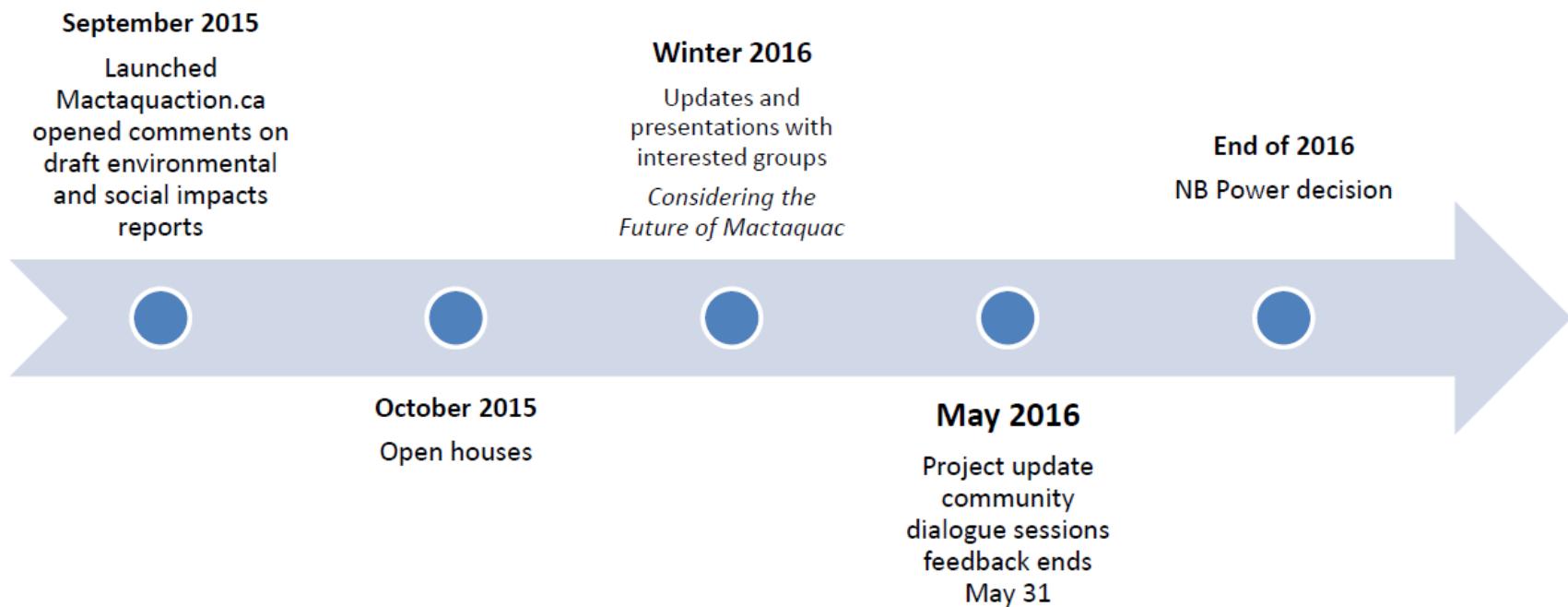


Sources and costs of renewable energy

Public engagement



Opportunities so far



Plus: Meetings with Community Liaison Committee, Comparative Environmental Review Advisory Committee, Stakeholder groups, First Nations Engagement



Public engagement numbers

The following statistics provide an indication of the volume of engagement activity

- NB Power open houses: 7
- Number of people who attended: 950
- Mactaquac.ca updates (news releases, blog posts, reports): 20
- Phone calls, emails, presentations and meetings: 282
- ‘Mactaquaction’ survey responses: 7,821
- Facebook visits to Mactaquaction.ca: 27,223
- Vimeo views of Mactaquaction videos: 15,180
- Stakeholder and community dialogue sessions: 4

After the May 31 closure of the public feedback period, a “what was said” document will be compiled and will provide a summary of the feedback received.

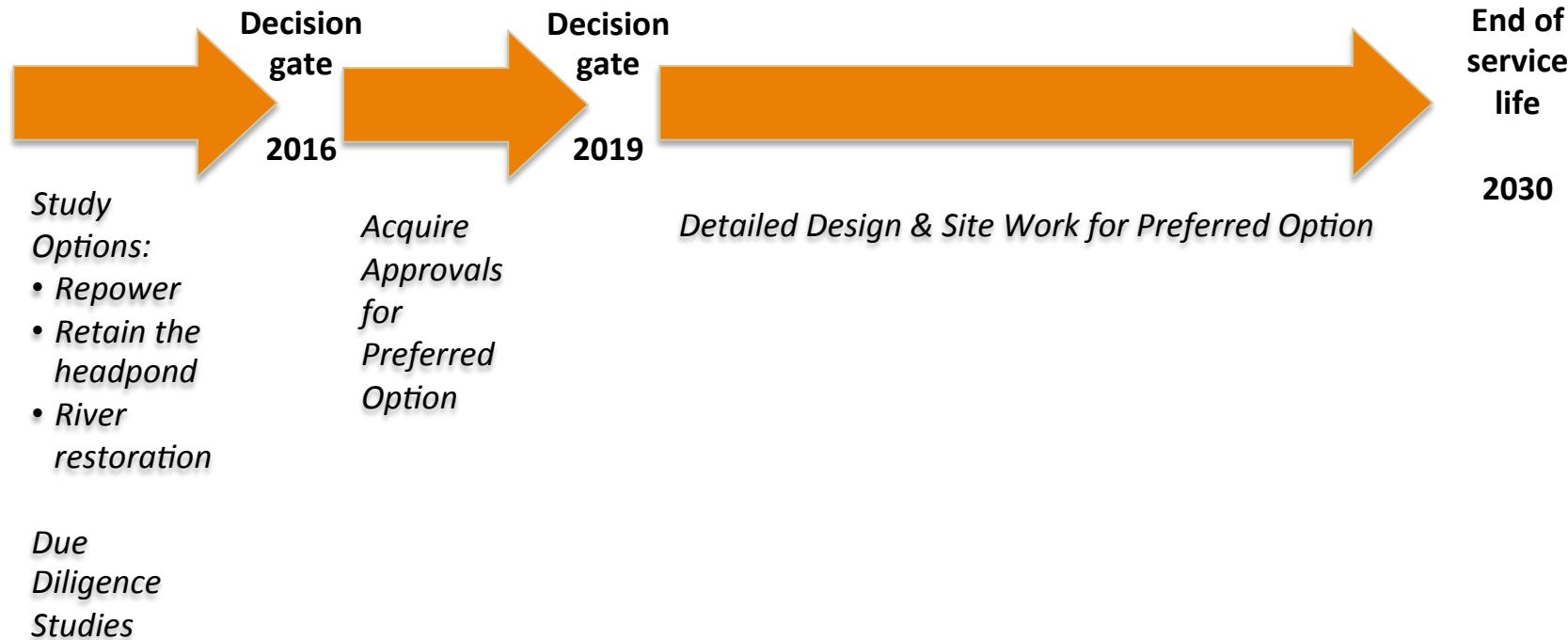
What New Brunswickers have been saying



- Connection to landscape as it is now '**we adapted, don't make us change again**'
- Concern about property values, water views, recreational use of headpond, what lies beneath the headpond shorelines
- Recognition of hydro as green energy, valued as a domestic supply
- Desire for improved fish passage, species protection
- Some support for dam removal '**the river was beautiful before, and it can be again**'
- Questions about cost/benefit of rebuild '**Can a new station pay for itself?**'
- We will want you to explain the rationale for your decision



Project timeline





Questions?



If you or your group would like more information about this project, or would like to share your point of view, please contact us.

By email: mactaquac@nbpower.com

By phone: 1-866-754-7727

Online: www.mactaquac.ca