Independent Technical Review Key Findings – NB Power's Mactaquac Dam Future Options

Prepared by MSES Inc on behalf of the **Maliseet First Nation**

Background Information

For almost 50 years, the Mactaquac dam has changed the flow of the Saint John River and been a barrier for fish. Dam construction submerged parts of the Woodstock reserve, the Maliseet settlement at Meductic, and many culturally/ historically significant areas to the Maliseet. Recently, problems were detected with the concrete used to build the dam and NB Power needs to assess future plans for the dam.

NB Power has proposed 4 Options – 3 Options are assessed in a report called a Comparative Environmental Review (CER). The 4th Option was not assessed in the CER.

The Options are:

Option 1: Repowering Continue generating electricity, build new powerhouse, spillway, fish passage facility & switchyard near Kingsclear – 10 years for construction.
Option 2: No Power Maintain dam without electricity generation, build new spillway & fish passage facility near Kingsclear – 7 years for construction.
Option 3: Restore River Remove dam completely – 4 years for construction/demolition
Option 4: Lifetime Achievement Extend life of dam by continuing to replace failing structures (*Impacts not considered in CER & little info provided by NB Power)*

Who is MSES?

The Maliseet hired MSES as their independent science advisors in 2012. For this project, MSES reviewed the CER in order to assess how well NB Power evaluated each proposed Option in terms of potential impacts to Maliseet culture and environment.

Technical Review Findings

Overall, review of the CER found that:

1) to adequately assess Options, more information is needed on current conditions,
2) the impact assessment in the CER is too general to make informed decisions, and
3) there is some uncertainty about what the actual impacts would be from each Option.

Traditional Land & Resource Use

•**Options 1 & 2** may have negative impacts on traditional lands due to construction of new dam facilities near Kingsclear.

•**Option 3** may reveal culturally important lands/ archaeological sites that are currently underwater.

•**All Options** may disrupt transportation routes during construction.

•Historical, ongoing & cumulative effects of the dam on Maliseet resources & land uses not assessed in the CER. A process to measure historical impacts from the dam should be developed. This is critical because **Options 1, 2 & 4** involve the continuation of existing impacts from the dam.

•**For Option 3**, unclear how/when the exposed islands & river banks would be restored to conditions that are suitable for traditional use.

•Unclear how Maliseet input will be meaningfully considered in Option selection, including info from the Traditional Land & Resource Use (TLU) study currently being completed.

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Water & Fish

- **Options 1 & 2** involve construction near/in the river and may result in the continuation of current impacts.
- **Option 3** may result in drastic changes to river flows, sediment, fish habitat & movement, navigation & possible increased ice jams.
- **Option 3:** Unclear whether Kingsclear & Woodstock would have water wells negatively impacted due to drop in water levels.
- **Options 1, 2 & 4** may result in downstream erosion impacts, especially at Kingsclear. These impacts were not addressed in CER.
- **All Options:** Information needed on how sediment moves in the river and how this may affect fish & fish habitat.
- **Options 1, 2 & 4:** the potential for methyl-mercury generation in the headpond should be researched and evaluated.
- **All Options**: sediments in the headpond may contain relatively high concentrations of contaminants. Potential for human exposure to contaminants should be measured.
- **Options 1, 2 & 4:** includes building fish passage structures, whereas **Option 3** would allow connectivity for migrating fish.

*Note – Critical info from the Mactaquac Aquatic Ecosystem Study (MAES) being conducted at the University of NB on water & sediment quality impacts not available.

Air & Noise

NB Power did not directly assess noise impacts on traditional resources or land users. Air quality impacts related to construction activities.

- **Options 1 & 2 and possibly 4** have long construction periods - may impact traditional land users and access to traditional wildlife species such as deer and moose.
- **Option 3** has relatively short construction period and removing the dam would likely reduce sound levels from existing conditions.

Wildlife & Plants

- **Options 1 & 2** involve removing vegetation during construction but also downstream vegetation may be impacted due to increases in erosion & sediment deposition. Could result in potential loss of plants & wildlife habitat near Kingsclear.
- **Option 3** both negative & positive effects on vegetation depending on how different plants adapt to changes in water levels.
- **All Options:** details needed on presence & abundance of key Maliseet plant resources in the areas to be affected by each Option.
- **Option 3:** difficult to assess where forests & wetlands may develop after water drawdown occurs; pre-dam vegetation maps/images needed to understand what landscape may look like after dam removal.
- **Options 1 & 2:** reclamation methods not provided.
- **Option 3:** Preliminary reclamation plans provided but unclear how plant communities would be re-established after water drawdown. Evidence that methods for re-establishing plant & wetland communities and use by wildlife are successful is needed.
- **All Options:** current habitat use by wildlife should be collected in order to assess whether changes in wildlife abundance, distribution or movement may occur under each Option.

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