P2456 Kiwetinohk Opal Transmission Project

Environmental & Land Use Effects

Desktop Evaluation

Prepared for the Alberta Electric System Operator

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INTRODUCTION

On August 29, 2023, The Alberta Electric System Operator (AESO) directed ATCO Electric Ltd. (ATCO) to prepare a desktop Environment and Land Use (ELU) Evaluation that shows a comparative assessment of the specified alternatives (1 and 3) for the Kiwetinohk Opal Transmission project (AESO Project No. 2456). This request for assessment comes as a result of the Service Proposal cost for preferred Alternative 1, coming in close to the projected cost of Alternative 3.

This ELU evaluation will summarize any environmental or land use risks, uncertainties or limitations associated with the specified alternatives, as well as indentify any areas where the development of transmission facilities would be prohibited or heavily constrained.

The alternatives considered in this report are limited to the components of the Opal Transmission project. The key datasets used in the evaluation of alternatives is listed below:

- IHS EGIS Data; Historic Resource Value Listing – Government of Alberta Digital Integrated Dispositions System – Government of Alberta
- Hydro Polygon – Alberta Data Partnerships 2016; Canadian Wetland Classification System Merged Wetland – Alberta Environment & Parks 2014; Fish & Wildlife Management Information System – Alberta Environment & Parks
- Geoadmin Layers – Alberta Data Partnerships 2016

The assessments and conclusions in this report are subject to availability of various data sets. No field level assessment was completed. The ELU evaluation of existing datasets does not preclude the need for a detailed environmental assessment during Facility Application preparation.

DESCRIPTION OF ALTERNATIVES

Alternative 1 consists of a T-tap connection to the existing 144 kV transmission line 7L199. This alternative includes the development of one new 144 kV transmission line, approximately 2 km in length, and the modification of associated, existing, transmission infrastructure to support the connection of the Market Participant's (MP) proposed facility to the Alberta Interconnected Electric System (AIES). Modifications required to the existing transmission infrastructure for Alternative 1, include upgrading the conductor on approximately 7 km of existing 7L199 transmission line (Fox Creek 741S substation to the T-tap location).

Alternative 3 consists of a radial connection to the existing 144 kV Fox Creek 741S substation. This alternative includes the addition of one new 144 kV circuit breaker at Fox Creek 741S substation, the development of one new 144 kV transmission line, approximately 7 km in length, and any modifications required to associated, existing, transmission developments.

Table 1: Description of Alternatives

Connection Alternative	Description	New 144 kV transmission line length (km)	Additional infrastructure
1	T-tap connection to 7L199	2	Upgrade 7 km of existing 144-kV transmission line 7L199
3	Radial connection to Fox Creek 741S substation	7	Add one 144-kV circuit breaker at Fox Creek 741S substation

REGIONAL FEATURES & LAND CONSTRAINTS

The project area (see Figure 1 below) is located within the Foothills Natural Region and the Central Mixedwood Subregion of Alberta. The Region contains variable terrain and a moist, cool climate, the lower slopes consist of rolling hills and plateaus with a mixture of grassland, deciduous, and mixedwood forests[1]. The Foothills Region has a productive timber industry, as well as intensive oil and gas exploration and some agricultural use.

Within a 10 km radius of Fox Creek, AB there are three Provincial Recreational Areas, however, none of these areas intersect the project area. No other National Parks, Wildland Parks, Natural Areas, Wilderness Areas, Ecological Reserves, Indian Reserve lands or Métis settlements are located in the vicinity.

The MP's proposed facility location is situated aproximately 1.2 km south of Fox Creek, on the south side of Highway 43. The landscape north of Highway 43, near the MP's proposed facility, is dominated by the Town of Fox Creek. The area surrounding Fox Creek is Crown land, and is predominantly forested, broken primarily by oil and gas and forestry activities. There are several quarter sections south of Highway 43, containing historical resource values (HRV 4 & 5).

There are numerous watercourses and small waterbodies within the project area. Large, open surface waterbodies are generally absent from the immediate project area. However, there is significant potential to encounter small wetlands, beaver floods and/or large wetland complexes.

There are no Key Wildlife ranges, restrictions or setback requirements located in the immediate vicinity, however, there is a Grizzly Bear Zone to the east, Trumperter Swan waterbodies to the north and a Key Wildlife and Biodiverstiy Zone to the west. None of these intersect the project area.

In close proximity to the Fox Creek 741S substation, there is a non-sensitive elemental occurrence (ACIMS[2]) of *Barbilophozia attenuata*, or Liverwort.

South of Highway 43, there are 2 unnamed watercourses, one of which contains 6 species of fish as listed on the Fish and Wildlife Internet Mapping Tool (FWIMT[3]).

[1] Alberta Biodiversity Monitoring Institute (ABMI), *The Status of the Human Footprint in Alberta*, https://abmi.ca/home/reports/2020/human-footprint/Natural-Regions
[2] Alberta Conservation Information Management System, ACIMS, https://www.albertaparks.ca/albertaparksca/management-land-use/alberta-conservation-information-management-system-acims/search-acims-data/
[3] Fish and Wildlife Internet Mapping Tool, FWIMT, https://geospatial.alberta.ca/FWIMT_Pub/Viewer/?Viewer=FWIMT_Pub

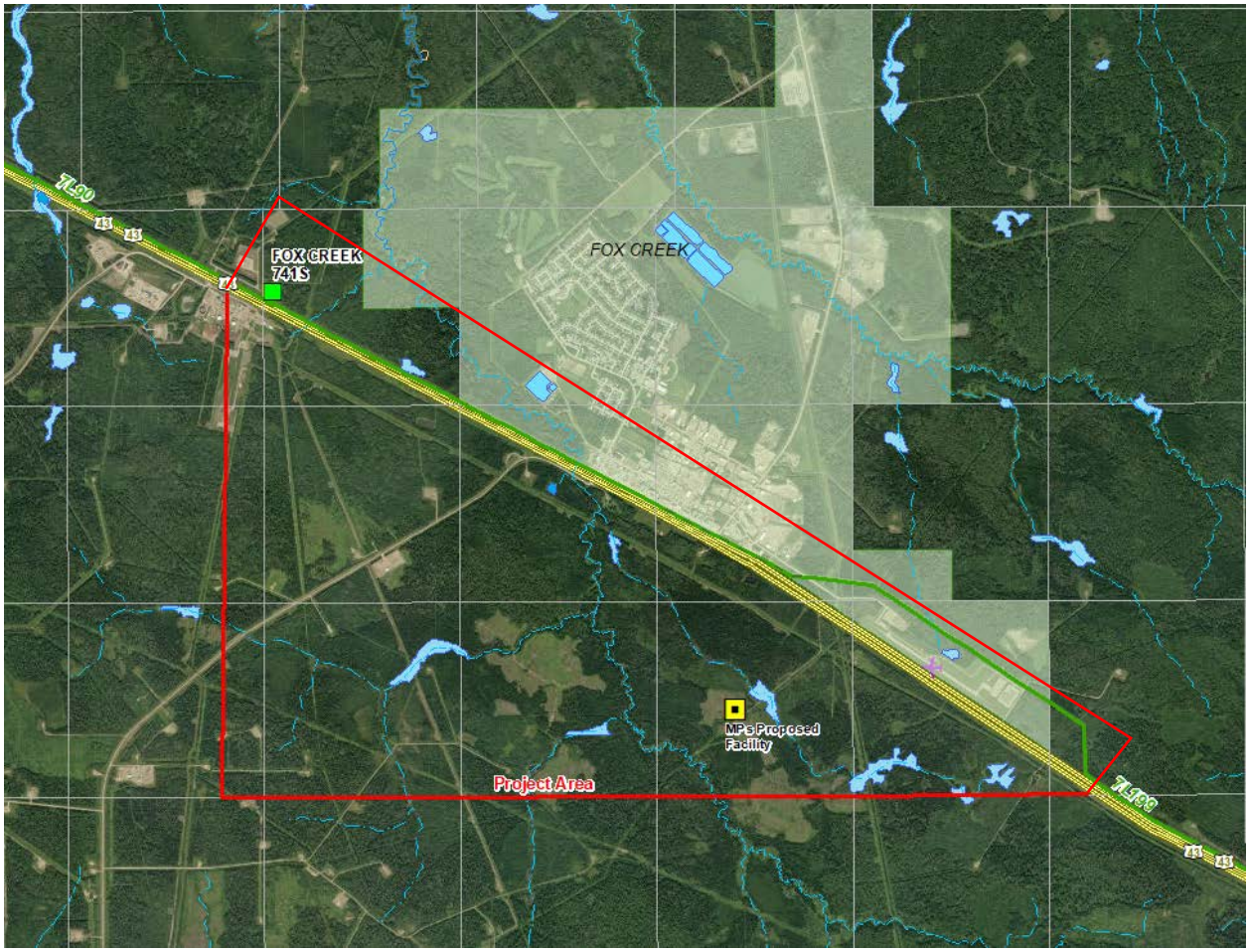

Figure 1: Project area

SUMMARY OF FINDINGS

The alternatives listed in this comparison are all located within an area of moderate industrial activity (e.g. oil & gas, forestry). The immediate area is already highly constrained due to existing oil and gas development, as well as the Town of Fox Creek. Both alternatives are anticipated to have a low potential for long term environmental impacts, however, the cumulative impact of length and area of new disturbance required is a leading factor in the land impact comparison.

Alternative 1 is anticipated to have the lowest potential impact on the land and environment, as the new development is shorter (2 km) and would follow existing features, including an existing ATCO distribution line and a developed oil and gas lease road. This alternative requires modification of transmission line 7L199 to accommodate conditions requested by the Town of Fox Creek, however, these modifications are located within the municipal boundary and allow for future municipal development.

Alternative 3 is anticipated to have a much larger impact on the land and environment due to the increased length of new development, as it involves the construction of 7 km of transmission line in a new corridor. While there are existing linear features (e.g. pipelines) that the new corridor can follow,

the increased footprint of vegetation removal and timber clearing required for this alternative makes it less attractive.

Sincerely,

ATCO Electric Ltd.

<Original signed by>

Nicole Hupka
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