

7.0 Cumulative effects and effects of the environment on the project

7.1 Overview

This section provides an overview of the other activities and projects that have occurred, are occurring, or will occur in the RSA. This includes effects from the environment, in terms of extreme weather and climate change. It examines the cumulative effects with the Project and whether the conclusions to any components of the biophysical or socioeconomic environment may change when these are examined.

7.2 Other projects and activities

7.2.1 Past and existing projects/activities

Past and ongoing activities in the RSA include agriculture, industrial, residential development, existing linear developments, traditional resource use and some commercial or recreational resource use. The primary agricultural activities in the RSA include cropping, livestock operations and aerial spraying. These activities have been occurring in the RSA well into the past, have substantially altered the natural environment that previously existed, and provide substantial economic benefits to the region. Access to farms and other businesses in the area are dependent upon a network of roads, with primary roads including Provincial Road 305, running north-south through the centre of the RSA, and Provincial Trunk Highway 1 – the Trans-Canada highway, running east-west on the north boundary of the RSA. The RSA includes several ‘impacted sites’ as defined under *The Contaminated Sites Remediation Act* (Manitoba). There are also several electric transmission and distribution lines, including the 230 kV line P81C in which this project will draw power, and two 115 kV lines (BP6 and BP7) running in an east-west direction that service the towns of Austin, McGregor and Carberry. Other past projects include railways (in use and decommissioned), pipelines, pipeline pumping stations, and a portion of the Portage Diversion channel that run through or adjacent to the RSA and have further reduced some of the natural areas. While the abandoned rail line has allowed some natural areas to return, the wildlife and associated activities such as hunting, fishing, trapping typically occur outside of the RSA, to the south and near the Assiniboine River or creeks to the west of the RSA.

More recent developments include the Simplot potato processing plant near Highway 1, in the northern portion of the RSA and the Enns Brothers dealership. A recent (July, 2016) tornado also damaged some of the shelter belts, natural areas and homes within and south of the RSA.

As a result of past and existing projects and activities, land conversion from natural prairie landscape to developed lands has occurred. Specific effects related to the above projects or

activities that have occurred in the past include the transition of natural vegetation to low-growing vegetation, the conversion of agricultural crop lands to impervious surfaces, habitat loss, increased noise, dust and traffic, potential for heritage effects, and effects to recreational activities.

Effects related to past and existing projects and activities that may overlap spatially and temporally with the proposed Project during operation and maintenance include visual or aesthetics effects and effects to agricultural producers as described under 6.4.7. The existing landscape is now primarily agricultural field, roads and transmission lines, and has been part of local resident's life for several generations. There is no substantive transition as a result of the Project being overlain on current conditions, and no apparent regional thresholds that will be exceeded with the presence of the Project. The ROW will continue to provide limited natural habitat, with an environment that supports low-growing plant species. Limited to no traditional and recreational activities currently occur on the ROW, but these can continue during operation of the Project.

7.2.2 Future projects/activities

Existing or future projects or activities known to be planned within the RSA include industrial development, several transmission lines and road infrastructure. The RM has indicated that there will be further development in the industrial parks to the northeast of the RSA, the most relevant of which will be the Roquette Portage Pea Project, which will be receiving power from the Project. Construction of this facility will begin in the summer of 2017 and continue until the summer of 2019. Construction of the Bipole III Transmission Project, a 500 kV high voltage direct current (HVDC) transmission line has been ongoing to the west of the RSA since 2014 and will continue until 2018. Manitoba Highways and Infrastructure has indicated that they will be conducting some road grading associated with the bridge construction of PTH 1W over the Assiniboine River – to the east of Portage la Prairie, from 2017 to 2018. They will also be installing a culvert at the railway crossing at Portage La Prairie, and relocating a 1.3 km section of the Yellowquill Trail in 2017.

Future projects and activities may contribute to land conversion from an agricultural landscape to other forms of developed lands, but the majority of other development is at the periphery or beyond the RSA. Project construction is anticipated to begin on the Portage Pea Project in August of 2017. Portage Pea Project construction will overlap temporally and spatially for some environmental components assessed for the construction phase of this Project, primarily through increased traffic to the RSA. Effects that may act cumulatively with the proposed Project operations include traffic, and associated issues with noise and dust and effects to agricultural producers as described under 6.4.7. The additional traffic by the Project is not expected to contribute to exceeding any road capacities.

7.3 Environmental Changes

7.3.1 Description

Effects of the environment on the Project refer to the forces of nature that could affect the Project physically or hamper the ability to carry out the Project activities in their normal, planned manner. Typically, potential effects of the environment on any project are a function of project or infrastructure design and the risks of natural hazards and influences of nature. These effects may result from physical conditions, landforms and general site characteristics that may act on the Project such that Project components, schedule and/or costs could be substantively and adversely changed.

While environmental forces (e.g., severe weather, climate change) have the potential to adversely affect the Project, good engineering design considers and accounts for these effects and the associated loadings or stresses on the Project that may be caused by these environmental forces. The methodologies used for mitigating potential effects of the environment on the Project are inherent in the planning, engineering design, construction, and planned operation of a well-designed Project expected to be in service for several decades or longer.

For the purpose of this EA, the effects assessment of potential effects of the environment on the Project is focused on the following effects:

- Delays in construction and/or operation and maintenance;
- Damage to infrastructure; and
- Reduced visibility impacting public health and safety.

7.3.2 Effects analysis

The assessment of the effects of the environment on the Project considers potential changes to the Project that may be caused by the environment. The Project will be designed, constructed, and operated in compliance with various codes, standards, beneficial practices, acts, and regulations that govern the required structural integrity, safety, reliability, and environmental and operating performance of the Project to minimize the potential for adverse effects of the environment on the Project.

There are no environmental factors that are expected to interact substantially with the construction of the Project. While some weather-related delays are possible, they are not likely to adversely affect the Project construction, schedule, or cost.

During operation and maintenance the transmission line could be subject to severe weather events. Manitoba Hydro designs its infrastructure to withstand extreme weather; however, it is not possible to design for all eventualities. Severe weather which has negatively affected the Manitoba Hydro system in the past includes tornados, ice storms and floods. There is potential

for any of these to occur in the Project RSA. Mitigation measures include, applying engineering practices and scheduling of activities to account for possible weather disruptions.

Over the next 100 years, Manitoba will likely experience warmer temperatures, a greater frequency of storm events, increasing storm intensity and an increase in annual precipitation. Potential effects of climate change on operation and maintenance of the Project would be related to increases in the frequency of severe weather events, changes in temperature and changes in precipitation. It is expected that increases in extreme weather events would potentially affect operation and maintenance of the Project by increasing unexpected maintenance due to storm damage. Changes in temperature could affect the freeze/thaw cycle which will result in decreased foundation stability and potentially increased maintenance. The Project will be designed, constructed, and operated in compliance with various codes, standards, beneficial practices, acts, and regulations that govern the required structural integrity, safety, reliability, and environmental and operating performance of the Project.

Mitigation measures include applying engineering practices and scheduling of activities to account for possible weather disruptions. Based on the above, the residual effects of the environment on the Project during all phases of the Project assessed as minor, with a moderate level of confidence because of the uncertainty in the potential changes to local, regional, and global climate that could occur over the life of the Project.