

10. ENERGY RESOURCES

This chapter describes potential impacts to energy resources from the proposed Port MacKenzie Rail Extension. Energy resources include fuel that would be consumed as a result of the proposed action and utility and pipeline corridors potentially affected.

10.1 Regulatory Setting

Council on Environmental Quality regulations for implementing the National Environmental Policy Act of 1969 (40 Code of Federal Regulations [C.F.R.] § 1502.16 (e)) state that proper consideration must be given to the energy requirements and conservation potential of various alternatives of a proposed project as well as mitigation measures.

Surface Transportation Board (STB) procedures for implementing environmental laws (49 C.F.R. § 1105.7) also require an analysis of a project's potential impacts to transportation of energy resources, recyclable commodities, overall energy efficiency, and diversions from rail to motor carrier.

10.2 Analysis Methodology

The Office of Environmental Analysis (OEA) analyzed the impact of proposed rail line alternatives on existing energy distribution infrastructure – namely, pipelines and transmission lines – by identifying crossings between each alternative and pipeline and transmission line rights-of-way. OEA also investigated whether energy resources or recyclable commodities were expected to be transported by the proposed rail line.

OEA analyzed energy requirements for the proposed rail line and compared fuel usage by trains to fuel consumption and availability in the region. In addition, OEA considered whether any diversion of freight between modes of transportation would be expected.

10.3 Study Area

The proposed rail line alternatives are all within the Matanuska-Susitna Borough (MSB or the Borough) and would link Port MacKenzie to the Alaska Railroad Corporation's (ARRC's or the Applicant's) main line. This is the relevant study area for analyzing crossings with existing energy distribution infrastructure. For analyses of potential impacts related to energy requirements, diversion of freight between modes of transportation, and transportation of energy resources and recyclables, the study area is Alaska, because the source and transportation modes of fuel to be consumed by the project would not be limited to the MSB.

10.4 Affected Environment

10.4.1 Project Area

Populations along the ARRC main line are served by the Alaska Railbelt Electrical Grid; the Matanuska Electric Association provides electricity. A major transmission line originates in the

Beluga Power Plant near Tyonek and reaches a bulk substation just south of the Port MacKenzie District. It then crosses the District to another bulk substation in Knik-Fairview, from which a secondary line travels roughly parallel to the ARRC main rail line to Willow and points north.

A pipeline carrying natural gas from Beluga to Wasilla also crosses the project area, west to east, along Ayrshire Avenue. The pipeline follows just north of Port MacKenzie Road until it reaches Knik Goose Bay Road.

10.4.2 State of Alaska

Proposed rail line construction and operation would require the consumption of diesel fuel for construction equipment and locomotives. Rural areas in Alaska depend on diesel fuel and heating oil for power and heating and often must barge or fly fuel in from refineries throughout the United States to be stored in tank farms for use after freeze-up (Alaska Energy Authority, 2007). In 2006, Alaska's consumption of distillate fuel (including diesel fuel used in trucks, locomotives, and agricultural machinery and fuel oil used for space heating and electric power generation) was almost 14 million barrels, which amounts to 0.9 percent of U.S. consumption of distillate fuel (DOE, 2006).

10.5 Environmental Consequences

10.5.1 Proposed Action

10.5.1.1 Common Impacts

Construction

The construction period is expected to last for 2 years, during which ARRC would use various forms of equipment, such as excavators, trucks, bulldozers, and cranes, to perform such activities as clearing and grubbing, grading, infrastructure and track construction, and site cleanup.

Energy consumption during the project-related construction period would be temporary and would place minimal additional demand on the local energy supply. Therefore, the impact of energy consumption during proposed rail line construction would be low.

Operation

During rail line operation, energy requirements would primarily be for operation of trains. OEA estimated approximate fuel consumption for train operation for the longest alternative (Mac West-Connector 1-Willow, 46 miles) assuming one round-trip (2 one-way trips) freight rail train per day with 3 locomotives, 80 rail cars, with a loaded weight of 125 tons per car and unloaded weight of 30 tons per car (ARRC, 2008a - Appendix J, 2008b). Travel both ways would consume less than 215,000 gallons per year, or less than 0.05 percent of the annual statewide consumption of distillate fuel of 585 million gallons (13,936 thousand barrels times 42 gallons per barrel [DOE, 2006]). Although additional diesel consumption would occur at the terminal reserve area and track sidings, the total demand for diesel generated by the proposed rail line would remain a very small share of the annual statewide consumption of distillate fuel.

While a variety of commodities, including recyclable commodities and energy resources such as coal and natural gas, have been considered as possible materials to be shipped along the proposed rail line, the exact commodities to be shipped is unknown at this time. As a result, the impact of the proposed rail line on the transportation of energy resources and recyclable commodities remains unknown.

No diversion from rail to motor carrier traffic is anticipated as a result of proposed rail line operation. Because moving freight by rail is generally more efficient than moving freight by truck (Federal Railroad Administration, 2009), OEA expects energy consumption to decrease, to the extent that truck traffic to and from Port MacKenzie would be replaced by rail transportation.

10.5.1.2 Summary of Potential Impacts by Rail Line Alternative

Construction

All alternatives would cross the energy transmission line that traverses the Port MacKenzie District. The Big Lake, Houston South, and Houston North segments would cross a secondary energy transmission line that departs from the bulk substation in Knik-Fairview (following north along the ARRC main line) near the main rail line. ARRC would need to ensure that industry standards are met and disruption minimized if any relocations or alterations to pylons (the towers supporting the lines) would be needed, and would need to coordinate any alterations with line owners.

The Connector 1, Connector 3, Connector 3 Variant, and Big Lake segments would cross the Beluga-Wasilla natural gas pipeline. Application of appropriate construction industry standards should minimize any chance of disruption during construction. OEA does not anticipate any disruption to this pipeline or short-term effects on pipeline safety as a result of proposed rail line construction.

Operation

Train operation energy requirements depend on distance and grade, among other factors. Estimates provided by the Applicant in the Preliminary Environmental and Alternatives Report (ARRC, 2008a - Appendix J) show energy consumption varying within a 25 percent margin around the median energy consumption for all alternatives.

The Connector 1, Connector 3, Connector 3 Variant, and Big Lake segments would cross the Beluga-Wasilla natural gas pipeline. OEA does not anticipate any disruption to this pipeline or long-term effects on pipeline safety as a result of proposed rail line operation.

10.5.2 No-Action Alternative

Under the No-Action Alternative, ARRC would not construct and operate the Port MacKenzie Rail Extension. Truck-to-rail diversion of freight and any associated reduction in fuel consumption would not occur.

10.6 Unavoidable Environmental Consequences of the Proposed Action

OEA is not recommending mitigation measures for potential impacts to energy resources because OEA concluded that such impacts from construction and operation of the proposed rail line would be minor. As described above in Section 10.5.1, potential unavoidable impacts from rail line construction and operation would include all segments crossing under a transmission line between Tyonek and Port MacKenzie District; the Big Lake, Houston South, and Houston North segments crossing under a transmission line between Knik Fairview and Willow; and the Connector 1, Connector 3, Connector 3 Variant, and Big Lake segments crossing a gas pipeline that runs along Ayrshire Road. However, the Applicant would need to employ appropriate construction industry standards to minimize any potential to disrupt the provision of energy resources.