

Chapter 21

Irreversible and Irretrievable Commitment of Resources

To facilitate comparison of the build alternatives, the National Environmental Policy Act (NEPA), 42 United States Code (U.S.C.) § 4331, requires a consolidated discussion of environmental consequences to focus on any irreversible and irretrievable commitments of resources. This chapter discusses the effects of the proposed rail line with regard to irreversible and irretrievable commitments of resources. Irreversible resource commitments represent a loss of future options. An irreversible commitment applies primarily to the use of nonrenewable resources, such as cultural resources or fossil fuels, and to resources that are renewable only over long time spans. An irretrievable commitment of resources represents renewable resources, such as human effort or opportunities that would be lost while the proposed rail line is constructed and in operation.

Construction and operation of the proposed rail line would result in the commitment of natural and human-made resources. The primary commitment of resources would come from the construction phase, but some resources would be committed for operation of the rail line as well. The following discussion addresses resource commitments for construction and operation of the proposed rail line, beginning with the physical materials required and then specific resource types as appropriate. In general, the commitment of resources would be similar for all build alternatives. Under the No-Action Alternative, no resources would be committed.

21.1 Construction Materials

Construction materials would be committed if the proposed rail line is constructed. TRRC would need construction materials to build the track structure (e.g., ballast, subballast, rail ties, and steel rail), track sidings and set-outs, fences, power distribution lines, access roads, grade-separated crossings, rail bridges, culverts, support facilities, and communication towers. Construction materials would be irretrievably committed during construction of the proposed rail line, with longer build alternatives requiring more construction materials. The Tongue River East Alternative would be the longest build alternative (86.3 miles), and the Colstrip Alternative would be the shortest (42.3 miles).

21.2 Physical Setting

Construction of the proposed rail line would permanently alter topography. Most of the build alternatives could encounter bedrock at varying depths and locations during construction, and

any bedrock encountered during construction would need to be permanently removed, which would be an irreversible change. Subballast would be available at most rock quarries in the project area. Quarries near Forsyth are capable of producing the subballast material in the quality and quantity needed for the proposed rail line. Construction activities would irreversibly affect soils classified as unsuitable for construction that would need to be removed and replaced with suitable material to support the rail line. Large cut slopes for construction would have a high potential for erosion, but a long-term impact would be prevented if the erodible soils were revegetated and stabilized following construction.

21.3 Groundwater and Surface Water Use

TRRC plans to use water for dust suppression and soil compaction during construction. The construction contractor would coordinate the purchase of water rights from the Tongue River, the Yellowstone River, water wells, or a combination thereof. Therefore, groundwater or surface water could be the partial or sole source of water during construction. The use of groundwater and surface water could be an irretrievable commitment of resources during the construction phase. The greatest amount of water during construction would be required for the Moon Creek East Alternative (2,404 acre-feet). This water would be replenished through the natural water cycle following the rail construction process.

21.4 Wetlands

Construction of the proposed rail line and associated facilities would irreversibly remove wetlands, ranging from 8.1 to 33.3 acres, depending on the build alternative. In addition, temporary construction disturbances to wetlands would result in irreversible changes. The permanent conversion of wetlands along the proposed rail line and at associated facilities would represent an irreversible rather than an irretrievable commitment of wetland resources because the proposed rail line would be permanent. If wetlands adjacent to the right-of-way are affected by construction of the proposed rail line, any loss of wetland function could be an irretrievable loss if the wetlands were not restored to full function.

21.5 Biological Resources

Construction of the proposed rail line and associated facilities would irreversibly remove and alter vegetation and wildlife habitat. The impacts would range from approximately 1,899 to 4,111 acres within the right-of-way, depending on the build alternative. The permanent conversion of vegetation resources and wildlife habitat along the proposed rail line and at associated facilities would represent an irreversible commitment of biological resources. An irreversible commitment of biological resources would also occur if temporarily affected

vegetation did not recover. Losses of wildlife during rail line construction and operation would represent an irretrievable commitment of biological resources.

Impacts on the endangered black-footed ferret, interior least tern, and whooping crane from increased noise and disturbance from construction and operation the proposed rail line could represent an irretrievable impact. Impacts on candidate greater sage-grouse and Sprague's pipit from increased noise and disturbance from construction and operation of the proposed rail line could represent an irretrievable impact. With implementation of impact avoidance and minimization measures, OEA has determined that the proposed rail line *may affect, but is not likely to adversely affect* these species (Appendix L, *Biological Assessment*).

21.6 Cultural Resources

Cultural resources (archaeological sites, tribal resources, and built resources) are nonrenewable resources, and any loss of such resources would be irreversible. OEA assessed the sensitivity of archeological sites for the total acreage (both surveyed and unsurveyed) of each build alternative by conducting field surveys and using this information to extrapolate site-sensitive information for unsurveyed areas. Using this method, the proposed rail line would damage or destroy from 1,391 acres to 3,372 acres with a high likelihood of archaeological sites. Unlike resources with archaeological materials, OEA did not attempt to estimate or predict the likelihood of tribal resources that may be located in unsurveyed areas because tribal resources are often spiritual in nature and not necessarily predictable based on factors such as topography, soils, or distance from water. However, for the areas surveyed within the rights-of-way, tribal members found the most tribal resources along the Decker Alternatives and the fewest along the Colstrip Alternatives and Moon Creek Alternatives. For built resources in the right-of-way where OEA conducted field surveys, the proposed rail line would damage or destroy from three to eight built resources. In areas not surveyed, the proposed rail line would damage or destroy from zero to ten built resources. If the Board authorizes construction and operation of the proposed rail line, TRRC would follow the Programmatic Agreement¹ to minimize the impacts on cultural resources.

21.7 Land Use and Ownership

Construction and operation of the proposed rail line would require the commitment of land for the rail line, access roads, and associated facilities. The locations of several support facilities, such as the communication towers, power distribution lines, and other facilities would be determined during final project engineering and design. However, the vast

¹ Provided as Appendix P, *Programmatic Agreement*, to this Draft EIS, the Programmatic Agreement stipulates measures that would be taken to complete the identification and evaluation efforts in accordance with C.F.R. Part 800.4(b)(2) and to phase the application of the criteria of adverse effect in accordance with 36 C.F.R. Part 800.5(a)(3). It also outlines measures that would be taken to avoid, minimize, or mitigate the effects on historic properties and tribal sites of significance in accordance with 36 C.F.R. Part 800.6(a).

majority of land required for the proposed rail line would be required for the right-of-way. OEA estimated that the proposed rail line right-of-way would require a minimum of 2,040 acres and a maximum of 4,234 acres of land. Landowners within the rights-of-way of the build alternatives include private, federal (Bureau of Land Management and U.S. Department of Agriculture), state (Montana Department of Natural Resources and Montana Fish, Wildlife & Parks), and local (City of Miles City) entities. The proposed rail line would be a permanent feature of the landscape. It is not likely that all of the natural landscape would be restored, and most of the changes would remain irreversible. Loss of recreational land uses would be irretrievable, including the loss of recreational areas within the right-of-way. Depending on the build alternative, a maximum of 422 acres of conservation easements, 1,177 acres of Block Management Areas, 229 acres of Tongue River Ranch, and 53 acres of Pumpkin Creek Ranch would be acquired and converted to right-of-way. A maximum of two residences and 27 other structures would be permanently removed from the right-of-way.

21.8 Energy Resources

All construction activities for the proposed rail line would consume fuel, mostly in the form of diesel fuel for construction equipment and vehicles. This would be an irreversible use of nonrenewable fossil fuels. Operation of trains on the proposed rail line would also require an irreversible commitment of fuel resources, mostly in the form of diesel fuel for locomotive operation. OEA estimated diesel fuel usage for construction and operation of the proposed rail line. Construction of the Moon Creek East Alternative would consume the most diesel fuel for earthwork, bridge construction, operation of construction supply locomotives, and operation of construction workforce vehicles (24.20 million gallons). Construction of the Colstrip Alternative would require the most road relocation and associated diesel fuel consumption for road paving and construction-related transportation (169,600 gallons). The Tongue River East Alternative, the longest build alternative (86.3 total track miles), would consume the most diesel fuel during operation (7.35 million gallons per year under the high coal production scenario). See Appendix C, *Coal Production and Markets* for further details on the coal production scenarios.