

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 INTRODUCTION

This chapter includes a detailed assessment of the effects of the proposed action on various environmental elements including geology, soils and seismicity, hydrology and water quality, vegetation and wildlife, fish, air quality, traffic, visual quality and aesthetics, cultural resources, land use, socioeconomics, public services and health and safety.

3.1.1 Mitigation Measures

The sections of this chapter which address each environmental element include a discussion of mitigation measures. Mitigation measures are measures taken to avoid or reduce environmental impacts. Two kinds of mitigation measures are described in this chapter, measures included in the proposed project and recommended mitigation measures. The mitigation measures included in the proposed project are those mitigation measures that the Umatilla Generating Company, L.P., has proposed in its application to EFSC for a site certificate. The environmental analyses contained in this chapter were made assuming that these mitigation measures would be implemented as part of the proposed project.

Recommended mitigation measures are measures that would further reduce the environmental impacts of the proposed project. If the proposed action is approved, these mitigation measures will be considered for inclusion in the Record of Decision.

3.1.2 Environmental Impacts of the No Action Alternative

If the No Action Alternative were selected, neither the Umatilla Generating Project nor the connection to the regional electric power transmission grid would be built. The proposed project's contribution to the need for more electrical power in the region would be foregone. Because no physical facilities would be built, the No Action Alternative would have no adverse effects on the environment, other than the unmet need for additional generating capacity in the region.

3.1.3 Significant and Unavoidable Impacts of Proposed Project

An assessment of the impact of the proposed action on various elements of the environment is contained in this chapter. The assessment concludes that the proposed action, including the mitigation measures proposed by the project proponent, would have no significant and unavoidable adverse impacts on the environment. In some cases, additional mitigation measures are suggested and may be implemented by the project proponent. However, the additional mitigation measures are not needed to achieve a level of adverse environmental impact that is less-than significant.

**Table 3.1:
Summary of Affected Environment and Environmental Consequences**

ENVIRONMENTAL RESOURCE	EXISTING CONDITIONS	IMPACT OF PROPOSED ACTION/MITIGATIONS *	IMPACT OF NO ACTION ALTERNATIVE
Geology and Seismicity	The project is sited within the Yakima Fold Belt (YFB) of the Columbia Plateau with fault and fold structures that are still in formation today. Seismicity is distributed along the east-west-striking compressive faults and folds of the YFB.	3.2.2 Safe operation of the plant is subject to ground-shaking and post-construction soil movement. Geotechnical investigations and seismic studies would provide information to properly design the facility in accordance with current standards.	No change in the existing conditions would result.
Topography and Soils	Topography of the project area is relatively flat, ranging in elevation from 213 meters (700 feet) to 91 meters (300 feet) above msl. Slopes are generally less than 5 percent. Soil series identified within the project area are largely formed in gravelly alluvial deposits interbedded with fine-grained material that is well-drained to excessively drained. Some are well suited for irrigated crops, and some are prone to wind erosion.	3.2.1 Construction of the project would entail some clearing and grubbing, grading and land leveling, excavation and heavy equipment operation. These activities would be limited to a 6-hectare (15-acre) area at the power plant site, and an approximately 8-kilometer (5-mile) long and 30-meter (100-foot wide) gas pipeline corridor, and other shorter pipeline segments. Construction activities would increase the potential for sediment transport and soil erosion. Temporary erosion and sediment control measures would be used to minimize these impacts during construction. Permanent measures such as revegetation would enhance protection against impacts in the long term. <u>Recommended mitigation measures.</u> Construct proposed project in the dry season to the extent practicable.	No change in the existing conditions would result.

ENVIRONMENTAL RESOURCE	EXISTING CONDITIONS	IMPACT OF PROPOSED ACTION/MITIGATIONS *	IMPACT OF NO ACTION ALTERNATIVE
Hydrology	<p>The area of concern is the Columbia-Umatilla Plateau hydrologic sub-basin. Flow in all major rivers and creeks (Columbia River and Umatilla River) in the study area are extensively managed. Most of the surface water in streams in the Umatilla Basin has been appropriated for agricultural use. There is a moratorium on granting new water rights on the Columbia River. There is a deep aquifer and a shallow aquifer beneath the project area.</p>	<p>3.3.1 Water for operation of the proposed power plant will be supplied by the Port of Umatilla's regional water supply system. The amount of water the Port of Umatilla would divert from the Columbia River for the proposed power plant would represent 0.005% of the river discharge during the low flow period. Water use would be minimized at the proposed power plant by a recirculating cooling system.</p>	<p>No change in the existing conditions would result.</p>
Water Quality	<p>The quality of the Columbia River water in the reach closest to the project area is good. Groundwater in the area where cooling system water would be applied to crops is of moderate quality.</p>	<p>3.3.2 Sanitary sewage, process blowdown, cooling system blowdown and storm water runoff would be generated by the proposed power plant site. An on-site septic tank and leach field would treat the small volume of sanitary sewage. Process blowdown would be recycled in the cooling system. Cooling system blowdown, essentially clean water with elevated total dissolved solids content, would be reclaimed for irrigation of cropland. Storm water runoff would be discharged to a lined detention basin where most of it would evaporate. These actions would eliminate the need for discharge to surface waters and minimize effect on surface and groundwater quality.</p> <p>3.3.3 Various chemicals would be stored at the proposed power plant site in permanent above-ground storage tanks and in temporary containers (totes). All chemical storage would be in curbed concrete areas. In case of a spill, design features such as this secondary containment area, and the lined detention basin acting as a tertiary treatment would enable safe removal of the chemicals by a licensed spill response contractor without contamination of groundwater.</p>	<p>No change in the existing conditions would result.</p>

ENVIRONMENTAL RESOURCE	EXISTING CONDITIONS	IMPACT OF PROPOSED ACTION/MITIGATIONS *	IMPACT OF NO ACTION ALTERNATIVE
<p>Vegetation and Wildlife</p>	<p>Vegetation in the project area has been extensively altered by human activities. Highways, industrial facilities, agriculture, and rural residences have replaced native plant species with engineered structures or introduced species. The elimination of the native shrub-steppe vegetative community throughout much of the area has resulted in a decline or loss of wildlife species that depend on this habitat.</p>	<p>3.4.1 Permanent removal of non-native weedy plants sparsely covering the 15 acres upon which the power plant will be constructed would occur. The few new transmission towers to be erected would permanently alter less than one acre of area. A 50 to 100-foot wide swath of vegetation would be removed during construction of the natural gas and water pipelines. This vegetation would be restored once construction is complete. Very minor, temporary disturbance of vegetation around the existing transmission line would occur during reconductoring. Most reconductoring activity will be conducted from existing maintenance roads.</p> <p>3.4.2 The deposition of cooling tower drift on vegetation would have minor beneficial effect to agricultural crops in the area as macronutrients commonly used as fertilizers (including nitrates) would be components of the drift. Saline drift from the cooling tower is not anticipated to adversely impact crops as the salt deposition would be at a lower rate than what has been shown in studies to be harmful to crops. The area just east of the power plant site and supports one of the few stands of only slightly degraded native vegetation in the vicinity of the proposed project and it would be subject to the most intense deposition from the cooling towers, though deposition rates of salt and macronutrients are expected to be very low. In addition, cooling tower drift would be minimized and total dissolved solid content monitored to ensure that deposition rates would be below rates that would result in an adverse impact on surrounding vegetation.</p> <p>3.4.3 Noise and human activity resulting from construction of the proposed power plant would affect wildlife, particularly nesting bird species in the area. Construction activity would therefore avoid the nesting season to the extent possible, or else a contribution to the Oregon Wildlife Fund or a non-profit organization like the Nature Conservancy that purchases and manages native wildlife habitat within the same physiographic province as the proposed project would be made.</p> <p>3.4.4 There is the potential for bird (raptor) mortality as a result of collision with power lines. All new transmission towers would be designed in accordance with accepted standards for avoidance of electrocution of raptors.</p>	<p>No change in the existing conditions would result.</p>

ENVIRONMENTAL RESOURCE	EXISTING CONDITIONS	IMPACT OF PROPOSED ACTION/MITIGATIONS *	IMPACT OF NO ACTION ALTERNATIVE
Fish	Columbia River supports steelhead trout and three species of salmon and represents a fishery resource of global importance. The fishery is depleted as a result of overfishing and habitat destruction.	3.5.1 Average annual water demand at the project would be 0.15 cubic meters per second. The water diverted under the Port of Umatilla's existing water right and provided for the proposed project would represent about 0.005 % of river discharge during the low flow period and about 0.01% during extreme droughts. Such a small change in river discharge would not be expected to have any effect on the Columbia River fishery. In addition, the proposed project would include a number of features that minimize water use.	No change in the existing conditions would result.
Air Quality	Eastern Oregon has a dry, continental climate (low humidity), with large variations in temperature from winter to summer. The proposed power plant site is located in an area currently designated as unclassified or in attainment of all state and national Ambient Air Quality Standards (AAQS).	3.6.1 Best Available Control Technology for air pollutants has been incorporated into the design of the power plant to reduce emissions of criteria pollutants. Air quality modeling indicated that the measures included in the power plant as proposed would be adequate to mitigate the potential impacts of emissions.	No change in the existing conditions would result.
Traffic and Circulation	Important roadways in the project area include Interstate Highways 82 and 84, State Highway 207, Westland Road and Lamb Road. The results show LOS A with little or no delay for northbound left turns along Westland Road. Critical turning movements for stopped vehicles along Lamb Road show only short delays of 10 to 15 seconds, resulting in LOS B.	3.8.1 The small increase in traffic travelling through the intersection of Lamb Road and Westland Road as a result of proposed power plant operations would cause little or no perceptible change to level of service. 3.8.2 As a result of construction of the proposed power plant, short-term delays are expected during the AM Peak at the I-82 Southbound Ramp/Lamb Road intersection and during the PM peak at Lamb Road and Westland Road. <u>Recommended mitigation measures.</u> Vanpooling of construction workers and other temporary traffic reduction measures.	No change in the existing conditions would result except for background increases in traffic levels.
Visual Quality and Aesthetics	Project area is largely open agricultural lands used for grazing and growing crops. The proposed power plant site and immediate surrounding area is primarily zoned for industrial use and already	3.9.1 Elements of the proposed power plant would be able to be seen up to two miles away, with the most visible elements being the exhaust stacks. The vapor plumes and night lighting would add to the overall visibility of the proposed power plant. The plant would not significantly alter the visual character of this already industrial area. The proposed power plant would not be visible from either of the scenic areas designated in the Umatilla County	No change in the existing conditions would result.

ENVIRONMENTAL RESOURCE	EXISTING CONDITIONS	IMPACT OF PROPOSED ACTION/MITIGATIONS *	IMPACT OF NO ACTION ALTERNATIVE
	<p>occupied by several industrial facilities including the Hermiston Generating Plant (with two exhaust stacks) and the Lamb-Weston potato processing plant. Within the five mile (eight kilometer) radius of the proposed power plant site, the Umatilla County Scenic-Historic Road is the only identified visual resource from which the power plant might be visible</p>	<p>Comprehensive Plan, the Umatilla County Scenic-Historic Road and the McNary Lock and Dam. Measures would be taken to minimize visual impact of plant such as using neutral colors and non-reflective paint.</p> <p>3.9.2 Construction of the proposed power plant, and supporting facilities would have short-term impacts on visual quality from equipment such as cranes, scaffolding, etc, being visible. Additional impacts may occur from dust and construction lighting. Mitigation including removing equipment when not in use, applying water to the site to control dust, and using shielding and directive devices on lighting during nighttime construction is expected to reduce the impacts to less than significant levels.</p> <p>3.9.3 The new transmission line on new towers at McNary Substation would be visible but not inconsistent with the current visual quality of the area, known for the many power lines that crisscross the area.</p>	
<p>Cultural Resources</p>	<p>Known sites in the vicinity of the proposed project include a multi-component site atop Hermiston Butte (35UM9); a small lithic scatter located along the Umatilla River (35UM58); and a historic can dump on the Umatilla Chemical Depot (35UM16). None of these sites is located near the components of the proposed project. With the exception of sites 35UM 9 and 16, all the known cultural resources are closely associated with the Columbia or Umatilla rivers. In addition, two properties close to the proposed power plant and its components are potentially eligible for nomination to the National Register of Historic Places: the High Line and West Extension irrigation canals.</p>	<p>3.10.1 The proposed natural gas pipeline alternatives must pass over or under the High Line Canal. To avoid any adverse effects on the canal this section of the pipeline would be installed by boring under the canal rather than trenching through it. A reconducted electrical transmission line would pass over the West Extension Canal. None of the activities associated with reconductoring the transmission line would affect the canal.</p> <p>3.10.2 To avoid adverse affects on unidentified cultural resources during construction, personnel would be instructed in the identification of cultural materials and directed to halt ground-disturbing activities in the vicinity of a find until a qualified archeologist can evaluate the significance of the find.</p>	<p>No change in the existing conditions would result.</p>

ENVIRONMENTAL RESOURCE	EXISTING CONDITIONS	IMPACT OF PROPOSED ACTION/MITIGATIONS *	IMPACT OF NO ACTION ALTERNATIVE
Land Use, Plans, and Policies	The project area is within two local jurisdictions: Umatilla County and the City of Umatilla. Comprehensive plan designations and zoning ordinances from these jurisdictions define land use for the area.	<p>3.11.1 The construction of the proposed power plant will change current land use. The Umatilla Generating Project would comply with the County of Umatilla and the City of Umatilla comprehensive plans as either permitted or conditional uses.</p> <p>3.11.2 The project would result in the intensification of industrial activity in an area that is designated for that use. However, the project is not expected to result in land use incompatibilities. Short-term land use incompatibility issues such as noise and dust would be mitigated by construction management practices developed to minimize dust and noise to reduce potential nuisances to nearby land uses.</p>	No change in the existing conditions would result.
Socioeconomics	Umatilla County population in 1999 was 68,000. Housing is somewhat limited. Total 1999 employment for Umatilla County was 33,963, with an unemployment rate of 6.5%. In 1999, the county tax base (net real market value of property) was approximately \$3.6 billion.	<p>3.12.1 Construction of the proposed power plant would result in a short-term population increase, and less likely, a long-term increase during plant operation. To minimize the possibility of adverse affects on housing supply, construction workers and full-time plant operation employees would be hired from the local communities, to the extent practicable. Positive affects on the economy would result from the population of workers associated with the project and money spent in the area.</p> <p>3.12.2 The project would increase short-term and long-term employment opportunities producing a positive affect on Umatilla County.</p> <p>3.12.3 Property taxes generated by the project would be \$4.3 million annually. This would produce a positive affect in the form of payments to the County's general fund, the Port of Umatilla, Hermiston School District Bonds, fire district, and Umatilla County Special Library, among others.</p>	No benefit of tax dollars to Umatilla County.
Public Services and Utilities	Utilities such as water supply, wastewater treatment, solid waste removal, storm water management, and services such as police and fire protection, schools, libraries, health care are all at or below capacity.	<p>3.13.1 Utilities will not be adversely impacted by the proposed power plant as the activities will either occur on-site or will be able to be provided by the local communities without jeopardizing the current level of service.</p> <p>3.13.2 Public services will be supplied by the local communities to the proposed power plant and any increase in population. The level of service is not anticipated to change as a result of services provided to the proposed power plant.</p>	No change in the existing conditions would result, except an increase in demand for services with the current growth rate.

ENVIRONMENTAL RESOURCE	EXISTING CONDITIONS	IMPACT OF PROPOSED ACTION/MITIGATIONS *	IMPACT OF NO ACTION ALTERNATIVE
<p>Health and Safety</p>	<p>Potential hazards and safety issues to be addressed include occupational health and safety; fuel management; use, handling, and storage of hazardous non-fuel substances; fire protection; solid and liquid waste disposal; electric shock hazard; and electric and magnetic fields. The only pre-existing condition is the electric shock hazard and electric and magnetic fields created by the existing transmission line connecting the Hermiston Generating Plant to the McNary Substation.</p>	<p>A comprehensive occupational health and safety program is proposed to protect workers during all phases of construction and operation of the power plant. The program would meet or exceed all Federal, state, and local requirements.</p> <p>3.13.1 The possibility of natural gas leakage and related fire risk as a result of the proposed power plant would be minimized by constructing the natural gas pipeline in accordance with the requirements and designing the fuel control system of the gas turbines with the necessary isolation and shut-off valves.</p> <p>3.13.2 , 3.13.3, and 3.13.4 Spills of diesel fuel or non-fuel substances stored on-site would be prevented to the extent possible through correct storage conditions and training of personnel who would handle the substances. Curbs would be installed at all chemical storage areas. If a spill occurs, it would be contained in the curbed concrete containment area until it can be removed by a licensed spill contractor.</p> <p>3.13.5 To reduce the threat caused by fire to people and structures at or near the proposed power plant, a complete fire protection system would be installed within the buildings and yard areas at the proposed power plant site.</p> <p>3.13.6 To reduce the risk of electrical shock the transmission line would be designed so that induced currents resulting from the transmission line and related facilities would be as low as reasonably achievable and all permanent structures are grounded.</p> <p>3.13.7 To reduce electric and magnetic fields, overall field reduction will be achieved by rearranging the conductors of the second 230-kV circuit so the phases are A-phase, B-phase, and C-phase (top to bottom) on one side of the tower, and C-phase, B-phase, and A-phase (top to bottom) on the other side. Some increase in EMF will occur in some locations but absolute levels will be relatively low.</p>	<p>In large part, no change in the existing conditions would result, except that reconductoring the transmission line would result in a reduction in electric and magnetic fields.</p>

ENVIRONMENTAL RESOURCE	EXISTING CONDITIONS	IMPACT OF PROPOSED ACTION/MITIGATIONS *	IMPACT OF NO ACTION ALTERNATIVE
Noise	<p>The Umatilla Generating Project would be located in an industrial area near the city of Hermiston.</p> <p>There are several significant noise sources in the vicinity of the proposed power plant site including Interstate Highways 82 and 84 (I-82 and I-84), a railroad line, the Hermiston Generating Plant (a 474 MW combustion turbine electric power generation plant similar to the proposed power plant) and a food processing facility. The nearest sensitive receptor is 1,900 feet away from the proposed power plant site.</p>	<p>3.13.9 Operation of the proposed power plant would cause noise from the combustion turbines and generators, auxiliary equipment in enclosure, the heat recovery steam generator, the steam turbine, the transformers and the cooling towers. The design of the power plant includes a number of features to reduce noise emissions. The proposed power plant would comply with Oregon's noise standards for new industrial and commercial sources.</p> <p>3.13.10 Construction of the proposed power plant would involve the operation of a range of construction equipment including light and heavy trucks, backhoes, bulldozers, graders, cranes, air compressors, welding machines and power hand tools. To reduce noise impacts on nearby residences during construction of the proposed project, most heavy construction work would be scheduled to occur during daylight hours when people are generally less sensitive to noise.</p>	No change in the existing conditions would result.

* Recommended mitigation measures are shown in table. If no mitigation measures are shown, none are recommended.