EXECUTIVE SUMMARY

Introduction

Diamond Wanapa I, LP, (DW) a Diamond Generating Corporation company, and the Confederated Tribes of the Umatilla Indian Reservations (CTUIR), in conjunction with the City of Hermiston, the City of Eugene acting through Eugene Water & Electric Board, and the Port of Umatilla, entered into an agreement to develop and construct a greenfield combined cycle gas/steam turbine (CCGT) electric generating facility. The proposed combined cycle facility is to be known as the Wanapa Energy Center (the "project") and would be located on land held in trust by the United States (U.S.) Government for the benefit of the Tribes near Hermiston, Oregon.

In accordance with the National Environmental Policy Act of 1969 (NEPA), the Bureau of Indian Affairs (BIA) is preparing an Environmental Impact Statement (EIS) for the proposed Wanapa Energy Center Project. The BIA published a Notice of Intent (NOI) on the Wanapa Energy Center Project in the Federal Register dated October 22, 2001. The BPA and Bureau of Reclamation (BOR) are cooperating agencies for this EIS.

Purpose and Need

For the CTUIR, the purpose of and need for the power plant project is to provide a new source of revenue to CTUIR that would: 1) enhance opportunities for future economic development on the Reservation and Tribal trust lands, 2) provide a new diverse source of funding for Tribal health, education, and social services; and 3) offer the opportunity to develop a Tribal electrical distribution utility that would serve Tribal members. The overall purpose of the Wanapa Energy Center Project is to provide a reliable, cost-effective, and environmentally acceptable electric generation source to satisfy base and peak electricity demands within the region. The project would provide electrical power to the local and regional pool, while generating an economic return to project participants.

Agency Decisions

The Bureau of Indian Affairs (BIA)

The BIA must decide whether to grant, or not to grant a lease to the project so that power generation facilities (Wanapa Energy Center) could be constructed on lands located in Section 7, Township 5 North, Range 29 East, held in trust by the United States for the beneficial owners, the CTUIR.

Bonneville Power Administration (BPA)

The BPA must decide whether or not to connect a transmission line from the Wanapa Energy Center to the BPA McNary Substation, and whether to enter or not enter into contracts to interconnect the BPA McNary Substation with the Wanapa Energy Center, and integrate the project's power into the Federal Columbia River Transmission System (FCRTS). The BPA also would decide whether to build or not to build the transmission line, if requested by the developer.

Bureau of Reclamation (BOR)

The BOR must decide whether to grant or not grant easements and other crossing approvals for construction of a Wanapa Energy Center pipeline that would transport plant discharge water to Cold Springs Reservoir, and to allow or not allow storage of this water in Cold Springs Reservoir for beneficial use (irrigation).

Project Alternatives

Two alternatives were analyzed in this EIS: No Action, and the Proposed Action.

No Action

Under the No Action alternative, none of the proposed Wanapa Energy Center facilities would be approved for construction by the lead and cooperating federal agencies. Evaluation of the No Action alternative is required by the Council of Environmental Quality (CEQ) Regulations for Implementing NEPA (Part 1502.14 Alternatives Including the Proposed Action).

Proposed Action

Under the Proposed Action, the Wanapa Energy Center facilities proposed by the applicant would be authorized for construction and operation.

The proposed Wanapa Energy Center would be located approximately 4 miles east of Umatilla, Oregon and 5 miles north of Hermiston, Oregon (see Chapter 1.0, **Figure 1.1-1**).

The project would include highly efficient combustion turbine (CTs) generators at the Wanapa Energy Center. Each CT would exhaust through a heat recovery steam generator (HRSG) that can be fired by auxiliary duct burners (DBs). The HRSGs would produce steam to be used on-site in condensing steam turbines. Natural gas would be the sole fuel for the CTs and DBs. The CTs and DBs would employ combustion control technologies (such as dry low-nitrogen oxide [NO_x] combustors) as well as post-combustion controls (such as selective catalytic reduction (SCR) and oxidation catalysts) in order to reduce air pollutant emissions.

The Wanapa Energy Center would incorporate two similar blocks of combined cycle. The nominal capacity of each block would be 600 megawatts (MW). Each block would consist of two CTs, two HRSGs (each with one exhaust stack), one steam turbine (ST), and associated plant equipment. Phase I of the project would include one complete and operable block that would operate independently of the second phase. Phase II would be installed based on market demand for power.

Natural gas would be provided from a new buried pipeline that would extend from the vicinity of Stanfield, Oregon, approximately 10 miles southeast of the plant site. A new 4.4-mile, 500-kilovolt (kV) electrical transmission line would interconnect the proposed project site to the Bonneville Power Administration (BPA) McNary Substation on the Columbia River. A new water pipeline would be constructed between the existing intake structure at the Port and the power plant site. Plant cooling water would be obtained under the City and Port existing water right (***Permit No. 49497***) from the Columbia River. ***Plant discharge water would be transported by pipeline to the Cold Springs Reservoir east of Hermiston, which is part of Reclamation's Umatilla Basin Project. The Hermiston Irrigation District would follow Oregon Water Resources Department requirements to use the water for irrigation and enter into a Warren Act Contract with Reclamation for use of excess capacity in Cold Springs Reservoir. Plant discharge water, once approved, would be utilized to supplement stored agricultural irrigation water and may become available for use as agricultural irrigation water.***

Proposed Action Component Alternatives

There are a number of geographical options for the location of ancillary facilities (gas supply and discharge water pipelines, electrical transmission lines, and plant discharge water disposal pipelines and discharge structures). Alternative locations for these components were developed, and resource effects for each alternative were compared with the effects of the Proposed Action to determine if a lower environmental impact would result.

Project Alternatives Impact Summaries

No Action

If the Wanapa Energy Center were not constructed and operated, the predicted effects on natural and human resources would not occur. It is likely that another electrical generating project would be constructed in the region in the near future, based on expected future regional demand for electricity. However, the location and effects of such a project cannot be accurately estimated at this time. The effects of the No Action alternative (no new project) in relation to existing conditions and trends are described briefly below.

Geology and Soils. No new surface disturbance would occur in the proposed project locations between the Columbia River and Cold Springs Reservoir, and consequently, no changes in existing wind and water soil erosion rates would occur, subject to seasonal fluctuations in precipitation and winds.

Water Resources. No new project water demands from the Columbia River would occur at the McNary Dam, and therefore, the flow regime in this reach of the River would remain the same, subject to climatic variations and existing approved water withdrawals. No new water would discharge to Cold Springs Reservoir, and therefore, the water quality and quantity in this reservoir would be maintained under existing storage and irrigation supply agreements.

Vegetation. No new surface disturbance would occur in the proposed project locations between the Columbia River and Cold Springs Reservoir, and therefore, native vegetation communities would continue to dominate in areas where they have not already been converted to agricultural uses. It is anticipated that invasive weeds would continue to spread into native vegetation communities over time. Ongoing efforts to restore upland native vegetation on the Wanaket Wildlife Area may expand the area and quality of shrub scrub and grassland communities.

***Fisheries*. No new project water demands from the Columbia River, or plant water discharges to Cold Springs Reservoir would occur. Therefore, no fish habitat changes in the Columbia River or in the Cold Springs Reservoir would occur.**

***Wildlife*. No new surface disturbance would occur in proposed project locations between the Columbia River and Cold Springs Reservoir, and therefore, the wildlife habitat support capacities within native vegetation communities and roadside weedy communities would not change for big game, non-game, and wetland (amphibians, waterfowl, and shorebirds) species.**

***Special Status Species*. No new surface disturbance would occur in the proposed project locations between the Columbia River and Cold Springs Reservoir, and no new water withdrawals from the Columbia River would occur. Therefore, there would be no changes in habitat carrying capacities for special status terrestrial and aquatic species.**

***Air Quality*. No new project natural gas-fired air pollutant emission sources in the eastern Columbia River Basin would be constructed. Therefore, existing power generation emissions, and emissions from other sources (gas and diesel engine vehicles, fugitive dust, agricultural field burning) would continue at current rates.**

***Transportation*. There would be no new requirements for transporting construction equipment, construction materials, and construction personnel along Interstate Highways, State Highway 730, and county roads that would provide access to the proposed construction areas for the proposed plant site and ancillary facilities.**

***Visual Resources*. No new above-ground facilities would be constructed, and therefore, there would be no landscape changes apparent to residents and recreational users on the Columbia River near McNary Dam, or to drivers along State Highway 730.**

***Noise*. No new noise-generating facilities would be constructed, and therefore, the existing rural background noise environment would remain the same.**

***Cultural Resources*. No new surface disturbance would occur in the proposed project locations between the Columbia River and Cold Springs Reservoir, and therefore, there would be no new impacts to cultural resources.**

***Land Use*. No new above-ground or underground facilities would be constructed in the proposed project locations between the Columbia River and Cold Springs Reservoir. As a consequence, there would be no changes in current land uses or effects on adjacent land uses.**

***Recreation*. No new above-ground or underground facilities would be constructed in the proposed project locations between the Columbia River and Cold Springs Reservoir. As a consequence, there would be no changes in access to developed or dispersed recreation sites or changes in the character of these types of recreational sites.**

***Socioeconomics*. No new above-ground or underground facilities would be constructed in the proposed project locations between the Columbia River and Cold Springs Reservoir. As a consequence, there would be no short-term costs or benefits from the construction work force on local economics, and no long-term benefits to the CTUIR from tribal taxes on the power plant, or to local economies in the form of taxes paid directly by project facilities located on private and state lands, or indirectly to the CTUIR, as purchases of goods and services from the local economy.**

***Public Safety*. No new above-ground or underground facilities would be constructed in the proposed project locations between the Columbia River and Cold Springs Reservoir. As a consequence, there would be no change in the existing public safety risks.**

Proposed Action

Impacts of the Proposed Action on environmental and human resources are summarized below.

Geology and Soils**.** The effects of project construction and facility siting and operation on geology would be minor. No geologic hazards such as subsidence, faults, or soil liquefaction occur within or near project component study areas. The prevalence of relatively gentle slopes in the project study area indicates that there is no landslide hazard.

Potential impacts of constructing the project components would include soil disturbance, increased water and wind erosion, reduced agricultural productivity, and management of rock present in excavation areas. Project construction would result in a temporary disturbance to soils, particularly associated with the natural gas supply/wastewater discharge pipelines. By implementing the Storm Water Pollution Prevention Plan (SWPPP) and reclamation measures, the potential for water erosion would be minimized and returned to pre-construction conditions. The effects of soil

erosion from wind would be reduced to pre-construction conditions by implementing mitigation to control dust, reduce traffic use and stabilize soil surfaces in highly erodible areas. Construction of the natural gas supply/wastewater discharge pipelines would result in temporary disturbance to 32 acres of prime farmland. However, topsoil and rock management mitigation measures would ensure that effects would be short-term and minor. The presence of rock would require engineering decisions on removal and rock disposal, particularly for the plant site and natural gas supply/wastewater discharge pipelines. The construction techniques and disposal methods would be designed to minimize effects on other environmental resources.

Plant discharge water would be piped to Cold Springs Reservoir and potentially used for crop irrigation. Plant discharge water is not expected to increase total dissolved solids significantly in the reservoir during the season of agricultural use or to increase the salt loading significantly in the receiving soils.

Water Resources. Project construction would result in localized disturbance to surface soils at the plant site, pipeline corridors, access road, and transmission line route. The SWPPP's erosion control measures would prevent sediment transport to intermittent streams or canals located within or near the project's work areas. As part of gas pipeline construction, Columbia River water may be used for hydrostatic testing. If hydrostatic test water is discharged to intermittent drainages or upland areas, water quality would meet Oregon National Pollution Discharge Elimination System (NPDES) permit requirements.

The impacts of project operation on water resources involve water withdrawal, water discharge, and management of chemical spills or leaks. Approximately ***12.4*** cubic feet per second (cfs) (average) or ***17.7*** cfs (maximum) of Columbia River water under an existing water right would be used for plant operation. While new water rights, even small ones, raise concerns regarding incremental and cumulative impacts to in-stream flows for fish, the withdrawal quantity comes from an existing water right (Port of Umatilla regional water supply system – ***Permit No. 49497***), would not require any new water rights and would not result in a ***noticeable*** change in river flow. The water withdrawal amount would represent less than 0.1 percent of Columbia River flow during the low-flow period. Plant ***discharge*** water (average of ***2.4*** cfs and maximum of ***3.4*** cfs) would be treated ***for oil and grease, pH, and temperature modification,*** and piped to the end of the canal that discharges to Cold Springs Reservoir. Due to the relatively small discharge quantity, the ***daily impact to reservoir*** volume would be ***negligible***. By meeting NPDES requirements and state water quality standards ***including anti-degradation requirements, addition of plant*** discharge water would not ***prevent water*** quality in the reservoir ***from meeting water quality standards***.

Storm water and sanitary sewage management would be required during plant operation to ensure that there would be no impacts on surface water near the plant site. The potential effects of a chemical spill at the plant site would be minimized by implementing a spill response plan.

Project construction and operation would not affect groundwater resources, since aquifers are located at least 75 feet below the surface. Groundwater would not be used for water sources or discharge purposes.

Vegetation. Project construction would result in vegetation disturbance to 47 acres at the plant site, 9 acres within the access road ROW, ***128*** acres within the natural gas supply/wastewater discharge pipeline ROW, and 101 acres within the electric transmission line ROW. The majority of the disturbance would be to grassland-steppe, shrub-steppe, and irrigated cropland. Vegetation removal would be permanent at the plant site. By implementing reclamation procedures, grassland and irrigated crop species would return to the ROWs by the next growing season. Recovery of shrub species would take an estimated 10 to 50 years. Impacts to wetlands would be eliminated by avoiding one wetland proposed to be crossed by the gas/water discharge pipeline and implementing drainage control measures within the pipeline ROW. Noxious weed control measures would be required to minimize the introduction and spread of noxious weed species in the disturbance areas.

Cooling tower drift would deposit water droplets on vegetation such as native grass, weedy, and wetland species within an approximate 0.25-mile radius around the power plant. The concentration of dissolved chemical constituents in the drift would be extremely low - plant growth and reproduction would not be affected.

Addition of plant discharge water to Cold Springs Reservoir would not significantly increase TDS in the reservoir and ultimately, water used for irrigation. The slight increase in salt loading would not affect crops irrigated with reservoir water.

Fisheries. Project construction would result in localized surface disturbance near wetlands, drainage canals, or intermittent drainages. These water bodies support warmwater fish not taken for subsistence use and invertebrate species. By implementing erosion control measures, sediment transport to surface water resources would be minor. Therefore, impacts to aquatic habitat would be minor.

Project water use and discharge were evaluated for fisheries in the Columbia River, Cold Springs Reservoir, and the Umatilla River. Water withdrawal from the Columbia River would occur under an existing water right. This depletion would slightly reduce habitat for fish species (including listed salmon, steelhead and bull trout) in the Columbia River. Water discharge to Cold Springs Reservoir would provide a beneficial impact to fish and aquatic habitat in Cold Springs Reservoir by providing additional water. No direct impact to the Umatilla River would be expected.

Wildlife. Surface disturbance activities would result in the incremental long-term removal of approximately 47 acres and long-term alteration of 71 acres of native shrubland/grassland habitat. However, habitat quality within the project study area is considered low, based on recent fires on the Wanaket Wildlife Area, the amount of existing habitat fragmentation from agricultural, residential, and industrial activities in the study area, and the establishment of nonnative weed species in the area. ***Surface disturbance*** also would result in an incremental increase in habitat fragmentation; limited mortality of small, less mobile species; and temporary displacement of wildlife from the construction area as a result of increased noise and human presence.

The proposed plant discharge water pipeline would be located in previously disturbed areas within the Cold Springs National Wildlife Refuge. The proposed plant discharge water would not affect the reservoir surface area, or aquatic habitat used by waterfowl because plant discharge water would represent a very small volume (less than 1 percent) relative to the total storage volume during all seasons.

Special Status Species. Surface disturbance activities would result in the removal of approximately 47 acres and long-term modification of 71 acres of potentially suitable foraging habitat (i.e., grassland, shrub-steppe, and wetland habitats) for the bald eagle, ferruginous hawk, Swainson's hawk, American peregrine falcon, long-billed curlew, grasshopper sparrow, loggerhead shrike, and western burrowing owl. The project would temporarily disturb approximately 2.6 acres of potentially suitable wetland habitat for the American white pelican, western painted turtle, western toad, Woodhouse’s toad, and western leopard frog. Other impacts could include the short-term displacement of these species from the project area as a result of increased noise levels and human presence during surface disturbance activities and operation of the power plant facility. However, impacts to these species from project construction and operation would be low, based on the known distribution of these species within the project area, low overall habitat quality within the project area, and mitigation measures that have been developed for these species.

The proposed plant discharge water into Cold Springs Reservoir would not affect existing bald eagle roosting areas, or food sources (fish and waterfowl) provided by the reservoir.

Air Quality. Project construction would result in disturbance and handling of surface soils at the plant site and along the pipeline corridors, access road, and transmission line route. By implementing dust control measures, the impacts of construction-related fugitive dust would be minimized. The construction activities would include periodic watering of haul roads and storage piles during periods of observed fugitive dust transport off the site. Traffic speed limits would be established and may be specifically constrained during dry periods when fugitive dust is generated. Once the facility is constructed, roadways would be graveled or hard-surfaced, and exposed areas would be reclaimed or revegetated with native species or with special plantings that are maintained.

The air emissions from project operation include the discharge of air pollutants from the main stacks of the combustion turbines and duct firing units. The proposed project is classified as a major source and would be regulated under the PSD program and the Title V operating permit program. The facility must demonstrate continuous compliance with limits on emissions of nitrogen oxides (NO_x), carbon monoxide (CO), and sulfur oxides (SO_x) from these sources, and must perform periodic monitoring of other pollutants including particulate matter <10 microns in size (PM_{10}) and volatile organic compounds (VOCs).

The facility would utilize "state of the art" pollution controls including selective catalytic reduction of NO_x emissions and the use of a CO oxidation and removal catalyst. The permit application has demonstrated that the facility is installing Best Available Control Technology for NO_x, CO, SO_2, and PM_{10}. This level of Best Available Control Technology is equal to or better than all recently permitted power production facilities in the Pacific Northwest. The facility also would produce power in a very efficient and clean way with the use of steam turbines producing power from the hot exhaust gases of the combustion turbines that would otherwise be wasted. The facility also would install high performance drift eliminators on its cooling towers to control emissions.

The dispersion modeling for the air permit application shows that impacts of these emissions would be below established significance levels for CO and SO_2. The dispersion modeling also demonstrates that predicted pollutant concentrations are well within allowable ambient air quality standards and PSD increments for NO_2 and PM_{10} including impacts from existing industrial and farming activities, recently permitted industrial activities, existing mobile sources of emissions, and natural sources of emissions. This, therefore, indicates that the operation of the Wanapa

Energy Center would not affect any existing industrial or farming activities and also would allow for any future growth of possible farming or industrial activities. The modeling also addressed impacts on nearby pristine (Class I) areas and demonstrated acceptable impacts on visibility, soils (acid deposition), and vegetation within those areas. The operation of the proposed facility would not cause or contribute to an exceedence of any established air quality standard and would not adversely impact air quality related values.

In summary, the Wanapa Energy Center is a very clean and good alternative to older methods of electric generation, such as coal-fired power plants, as demonstrated in the following table. This table compares emission rates from the proposed Wanapa Energy Center with emission rates from the nearby Boardman Coal Electric Generation facility. Also, the Wanapa Energy Center would meet or exceed emission controls that have been implemented at similar facilities in the Pacific Northwest. Finally, the operation of the Wanapa Energy Center would not cause or contribute to any exceedences of any established air quality standards and would not hinder existing or future farming or industrial activities.

Comparison of Annual Emissions per Megawatt (MW) of Electricity Produced

Pollutant	Wanapa Energy Center Emissions (tons/MW)[1]	Boardman Coal Facility Emissions (tons/MW)[2]	Percent Improvement
Sulfur Oxides	60.1	101,500.0	99.9%
Nitrogen Dioxide	318.2	42,290.0	99.2%
Particulate Matter	542.8	3,520.0	90.3%
Carbon Monoxide	146.4	2,556.7	94.3%
Volatile Organic Compounds	133.5	306.7	56.5%

[1]Based on a plant-wide electric generation capacity of 1,485 MW.
[2]Based on a plant-wide electric generation capacity of 600 MW.

Transportation. Project construction and operation would result in increased traffic on U.S. Highway 730, U.S. Highway 395/SR 32, and local roads. Temporary traffic would increase on access roads during a 24- to 36-month period for power plant construction. Temporary traffic increases on roads used for construction of the pipelines and electric transmission line would occur during a 3- and 4-month period, respectively. Increased traffic levels also would result in an increased risk for accidents. Increased traffic for an estimated 30 workers would occur during plant operation. Potential traffic congestion and increased accident risks would be reduced by

implementing a traffic flow plan, timing major construction traffic during off-peak hours, and using partial site shift changes at the plant.

Visual Resources. Construction of the power plant facility would result in visual impacts on residential areas at McNary and on the Columbia River bluff near Hat Rock State Park, motorists using U.S. Highway 730 east of Umatilla, and hunters in the Wanaket Wildlife Area. The most visible parts of the facility would be the HRSG exhaust stacks and the turbine building. In addition, a steam plume from the cooling towers would be visible over a wide area during cold weather periods. Facility lighting at night also would be seen from public roads and residences. The new electric transmission line would be seen by area residents and motorists on area highways and roads. The intensity of visual effect would depend on the use of single or double circuit towers and whether the structures are new landscape features. The effects of the McNary Substation expansion would be considered minor, since the expansion area is already industrial.

Noise. Increased noise levels would occur in the local area as a result of construction equipment, traffic, and facility operation. Increased traffic would be short term for the construction of the plant (24 to 36 months), pipelines (3 months), and transmission line (4 months) and long term for plant operation. By scheduling construction between 7 a.m. and 5 p.m., the duration of noise during the day would be minimized. Noise impacts would be minor, since the residences and the Two Rivers Correctional Facility are 1.5 miles from the plant. Recreational users of the Columbia River (0.2 mile from the plant) and hunters on the Wanaket Wildlife Area could be affected by construction and operation noise.

Cultural Resources. No National Register of Historic Places (NRHP)- eligible sites were located during the cultural resources field survey of the plant site and CTUIR lands adjacent to the plant site. Because of the potential for buried sites, the CTUIR Cultural Resources Protection Program (CRPP) would complete subsurface testing prior to construction. The CTUIR CRPP conducted a Traditional Cultural Property (TCP) assessment of the plant site and determined that the project area is located within a TCP. Because project construction would alter the appearance of a TCP used by the Umatilla and Walla Walla tribes, 1) a CRPP Tribal monitor would be present during all ground disturbing activities; 2) the CRPP would be consulted throughout the entire planning and construction process; and 3) the CRPP would participate in appropriate mitigation planning to maintain traditional uses of the site and/or develop appropriate mitigation plans, as necessary. If subsurface cultural material or ancestral remains were inadvertently discovered during excavation, ground disturbing activities would cease at the location until CRPP personnel could adequately assess the find and determine what steps need

to be taken. If ancestral remains were discovered, the Native American Graves and Repatriation Act (NAGPRA) would be followed, and the CTUIR's Policy and Procedure Manual for the Repatriation of Ancestral Human Remains and Funerary Objects would be implemented.

Based on the file search, the proposed water and gas lines would cross two NRHP-eligible historic canals and one NRHP-eligible ditch. Upon receiving concurrence from the State Historic Preservation Office (SHPO) ***and the Tribal Historical Preservation Office (THPO),*** adverse effects to the canals and ditch would be avoided by boring under these historic features; therefore, no impacts to the canals and ditch would be expected to occur. No cultural resources were identified as a result of the file search within or adjacent to the proposed transmission line. ***Field surveys of the Proposed Action's pipeline and transmission line ROWs are currently underway.*** Adverse impacts and mitigation procedures would be determined in consultation with the SHPO/THPO. Monitors may need to be present during construction on portions of the transmission ***line***, ***and*** water and gas ***pipe***lines. ***If subsurface cultural material or ancestral remains were inadvertently discovered on federal, state, or private lands during excavation, ground disturbing activities would cease at the location until federal, state, and CRPP personnel could adequately assess the find and determine what steps need to be taken. If ancestral remains were discovered, the Native American Graves and Repatriation Act (NAGPRA) would be followed, and the CTUIR's Policy and Procedure Manual for the Repatriation of Ancestral Human Remains and Funerary Objects would be implemented.***

Land Use. Construction of the project components would occur on Tribal Trust Land and private land with varying land uses. The power plant would convert 47 acres of grassland-steppe habitat to an industrial site. The other project components would occur on ***federal, state, tribal, and private lands*** used for rural residential, agriculture, grassland- and shrub-steppe, industrial, highway ROW, railroad ROW. Short-term effects (noise, dust) on residential areas would include 16 residences that are located within 200 feet of the natural gas supply/wastewater discharge pipeline ROW centerline and 7 residences within 300 feet of the electric transmission line ROW centerline.

Recreation. Project construction and operation would not displace recreational users in the Wanaket Wildlife Area, McNary Beach State Park and Recreation Area, Hat Rock State Park, Cold Springs National Wildlife Refuge, or Columbia River. However, increased traffic, visual impacts, and noise could affect the recreational experience in the Wanaket Wildlife Area, but not in a manner that would change future use. Recreational users of the McNary Beach State Park and Recreation Area and Hat Rock State Park would not be affected because of visual screening by a bluff.

Socioeconomics. Overall, the proposed project would result in beneficial impacts to socioeconomics. When combining all project components, construction activities would create a total of 320 to 820 temporary jobs during a 3- to 36-month period. An estimated 180 indirect/secondary jobs also would be generated during construction. Project operation would result in 30 permanent workers. Adequate housing would be available for the estimated work force numbers. Beneficial impacts also would occur from increased sales in the local area and additional tax revenues from the natural gas supply/wastewater discharge pipeline ROW property taxes. Since the power plant would be sited on land held in trust by the United States for the CTUIR, the beneficial owners, state and county taxation would not be applicable. However, the power plant would pay a tribal tax to the CTUIR, equivalent to the aggregate of State taxation. CTUIR would spend these tax revenues on goods and services mainly in Umatilla County, thereby directly introducing these revenues into the local economy. All project "tax advantages" are realized in the federal taxation scheme through a federal provision for accelerated depreciation for projects built on tribal land. Therefore, the power plant would introduce the same amount of revenues through taxation into the local and Oregon economies but the manner of introduction would be different. Any "tax breaks" would be at the federal level. Further, the power plant has committed to spend environmental mitigation funds in the local area. The power plant would pay for all local services used by the facility at rates negotiated with the local authorities. Potential adverse impacts would occur due to a temporary loss of crop production along the natural gas supply/wastewater discharge pipelines and electric transmission line ROWs. Public utilities and services are available and would be used for plant operation. A fire protection system would be installed at the power plant site for fire control and protection. Local services would be available to handle solid wastes produced by the plant.

Public Safety. The potential impacts to public safety and health would be minor. During construction of the transmission lines and gas pipeline, good engineering practices and standard safety procedures would be implemented to protect construction workers and the general public. The new transmission line would be located adjacent to existing transmission lines and those residences and buildings already in close proximity to existing lines could experience a slight increase in exposure to electric and magnetic fields. There is a lack of evidence demonstrating health effects from exposure to electric and magnetic fields. Residences, buildings and people in the vicinity of the gas pipeline would be exposed to a minor risk for pipeline incidents such as leaks, fires or explosions. However, over a 50-year expected service life of the pipeline, the projected incident rate for an accident is 0.014. This means that the estimated risk of incident would be less than 1 incident over 50 years and even then, the chances of serious injury during

such an incident are less. The pipeline would be regularly inspected and tested according to industry standards to minimize the potential for incidents. The transmission lines for this project would be constructed to comply with industry and state standards for safe operation.

Mitigation Measures. A summary of mitigation measures for this project is presented in **Table ES-1**.

Proposed Action Component Alternatives

Alternative locations were evaluated for three project components: 1) electrical transmission line routes; 2) natural gas and plant discharge water pipeline routes; and 3) plant discharge water disposal locations. The locations of these component alternatives are described and illustrated in Chapter 2.0, Section 2.4, Other Alternatives Carried Forward in the Analysis. After consulting with CTUIR elders and their tour of the proposed plant site, no feasible alternatives for the power plant site, access road, water supply pipeline, potable water pipeline, and sanitary sewer pipeline were identified that met the project purpose and need.

Natural Gas/Plant Discharge Water Pipeline Routes

In addition to the Proposed Action 11.5-mile route, six other combined natural gas supply/plant discharge water pipeline routes were evaluated. The alternative routes are of similar length to the Proposed Action, but would follow a more eastern (Alternatives 1, 3, 4, 5, and 6) or more western approach (Alternative 2) in connecting the power plant to the interstate gas pipeline system at Stanfield.

Electrical Transmission Line Routes

In addition to the Proposed Action 4.4-mile route, three alternative routes for the electrical transmission connection between the power plant and the McNary Substation were evaluated.

Plant Discharge Water Disposal Locations

The Proposed Action's plant discharge water disposal location is the Cold Springs Reservoir via a pipeline that would be co-located with the gas supply pipeline. Alternative 1 differs from the Proposed Action by discharging plant water directly into the Columbia River through a pipeline to a discharge structure and high volume diffuser in the river approximately 0.5 mile east of the plant site.

The impact evaluation focused on environmental resources and impact topics that indicated a difference for one or more alternatives in relation to the Proposed Action. A summary of the impact evaluations for the natural gas supply/plant discharge water pipeline, electrical transmission line, and plant discharge location alternatives are presented in Tables ES-2, ES-3, and ES-4.

Table ES-1
Summary of Mitigation Measures

Resource	Mitigation Measure
Soils	
	S-1: Restrict construction traffic to the defined ROW.
	S-2: Restrict the pipeline construction ROW width to 75 feet in the Wanser loamy fine sand and Winchester sand units where the natural gas supply/wastewater discharge pipeline route crosses native vegetation communities.
	S-3: Use measures such as topsoil matting, planting of cover crops, or soil binder in the Wanser loamy fine sand and Winchester sand units along the southern portion of the natural gas supply/wastewater discharge pipeline routes to reduce wind erosion.
	S-4: Segregate the stripped topsoil separately from the trench spoil;
	S-5: Remove all excess large-size rock from the upper 12 inches of the soil to the extent practical in agricultural and residential areas.
	S-6: Excess pipeline trench rock would be placed in a landowner-approved location.
Vegetation/Land Cover	
	VLC-1. The revegetation mixture applied to disturbed soils on the Wanaket Wildlife Area would conform to the future management objectives for the site as described by the Wildlife Area Management Plan (CTUIR and BPA 2001b).
	VLC-2. A pre-construction weed inventory would be completed along the approved pipeline route to determine the location of weed populations within and adjacent to the construction ROW. Excavation equipment would be cleaned (air pressure hoses, or wash stations) after crossing weed infestation areas and entering weed-free areas. All soil excavated from weed-infested areas would be replaced in the same location.
	VLC-3. Any hay used as mulch would be certified as weed-free prior to application.
Wildlife	
	W-1: Prior to construction activities during the raptor breeding season (March 1 - June 30), breeding raptor surveys would be conducted by a qualified biologist through areas of suitable nesting habitat to identify any potentially active nest sites within 0.5 mile from the project area. If applicable, appropriate protection measures, including seasonal constraints and establishment of buffer areas would be implemented at active nest sites until the young have fledged and have dispersed from the nest area. These measures will be implemented on a site-specific and species-specific basis, in coordination with CTUIR/Wanaket Wildlife Area biologists ***and Cold Springs National Wildlife Refuge biologists***.
	W-2: Standard, safe designs as outlined in Mitigating Bird Collision with Power Lines (APLIC 1994) would be incorporated in the design of the electrical distribution lines to prevent collision to foraging and migrating bird species with the project area, in coordination with CTUIR and Wanaket Wildlife Area biologists. Design features would include the configuration of the route to avoid partitioning foraging and resting habitat, alignment of overhead groundwire to the same height as the conductors, and the use of markers to increase the visibility of the lines to birds.

Table ES-1 (Continued)

Resource	Mitigation Measure
	W-3: Prior to construction activities during the avian breeding season (March 1 - June 30), avian breeding surveys for long-billed curlew, grasshopper sparrow, loggerhead shrike, and western burrowing owl would be conducted by a qualified biologist through areas of suitable nesting habitat to identify any potentially active nest sites within 0.25 mile from the project area. If applicable, appropriate protection measures, including seasonal constraints and establishment of buffer areas would be implemented at active nest sites until the young have fledged and have dispersed from the nest area. These measures would be implemented on a site-specific and species-specific basis, in coordination with CTUIR/Wanaket Wildlife Area biologists ***and Cold Springs National Wildlife Refuge biologists***.
	W-4: Prior to construction activities through suitable breeding habitat for special status reptile and amphibian species, occurrence surveys for western painted turtle, western toad, Woodhouse's toad, and northern leopard frog would be conducted by a qualified biologist to determine presence. If present, appropriate protection measures could include rerouting the pipeline ROW to avoid breeding habitat, in coordination with CTUIR/Wanaket Wildlife Area biologists ***and Cold Springs National Wildlife Refuge biologists***.
Transportation	
	T-1. Implement partial plant site shift changes to reduce the number of personal vehicles that queue at the Beach Access Road/U.S. Highway 730 intersection.
	T-2. Time major construction material deliveries to off-peak hours (early morning, late evening) to prevent local congestion on U.S. Highway 730.
	T-3. A site-specific construction traffic flow plan would be submitted to the Oregon DOT that documents the present traffic volumes, expected volume of project construction traffic, and the intersections to be used. If warranted by this study, the width of the U.S. Highway 730 at the Beach road intersection (or other intersections) would be expanded to provide left-hand and right-hand turn lanes.
Cultural Resources	
	C-1. Upon concurrence from the SHPO/THPO, adverse effects to three NRHP – eligible elements (A-line Canal, the Feed Canal, and the Furnish Ditch) would be avoided by horizontally boring under these features rather than trenching through them.
	C-2. The CTUIR Cultural Resources Protection Program (CRPP) considers the Wanapa Energy site to be a Traditional Cultural Property (TCP). Therefore, the CRPP will: 1) ensure that a CRPP Tribal Monitor is present during all ground disturbing activities; 2) the CRPP will be consulted throughout the entire planning and construction process until the project is completed; and 3) the CRPP would participate in appropriate mitigation planning to maintain traditional uses of the site and/or develop appropriate mitigation plans, as necessary.

Table ES-2
Summary Comparison of Natural Gas Supply/Plant Discharge Water Pipeline Alternatives

	No Action	**Proposed Action**	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 4**	**Alternative 5**	**Alternative 6**
Figure		***(Figure 2.3-1)***	***(Figure 2.4-1)***	***(Figure 2.4-2)***	***(Figure 2.4-3)***	***(Figure 2.4-4)***	***(Figure 2.4-5)***	***(Figure 2.4-6)***
Length (miles)	NA	11.2	11.5	11.8	11.3	10.8	11.7	12.0
Temporary Disturbance (Acres)	NA	128.0	131.3	133.8	129.3	122.7	96.8	106.6
Resource/Impact Issue								
Wetlands	No wetlands would be affected by project disturbance. The CTUIR Wanaket Wildlife Area management plan is focused on maintaining existing wetland habitats, and improving upland habitats. Additional wetlands could be created in the future if the CTUIR decides to modify its current management plan.	The pipelines would avoid the Wanaket Wildlife Area created Wetlands, but would cross an area that could be developed as wetlands in the future. Trenching across basalt rock could modify the surface drainage feeding wetlands, which could be partially mitigated with trench plugs.	The pipelines would avoid the Wanaket Wildlife Area created wetlands, but would cross an area that could be developed as wetlands in the future. Trenching across basalt rock could modify the surface drainage, which could be partially mitigated with trench plugs.	The pipelines would cross the Wanaket Wildlife Area created wetlands. Trenching across basalt rock could modify the surface drainage, which could be partially mitigated with trench plugs.	The pipelines would avoid the existing Wanaket Wildlife Area created wetlands, as well as areas suitable for wetland development in the future.	The pipelines would avoid the existing Wanaket Wildlife Area created wetlands, as well as areas suitable for wetland development in the future.	The pipelines would avoid the Wanaket Wildlife Area created Wetlands, but would cross an area that could be developed as wetlands in the future. Trenching across basalt rock could modify the surface drainage feeding wetlands, which could be partially mitigated with trench plugs	The pipelines would avoid the Wanaket Wildlife Area created Wetlands, but would cross an area that could be developed as wetlands in the future. Trenching across basalt rock could modify the surface drainage feeding wetlands, which could be partially mitigated with trench plugs
Bedrock Construction	No bedrock construction would occur.	Approximately 23 acres containing bedrock or large rock would have to be cleared and excavated which represent difficult revegetation conditions.	Approximately 30 acres containing bedrock or large rock would have to be cleared and excavated which represent difficult revegetation conditions.	Approximately 25 acres containing bedrock or large rock would have to be cleared and excavated which represent difficult revegetation conditions.	Approximately 28 acres containing bedrock or large rock would have to be cleared and excavated which represent difficult revegetation conditions.	Approximately 28 acres containing bedrock or large rock would have to be cleared and excavated which represent difficult revegetation conditions.	Approximately 25 acres containing bedrock or large rock would have to be cleared and excavated which represent difficult revegetation conditions.	Approximately 25 acres containing bedrock or large rock would have to be cleared and excavated which represent difficult revegetation conditions.

Table ES-2 (Continued)

	No Action	Proposed Action	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
Figure		***(Figure 2.3-1)***	***(Figure 2.4-1)***	***(Figure 2.4-2)***	***(Figure 2.4-3)***	***(Figure 2.4-4)***	***(Figure 2.4-5)***	***(Figure 2.4-6)***
Length (miles)	NA	11.2	11.5	11.8	11.3	10.8	11.7	12.0
Temporary Disturbance (Acres)	NA	128.0	131.3	133.8	129.3	122.7	96.8	106.6
Resource/Impact Issue								
Residences/Land Use	No residences would be affected by construction, and existing land uses would continue.	16 residential structures are located within 200 feet of the ROW centerline that would be subject to short-term noise and dust during construction. The majority of these structures are on large land parcels associated with farms. Pipeline ROW is located primarily in irrigated cropland where special efforts would be required to maintain the drainage pattern and soil productivity.	12 residential structures are located within 200 feet of the ROW centerline that would be subject to short-term noise and dust during construction. The majority of these structures are on large land parcels associated with farms. Pipeline ROW is located primarily in irrigated cropland where special efforts would be required to maintain the drainage pattern and soil productivity.	43 residential structures are located within 200 feet of the ROW centerline that would be subject to short-term noise and dust during construction. The majority of these structures on small rural residential lots, with many small outbuildings and fences on the existing Northwest Pipeline ROW that would have to be cleared and restored. The proposed alignment is located in and adjacent to county roads that could cause traffic delays, and require detours.	12 residential structures are located within 200 feet of the ROW centerline that would be subject to short-term noise and dust during construction. The majority of these structures are on large land parcels associated with farms. Pipeline ROW is located primarily in irrigated cropland where special efforts would be required to maintain the drainage pattern and soil productivity.	14 residential structures are located within 200 feet of the ROW centerline that would be subject to short-term noise and dust during construction. The majority of these structures are on large land parcels associated with farms. Pipeline ROW is located primarily in irrigated cropland where special efforts would be required to maintain the drainage pattern and soil productivity.	42 residential structures are located within 200 feet of the ROW centerline that would be subject to short-term noise and dust during construction. The majority of these structures are on large land parcels associated with farms. 4.6 miles (45 percent) of the pipeline length would be installed in county road right-of-ways. At least one lane of county roads would be remain open, and access to individual residences along these roads would be maintained during the construction period.	44 residential structures are located within 200 feet of the ROW centerline that would be subject to short-term noise and dust during construction. The majority of these structures are on large land parcels associated with farms. 5.0 miles (41 percent) of the pipeline length would be installed in county road ROWs. At least one lane of county roads would be remain open, and access to individual residences along these roads would be maintained during the construction period

Table ES-2 (Continued)

	No Action	Proposed Action	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
Figure		***(Figure 2.3-1)***	***(Figure 2.4-1)***	***(Figure 2.4-2)***	***(Figure 2.4-3)***	***(Figure 2.4-4)***	***(Figure 2.4-5)***	***(Figure 2.4-6)***
Length (miles)	NA	11.2	11.5	11.8	11.3	10.8	11.7	12.0
Temporary Disturbance (Acres)	NA	128.0	131.3	133.8	129.3	122.7	96.8	106.6
Resource/Impact Issue								
Wildlife/Native Habitats	No native shrublands would be removed or modified by project construction disturbance within the Wanaket Wildlife Area or the Cold Springs National Wildlife Refuge. Existing habitat improvement programs would continue in both areas.	22 acres of shrub-steppe would be altered by construction. Wetlands could be avoided by small reroutes. The route would pass near a known burrowing owl nesting area. 1.6 miles of the Wanaket Wildlife Area, and 0.3 mile of the Cold Springs National Wildife Refuge would be crossed.	39 acres of shrub-steppe would be altered by construction. Wetlands could be avoided by small reroutes. The route would pass near a known burrowing owl nesting area. 2.8 miles of the Wanaket Wildlife Area, and 0.3 mile of the Cold Springs National Wildlife Refuge would be crossed.	21 acres of shrub-steppe would be altered by construction. Wetlands could be avoided by small reroutes. The route would avoid a known burrowing owl nesting area. 1.7 miles of the Wanaket Wildlife Area , and 0.3 mile of the Cold Springs National Wildlife Refuge would be crossed.	37 acres of shrub-steppe would be altered by construction. Wetlands would be entirely avoided. The route would avoid a known burrowing owl nesting area. 2.2 miles of the Wanaket Wildlife Area, and 0.3 mile of the Cold Spring National Wildlife Refuge would be crossed.	28 acres of shrub-steppe would be altered by construction. Wetlands would be entirely avoided. The route would avoid a known burrowing owl nesting area. 2.2 miles of the Wanaket Wildlife Area, and 0.3 mile of the Cold Springs National Wildlife Refuge would be crossed.	26 acres of shrub-steppe would be altered by construction. Wetlands could be avoided by small reroutes. The route would pass near a known burrowing owl nesting area. 1.5 miles of the Wanaket Wildlife Area, and 0.3 mile of the Cold Springs National Wildlife Refuge would be crossed.	26 acres of shrub-steppe would be altered by construction. Wetlands could be avoided by small reroutes. The route would pass near a known burrowing owl nesting area. 1.5 miles of the Wanaket Wildlife Area, and 0.3 mile of the Cold Springs National Wildlife Refuge would be crossed.

Table ES-3
Summary Comparison of Transmission Line Alternatives

	No Action	Proposed Action	Alternative 1	Alternative 2	Alternative 3
Figure		***(Figure 2.3-1)***	***(Figure 2.4-7)***	***(Figure 2.4-8)***	***(Figure 2.4-10)***
Length (Miles)		4.4	5.3	4.0	4.0
Resource/Impact Issue					
Use of existing Utility Corridors	***No changes to the use of existing utility corridors would occur.***	2.6 miles in an existing transmission line utility corridor; 1.8 miles in a new utility corridor	4.2 miles in an existing transmission line utility corridor; 1.1 miles in a new utility corridor.	4.0 miles in a new utility corridor.	4.0 miles in a new utility corridor.
Public Safety	***No new impacts to public safety would occur.***	8 residences are located near the edge of the proposed ROW along Lind Road. These locations may experience radio and tv interference, and may be exposed to corona noise that slightly exceeds the Oregon state standard of 50 dBA at the edge of the ROW.	8 residences are located near the edge of the proposed ROW along Lind Road. These locations may experience radio and tv interference, and may be exposed to corona noise that slightly exceeds the Oregon state standard of 50 dBA at the edge of the ROW.	No residences are located near the edge of the alternative ROW. The transmission line is located within 1,000 feet of the Two Rivers Correctional Facility, and could cause interference with communications, and electronic security measures at the prison.	No residences are located near the edge of the alternative ROW. The transmission line is located within 1,000 feet of the Two Rivers Correctional Facility, and could cause interference with communications, and electronic security measures at the prison.

Table ES-3 (Continued)

	No Action	Proposed Action	Alternative 1	Alternative 2	Alternative 3
Figure		***(Figure 2.3-1)***	***(Figure 2.4-7)***	***(Figure 2.4-8)***	***(Figure 2.4-10)***
Length (Miles)		4.4	5.3	4.0	4.0
Resource/Impact Issue					
Visual Effects	***No new changes to visual effects would occur.***	The transmission line segment located in a new ROW between the plant site and the existing BPA transmission corridor would represent a new industrial element to viewers along Highway 730, and visitors to the Wanaket Wildlife Area.	The transmission line segment located in a new ROW between the plant site and the existing BPA transmission corridor would represent a new industrial element to viewers along Highway 730, and visitors to the Wanaket Wildlife Area.	The transmission line would represent a new industrial element that traverses the Columbia River bluff between the Two Rivers Correctional Facility and the McNary Substation (about 2 miles). The transmission line would intercept the view of approximately 17 McNary residences that overlook the Columbia River and McNary Dam. The transmission line would represent a new industrial element for visitors to the McNary State Park and the COE park facilities at McNary Dam and visitor center.	The transmission line would represent a new industrial element that traverses the Columbia River bluff from Wanapa Plant Site to the McNary Substation (about 3 miles). The transmission line would intercept the view of approximately 17 McNary residences that overlook the Columbia River and McNary Dam. The transmission line would represent a new industrial element for visitors to the McNary State Park and the COE park facilities at McNary Dam and visitor center.

Table ES-3 (Continued)

	No Action	Proposed Action	Alternative 1	Alternative 2	Alternative 3
Figure		***(Figure 2.3-1)***	***(Figure 2.4-7)***	***(Figure 2.4-8)***	***(Figure 2.4-10)***
Length (Miles)		4.4	5.3	4.0	4.0
Resource/Impact Issue					
Waterfowl habitat fragmentation	***No additional waterfowl habitat fragmentation would occur.***	This alignment crosses a portion of the 1.5 square mile Wanaket Wildlife Management Area wetland complex. Approximately 15% of the total wetland complex (waterfowl resting habitat) would be partitioned from agricultural fields to the south and east (waterfowl foraging habitat). Waterfowl using the isolated portion of the wetland would need to negotiate the transmission line as they flew from one habitat type to the other.	This alignment would separate about 70% of the total Wanaket Wildlife Management Area wetland complex from the agricultural area. Waterfowl using the isolated portion of the wetland would need to negotiate the transmission line as they flew from one habitat type to the other.	This alignment would not separate the wetland complex from the agricultural areas and would not cross the Wanaket Wildlife Management Area.	This alignment would not separate the wetland complex from the agricultural areas and would not cross the Wanaket Wildlife Management Area.

Table ES-3 (Continued)

	No Action	Proposed Action	Alternative 1	Alternative 2	Alternative 3
Figure		***(Figure 2.3-1)***	***(Figure 2.4-7)***	***(Figure 2.4-8)***	***(Figure 2.4-10)***
Length (Miles)		4.4	5.3	4.0	4.0
Resource/Impact Issue					
Collision potential for waterfowl	***No new collision potential for waterfowl would occur.***	The alignment does not parallel the river and is offset from the river. As a result, waterfowl could use the river as a flight corridor and, for those birds crossing the river, the setback would allow waterfowl ample opportunity to adjust their flight paths and avoid the power lines.	***This*** alignment would not parallel the river and is offset from the river. As a result, waterfowl could use the river as a flight corridor and, for those birds crossing the river, the setback would allow waterfowl ample opportunity to adjust their flight paths and avoid the power lines.	This alignment would parallel the river, though approximately 50% of the alignment would be about 0.5 miles from the river. This alignment would pose a potential collision hazard to waterfowl utilizing the river as a flight corridor as well as those birds crossing the river.	This alignment would parallel the river. The majority of the alignment would be within 0.2 miles from the river. This alignment would pose a potential collision hazard to waterfowl utilizing the river as a flight corridor as well as those birds crossing the river.

Table ES-4
Summary Comparison of Plant Discharge Water Location Alternatives

	No Action	Proposed Action	Alternative 1
Figure		**(Figure 2.3-1)**	**(Figure 2.4-11)**
Resource/Impact Issue			
Bedrock Construction	No new bedrock construction would occur.	Approximately 1.7 miles of pipeline construction ROW containing bedrock or large rock would have to be cleared and excavated which represent difficult revegetation conditions.	Approximately 0.3 miles of pipeline construction ROW containing bedrock or large rock would have to be cleared and excavated which represent difficult revegetation conditions.
Soils	No new soil disturbance would occur.	Approximately 2 acres of native vegetation soils, and 5 acres of cropland soils would be temporarily disturbed during construction, resulting in a local increase in soil and water erosion from unprotected surfaces. The remainder of the surface disturbance for the waste water pipeline is included in the ROW for the gas supply pipeline, which is the same for both alternatives.	Approximately 5 acres of native vegetation soils would be temporarily disturbed during construction, resulting in a local increase in soil and water erosion from unprotected surfaces.
Water Resources	No new water withdrawals or discharges would occur.	Average annual water demand from the Columbia River would be 12.4 cfs, and maximum demand would be 17.7 cfs. Under the lowest flows recorded in the period of record, project withdrawals would represent 0.04 percent of river flow. Power plant discharge water would be discharged to Cold Springs Reservoir in accordance with a NPDES permit obtained from the Oregon Department of Environmental Quality. It is unlikely that a diffuser would be needed to meet water quality discharge standards, but would be installed on the reservoir bed if needed. Plant water discharged to the reservoir would mix with existing stored water and would be distributed for seasonal irrigation. Little or none of this water would be returned to the Columbia River because of uptake by crops, evaporation, and loss to the groundwater system.	Average annual water demand from the Columbia River would be the same as the Proposed Action. Power plant discharge water would be discharged to the Columbia River (Lake Wallula) upstream of McNary Dam in accordance with a NPDES permit obtained from the Oregon Department of Environmental Quality. It is highly likely that a high volume diffuser would be installed on the bed of Lake Wallula to meet temperature and total dissolved solids (TDS) discharge standards for this segment of the Columbia River. Based on the number of times that the water is used in the power plant cooling process, the water discharged directly back to the Columbia River would represent about 20 percent of the volume originally withdrawn.
Vegetation/Land Cover	No new native vegetation community disturbance would occur.	Approximately 2 acres of shrub steppe vegetation would be removed during plant discharge water pipeline construction between the natural gas supply pipeline ROW and Cold Springs Reservoir, resulting in a long-term conversion of this shrub community to a grassland/weedy annual dominated community.	Approximately 5 acres of shrub steppe vegetation would be removed during construction, resulting in a long-term conversion of this shrub community to a grassland/weedy annual dominated community.
Wetlands	No new wetlands disturbance would occur.	The pipelines would avoid the Wanaket Wildlife Area created wetlands, but would cross an area that could be developed as wetlands in the future. Trenching across basalt rock could modify the surface drainage feeding wetlands, which could be partially mitigated with trench plugs.	The pipeline would avoid the Wanaket Wildlife Area created wetlands, as well as areas that could be developed as wetlands in the future. Trenching across basalt rock could modify the surface drainage, which could be partially mitigated with trench plugs.
Aquatic Species	No new water withdrawals or discharges would occur in the Columbia River or tributaries, and therefore, no effects on fish habitats and populations would occur.	Proposed water withdrawal rates from Lake Wallula on the Columbia River represent a very small fraction of the Columbia River flow rate even at very low river flows (see Water Resources above). The proposed withdrawal would occur under an existing water right that was considered in prior USFWS consultations with the USCOE regarding construction of new intake structures at the Port of Umatilla.	Proposed water withdrawal rates from Lake Wallula on the Columbia River represent a very small fraction of the Columbia River flow rate even at very low river flows (see Water Resources above). The proposed withdrawal would occur under an existing water right that was considered in prior USFWS consultations with the USCOE regarding construction of new intake structures at the Port of Umatilla. As described under Water Resources above, about 20 percent of the power plant makeup water would be returned to the Columbia River near the same location it was withdrawn. The remainder of the water would be evaporated in the power plant cooling system.

Table ES-4 (Continued)

	No Action	Proposed Action	Alternative 1
Figure		**(Figure 2.3-1)**	**(Figure 2.4-11)**
Resource/Impact Issue			
Wildlife	No native shrublands would be removed or modified by project construction disturbance within the Wanaket Wildlife Management or the Cold Springs National Wildlife Refuge. Existing habitat improvement programs would continue in both areas.	Approximately 2 acres of shrub steppe vegetation would be removed during construction of the plant discharge water pipeline between the natural gas supply pipeline and Cold Springs Reservoir, resulting in a long-term reduction in habitat carrying capacity for species dependent on sagebrush communities, and an increase in habitat carrying capacity for species adapted to grasslands and disturbed weedy habitats. The route would cross 0.3 mile of the Cold Springs National Wildife Refuge. The remainder of the surface disturbance for the plant discharge water pipeline is included in the ROW for the gas supply pipeline, which is the same for both alternatives.	Approximately 5 acres of shrub steppe vegetation would be removed during construction, resulting in a long-term reduction in habitat carrying capacity for species dependent on sagebrush communities, and an increase in habitat carrying capacity for species adapted to grasslands and disturbed weedy habitats. The pipeline route would cross approximately 0.2 mile of Oregon Fish and Wildlife lands located along the south bank of the Columbia River.
Special Status Species	No new native vegetation community or wetland disturbance would occur that would affect species dependent on these habitats. No new water withdrawals or discharges would occur in the Columbia River or tributaries, and therefore, no effects on fish habitats and populations would occur.	Approximately 2 acres of bald eagle foraging habitat (consisting of native shrub-steppe) would be removed by construction of the plant discharge water pipeline segment from the gas supply pipeline/Feed Canal intersection to Cold Springs Reservoir, a small fraction of available foraging habitat near the Columbia River. No bald eagle roost or nesting trees would be affected. Approximately 2 acres of shrub-steppe and grassland foraging and nesting habitat would be removed for the long term for raptors (ferruginous hawk, Swainson's hawk, American peregrine falcon), and other birds (long-billed curlew, grasshopper sparrow, loggerhead shrike, western burrowing owl). The remainder of the surface disturbance for the plant discharge water pipeline is included in the ROW for the gas supply pipeline, which is the same for both alternatives.	Approximately 5 acres of bald eagle foraging habitat (consisting of native shrub-steppe) would be removed by pipeline construction of the plant discharge water pipeline between the plant site and the Columbia River, a small fraction of available foraging habitat near the Columbia River. No bald eagle roost or nesting trees would be affected. The proposed plant discharge water pipeline construction would remove approximately 5 acres of shrub-steppe, grassland and disturbed area foraging and nesting habitat for the long term for raptors (ferruginous hawk, Swainson's hawk, American peregrine falcon), and other birds (long-billed curlew , grasshopper sparrow, loggerhead shrike, western burrowing owl).
Air Quality	No new facilities would be built, and therefore no fugitive dust from construction, or operational emissions from natural gas combustion would occur.	Short- term fugitive dust would be generated during construction of waste water pipeline segment between the natural gas pipeline/ Feed Canal intersection and Cold Springs Reservoir, a distance of about 1.5 miles. The remainder of the surface disturbance for the waste water pipeline is included in the ROW for the gas supply pipeline, which is the same for both alternatives.	Short- term fugitive dust would be generated during construction of the waste water pipeline segment from the plant site to the Columbia River, a distance of about 0.3 mile.
Traffic and Circulation	No new facilities would be built, and therefore, no changes in current traffic patterns and volumes would occur.	No highways or county roads would be crossed to construct the plant discharge water pipeline segment that connects the proposed gas supply/water pipeline ROW with Cold Springs Reservoir. Therefore, no effects on traffic on county roads would occur.	No highways or county roads would be crossed to construct the plant discharge water pipeline from the plant site to the Columbia River. Therefore no effects on traffic on county roads would occur.
Visual Resources	No new facilities would be built, and therefore, no changes in the rural landscape would occur.	The plant discharge water pipeline segment between the natural gas pipeline ROW and Cold Springs Reservoir would be located in cropland, or adjacent to an existing roadway, and therefore, would not contrast with current land cover.	The plant discharge water pipeline segment between the plant site and the Columbia River would cross a tall sagebrush community. The new pipeline ROW would represent a sharp discontinuity in color and form. This new ROW could be easily seen by boaters on Lake Wallula, but would not be seen from any public roadways on the south side of the Columbia River.

Table ES-4 (Continued)

	No Action	Proposed Action	Alternative 1
Figure		**(Figure 2.3-1)**	**(Figure 2.4-11)**
Resource/Impact Issue			
Noise	No new facilities would be built, and therefore, no new construction or operational noise would occur.	The plant discharge water pipeline segment between the natural gas pipeline/Feed Canal intersection and Cold Springs Reservoir would be constructed within 200 feet of one residential structure, resulting in increases in construction noise and traffic over a period of about 1-2 weeks. The remainder of the surface disturbance for the plant discharge water pipeline is included in the ROW for the gas supply pipeline, which is the same for both alternatives. There would be no operational noise.	The plant discharge water pipeline segment between the plant site and the Columbia River would not be constructed within 200 feet of any residential structures. There would be no operational noise.
Cultural Resources	No new surface disturbance would occur in the proposed project locations between the Columbia River and Cold Springs Reservoir, and therefore there would be no disturbance of cultural resource sites, or CTUIR traditional use areas.	The proposed plant discharge water pipeline between the natural gas pipeline/Feed Canal intersection and Cold Springs Reservoir would be constructed adjacent to the Feed Canal, but would not cross this structure. Additional cultural surveys may be required to determine appropriate offsets from this irrigation canal, which is a contributing feature to the Umatilla Project, and is eligible for the National Historic Register as a linear and discontinuous historic district.	The plant discharge water pipeline segment between the plant site and the Columbia River is currently unsurveyed. The pipeline would be located on CTUIR trust lands, Oregon state lands, and federal (BLM) lands. Based on the project records search, this pipeline segment could potentially cross important archaeological sites because of the proximity of the pipeline route to the Columbia River below the basalt bluff. If this alternative were selected by the BIA in its ROD, then cultural surveys would be completed, and sites would be recorded and evaluated for NRHP eligibility. If the pipeline is approved for construction, the THPO/SHPO coordination requirements for inadvertent discoveries and ancestral remains would be followed.
Land Use: Residences/ Agricultural productivity/ Recreation	No residences would be affected by construction, and existing land uses would continue.	One residential structure is located within 200 feet of the ROW centerline that would be subject to short-term noise and dust during plant discharge water pipeline construction between the natural gas supply pipeline ROW and Cold Springs Reservoir. The remainder of the surface disturbance for the plant discharge water pipeline is included in the ROW for the gas supply pipeline, which is the same for both alternatives. No change in access to recreational users of Cold Springs Reservoir would occur because the Feed Canal service road is not part of the public road access system.	No residential structures are located within 200 feet of the ROW centerline that would be subject to short-term noise and dust during construction between the plant site and the Columbia River. . No change in access to recreational users of Lake Wallula would occur because the proposed plant discharge water discharge is not located near any designated recreational areas or public access points.
Socioeconomics		Construction grading and excavation could result in the economic loss of annual crops on about 5 acres for one year, and longer than one year for perennial crops (alfalfa), depending on the construction season. County property taxes, taxes paid to the Oregon Department of Energy, and gross operating revenue taxes would be applied to the capital cost of about 7.5 miles of plant discharge water pipeline that is located on private, federal, and state lands.	Construction grading and excavation would not cause losses of annual or perennial crops. County property taxes, taxes paid to the Oregon Department of Energy, and gross operating revenue taxes would be applied to the capital cost of about 0.2 miles of plant discharge water pipeline that is located on private, federal, and state lands.
Public Health and Safety		No risks to the public from transporting plant discharge water by pipeline are anticipated.	No risks to the public from transporting plant discharge water by pipeline are anticipated.