

**BEND HYDROELECTRIC PROJECT (FERC No. XX)
DRAFT CONDUIT EXEMPTION APPLICATION**



**Prepared by:
CITY OF BEND
Bend, Oregon**



DECEMBER 2011

BEND DRAFT CONDUIT EXEMPTION APPLICATION

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BEFORE THE FEDERAL ENERGY REGULATORY COMMISSION
APPLICATION FOR EXEMPTION FOR
SMALL CONDUIT HYDROELECTRIC FACILITY

INTRODUCTORY STATEMENT

The City of Bend (City or Bend) applies to the Federal Energy Regulatory Commission (FERC) for an exemption for the Bend Hydroelectric Project, a small conduit hydroelectric facility that meets the requirements of [18 C.F.R. § 4.30\(b\)\(28\)](#), from certain provisions of Part I of the Federal Power Act

The location of the facility is:

State or Territory: Oregon
County: Deschutes
Township or nearby town: Bend

The exact name and business address of the applicant(s) is:

Applicant's Name: City of Bend
Address: 62975 Boyd Acres Rd
Bend, Oregon 97701

The exact name and business address of each person authorized to act as agent for the applicant(s) in this application is:

Name of Agent: Heidi Lansdowne, P.E., Project Manager
Address: 62975 Boyd Acres Rd
Bend, Oregon 97701

The City of Bend is a municipality.

Pursuant to section 30 of the Federal Power Act, 16 U.S.C. § 823 (2006), exemption from all of Part I of the Federal Power Act is requested.

EVIDENCE OF APPLICANT OWNERSHIP

The City of Bend has all of the real property interests in the lands necessary to develop and operate the project, such as a deed, option, or lease. Specifically, the City of Bend has a deed for the property. Appendix A and Exhibit G contain documentary evidence of the applicant's interest in the lands, as required by [18 C.F.R. § 4.31\(b\)\(2\)](#).

FEDERAL LANDS

The Bend Hydroelectric Project will not be located on federal lands.

STATEMENT OF FEES REQUIRED TO DEVELOP SECTION 30(C) CONDITIONS:

The United States Fish and Wildlife Service (USFWS) has stated that it will not be requesting fees in order to develop its section 30(c) conditions. Documentation of the applicant's consultation regarding the statement of fees is included with the Consultation information in Appendix B-1.

INDIAN TRIBES

This proposed Project will not affect any Indian tribes. Correspondence has been sent to the following Indian Tribes (contact information is provided on the distribution list):

- Confederated Tribes of the Warm Springs Reservation – Tribal Council
- Confederated Tribes of the Umatilla Indian Reservation
- Confederated Tribes of the Umatilla Indian Reservation –Chairman
- Confederated Tribes of Coos Lower Umpqua and Siuslaw Indians
- Hells Canyon Preservation Council
- Siletz Tribal Council
- Burns Paiute Tribe General Council
- Klamath General Council
- Umpqua Watersheds
- Coquille Indian Tribe
- Cow Creek Government Offices
- The Institute for Fisheries Resources
- The Confederated Tribes of the Grand Ronde Community of Oregon

None of the Indian tribes have expressed concern over the proposed hydroelectric project.

EXHIBIT A

Introduction

The City of Bend relies on two water supply sources: 1) surface water from Bridge/Tumalo Creeks, and 2) groundwater from the Deschutes Regional Aquifer. The City's surface water supply system was developed in the 1920s as an unfiltered, gravity-operated system and currently provides approximately half of the City of Bend's annual municipal water supply. The existing system includes a diversion structure, an intake facility and two 10-mile water supply conduits that carry water from the intake facility on Bridge Creek to a water storage and disinfection facility at the Outback Reservoir site. The City's Bridge Creek intake facility accepts water from Bridge Creek. Flow in Bridge Creek is supplemented with water that is diverted from source springs located along the Middle Fork of Tumalo Creek. The source springs diversion system has been operated by the City since the 1950s, and diverts a portion of the water from the source springs that would naturally flow into the Middle Fork of Tumalo Creek. No physical or operational changes to the source spring diversion system are proposed as part of the Surface Water Improvement Project.

Potential risks have been identified with continued operation of the existing water supply system, due to the need for replacement of the aging conduits. Most of the existing conduit alignments lie within heavily forested areas on United States Forest Service (USFS) land, making access difficult and in-place replacement undesirable. The conduits also cross several private properties on City easements. In several easements, structures have been built directly over the existing water supply conduits alignments. Due to lack of tree clearing in easements, tree roots have contributed to the degraded condition of the conduits.

The primary objective of the proposed installation of a new water supply conduit is to replace the aging conduits that appear to be failing, lack adequate flow control, and are at risk of catastrophic failure. In addition, the design of the existing water supply conduits limits the ability to easily shut down the conduits in an emergency. A rupture in the existing conduits could result in significant impacts to nearby property and infrastructure.

The United States Environmental Protection Agency (USEPA) recently issued new regulations (Long Term 2 Enhanced Surface Water Treatment Rule) that require additional treatment for microbial pathogens, such as cryptosporidium, in City surface water supplies by October 2012. The City of Bend has applied for and received a 2-year extension for this requirement from Oregon Health Authority.

In addition to the regulatory requirements, the aging surface water supply system is at an increasing risk of failure and water quality degradation resulting from a forest fire and is in need of significant repair, replacements, and upgrades. A fire in the protected watershed would degrade water quality making the Bridge Creek water unsuitable for drinking without appropriate treatment. In addition, a fire could result in fallen trees located over the conduit which could rupture the conduit. The existing Bridge Creek water supply system is unfiltered and turbidity cannot be treated. This greatly limits fire risk management activities in the protected watershed

because most of these activities would increase turbidity in Bridge Creek making the water unsuitable for drinking.

Bend completed an alternatives study comparing the refurbishment of the existing surface water supply system, replacement of the Tumalo/Bridge Creek supply with groundwater, or building a Deschutes River diversion. After carefully considering key issues, including environmental protection, water supply reliability and flexibility, water quality, water rights, limitations on existing groundwater delivery infrastructure, long-term energy use and costs, and construction and operation costs, the City determined the refurbishment option was preferred.

The City proposes the following actions to support compliance with the USEPA regulations:

- Install a new 30-inch steel water supply conduit to replace the existing two water supply conduits from the water intake facility to the Outback Reservoir site (the lower portion of the conduit will be steel, the upper portion is expected to be high-density polyethylene (HDPE)).
- Build a 13.6 MGD (21 cfs) membrane filtration water treatment plant at the Outback Reservoir site.
- Upgrade the Bridge Creek Water Intake Facility to meet current standards as required.
- Build a hydropower plant to utilize the energy potential of the gravity water system and to help offset project costs.

The installation of electrical generating capacity at the Outback water treatment site would enhance the City of Bend's renewable energy resources by utilizing an existing potential source of hydropower that is not currently being used.

Exhibit A must describe the small conduit hydroelectric facility and proposed mode of operation with appropriate references to Exhibits F and G. The information in this exhibit may be submitted as a table. The following information must be included:

(1) A brief description of any conduits and associated consumptive water supply facilities, intake facilities, powerhouses, and any other structures associated with the facility.

[Including, but not limited to: (1) where the consumptive water facilities begin (including the town, river, or reservoir); (2) the length and diameter (if enclosed) of the conduit; (3) any structures located along the length of the conduit (such as weirs, fish screens, valves, etc.) and where the structures are located; (4) the proposed hydroelectric structure and any other facilities needed for hydropower operation; and (5) how, where, and into what the water will discharge from the proposed power structure.]

An existing intake structure on Bridge Creek, approximately 10 miles west of the Outback Water treatment site, will divert water from Bridge Creek into a new 30-inch diameter water supply conduit. Fish screens will be installed on the conduit intake at the intake structure. The conduit will replace two existing pipelines as described above.

The conduit will primarily be installed underground with the exception of one aerial stream crossing. The upper three miles of the conduit is anticipated to be HDPE and the balance of the conduit will be cement mortar lined and coated steel. The conduit will terminate at the Outback water treatment site (Outback site) where it will discharge raw water through an energy dissipation bypass valve into the water pretreatment basins. A hydroelectric energy generation unit will be installed parallel to the energy dissipation valve, also discharging into the pretreatment basin.

The hydroelectric generation equipment, described below, will be installed inside a building as shown in Exhibit F. The structure will be approximately 35 feet by 47 feet in plan dimension, containing the turbine, generator, turbine shut-off valve, controls, switchgear, and other ancillary equipment necessary for operation of the unit. The generator step-up transformer and the main circuit breaker will be located outside, adjacent to the building. Water discharged from the turbine will travel through a flume for a short distance to the pretreatment basin. Stoplogs will be provided at the flume entrance to the pretreatment basin to allow dewatering of the flume while the pretreatment basin is in operation.

(2) The natural sources of water that supply the related conduit are:

[Specifically identify where the water comes from.]

The City's surface water intake facility is located on Bridge Creek, and the water supply is comprised of water from Bridge Creek and water from a spring complex that naturally feeds the Middle Fork of Tumalo Creek. As described earlier, flow in Bridge Creek is supplemented with water that is diverted from source springs located along the Middle Fork of Tumalo Creek. The water diverted from the source springs would naturally flow into the Middle Fork of Tumalo Creek. No physical or operational changes to the source spring diversion system are proposed as part of the Surface Water Improvement Project.

(3) The purposes for which the conduit is used:

[Section 30(a)(2) of the FPA requires a conduit exemption to be located on a conduit used primarily for agricultural, municipal, or industrial consumption. Specify the use of your conduit, such as irrigation, water supply, or industrial uses. The primary purpose of the conduit cannot be for power production.]

The purpose of the conduit is to provide raw water to the City of Bend water treatment and storage facility at the Outback site. The water is distributed by the City of Bend for municipal uses.

(4) The number of generating units you are proposing, including auxiliary units, the capacity of each unit, and plans, if any, for future units:

The City of Bend proposes a single hydraulic turbine generator set, with a capacity of approximately 1,600 kW (1.6 MW). If additional hydropower generation is desired in the future, an upgrade to the existing unit might be possible in lieu of a smaller second unit.

(5) The type of each hydraulic turbine:

The proposed turbine generator to be installed at the proposed hydroelectric facility would be a 600 kW (1.6 MW) horizontal shaft impulse turbine with two nozzles and a shut off valve.

(6) A description of how the hydroelectric facility is to be operated, manually or automatically, and whether the hydroelectric facility is to be used for peaking:

The proposed plant would be operated so that there would be no change in total flow through the conduit due to the installation of the new hydroelectric unit. The proposed facility will be operated automatically in flow control mode according to the capacity of the downstream water treatment plant and user demand. The proposed facility may occasionally be operated in manual mode, but still according to a flow set point. The facility will not be used for peaking.

(7) Estimations of:

(i) The average annual generation in kilowatt-hours:

The estimated average annual generation of the new unit/plant would be approximately 10,000,000 kWhr/yr.

(ii) The average head of the hydroelectric facility:

The average net head for the new unit is estimated to be approximately 900 feet.

(iii) The hydraulic capacity of the hydroelectric facility

The maximum hydraulic capacity of the new turbine/plant (maximum discharge through the plant) is estimated to be approximately 27 cfs. However, the hydroelectric facility is being designed to accommodate 21 cfs on a sustainable basis.

(iv) The average flow of the conduit at the hydroelectric facility or point of diversion (using best available data and explaining the sources of the data and the method of calculation):

The flow available is the minimum of the water demand, water available at the Intake, or water diversion allowed under the City's water rights. Water demand is forecasted from historical use patterns. Water availability at the intake is based on historical gage records. The City's water rights vary by month.

The Applicant's analysis of flows available for hydropower generation was summarized in the Initial Consultation Document included here as Appendix B-2. Below are the resulting monthly average flows in cfs, for a 20-year forecast period. The annual average flow during the period is 17.5 cfs.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
17.8	16.3	16.3	18.9	20.6	20.6	14.9	14.7	17.7	18.9	15.9	16.8

(v) The average amount of the flow described in paragraph (c)(7)(iv) of this section available for power generation:

All.

(8) The planned date for beginning construction of the facility:

The City is currently planning to start construction of the hydroelectric facility in June 2013.

(9) If the hydroelectric facility discharges directly into a natural body of water and a petition for waiver of [18 C.F.R. § 4.30\(b\)\(28\)\(v\)](#) has not been submitted, evidence that a quantity of water equal to or greater than the quantity discharged from the hydroelectric facility is withdrawn from that water body downstream into a conduit that is part of the same water supply system as the conduit on which the hydroelectric facility is located.

[To be allowed to discharge water into a natural waterbody without a waiver, you need to show that the water leaving your project will be taken out further downstream as a part of your same water system.]

Not Applicable.

(10) If the hydroelectric facility discharges directly to a point of agricultural, municipal, or industrial consumption, a description of the nature and location of that point of consumption.

The proposed hydroelectric facility would utilize untreated, raw water diverted from Bridge and Tumalo Creeks that would be delivered to the City of Bend's proposed water treatment plant at the Outback site, stored in above-ground reservoirs, and then distributed to water users in the City of Bend via the City water distribution system.

(11) Although a dam may not be considered for hydroelectric purposes, occasionally a conduit project will be put into place at the same time construction for the hydroelectric facility's primary purpose occurs. If this is the case, please provide a description of the nature and extent of the construction of such a dam that would occur in association with construction of the proposed hydroelectric facility, including a statement of the normal maximum surface area and normal maximum surface elevation of any existing impoundment before and after that construction; and evidence that the construction would occur for agricultural, municipal, or industrial consumptive purposes even if hydroelectric generating facilities were not installed:

Not applicable. No dam construction of any nature or extent will be developed in association with the construction of the proposed small conduit hydroelectric facility.

(12) Alternatives Not Selected

Over the last 30 years a number of engineering reports have studied the possibility of developing new systems to enhance Bend's public water supply, including replacing the Bridge Creek water

supply with groundwater or with Deschutes River water. The City also considered alternatives to the proposed water supply pipeline alignment including replacing the existing pipelines in one or both of their existing alignments, and a shorter pipeline alternative that would require moving the City's point of diversion west from Bridge Creek to a downstream location on Tumalo Creek. These alternatives were dismissed from detailed study for reasons described below.

Groundwater-Only Alternative (Replacing the Bridge Creek supply with groundwater)

This alternative would not have a hydropower element and was dismissed due to:

- High energy costs associated with groundwater pumping from 500 – 800 feet depth
- Groundwater only did not provide for the reliability of a dual-source water system to provide necessary system reliability
- Need for installation of new wells, infrastructure, and groundwater rights that would be required to meet future water demands, coupled with an uncertain regulatory environment in which to obtain new groundwater rights equaled risk to City water system growth

Replacing the Bridge Creek supply with Deschutes River water

This alternative would not have a hydropower element and was dismissed due to:

- Impacts and costs associated with a new intake and water treatment plant that would need to be built on the Deschutes River
- Need for a more sophisticated filtration plant than currently proposed at the Outback site to remove organic carbon, taste, and odor
- Negative aesthetic system impacts and water chemistry of warmer water
- Costs associated with a new pump station that would be needed to pressurize treated water for the distribution system
- Locating a secondary source on the Deschutes River would make mixing with the local groundwater supply more problematic unless the supply had a direct pipeline to the Outback site

Replacing the City's water supply pipelines within existing alignments

The City considered replacing both of the existing pipelines in their current alignments with two 20-inch water supply pipelines, and also considered replacing the existing pipelines with a single 30-inch pipeline in one of the existing alignments. The existing pipelines are located primarily on undeveloped forest lands, and access to these pipeline corridors is constrained. Large trees and dense vegetation are well established on top of the existing pipelines because these corridors were not routinely cleared in order to avoid visual impacts. These existing-alignment alternatives would meet the capacity needs of the City and would have provided opportunity for hydropower, but were not studied in detail for the following reasons:

- Replacing pipelines in one or both of their existing alignments would result in substantial landscape and habitat disturbance and would require substantial tree removal and construction noise in ecologically sensitive areas.
- Environmental impacts of new temporary and permanent roads through undeveloped forest lands that would be required for construction access as well as long-term access for maintenance and inspection.
- A new pipeline in one or both of the existing alignments would require ongoing tree and vegetation clearing activities along the pipeline alignment(s) in order to protect the

conduit from encroaching roots and to maintain access to the pipe. Ongoing corridor clearing activities would result in visual impacts and ongoing ground and noise disturbance in undeveloped forested areas, and would be costly.

- Replacing the conduits in one or both of the existing alignments would be more expensive to build and maintain than the proposed in-road alignments due to:
 - Higher construction costs to install pipe in undeveloped roadless areas
 - Cost of removing the existing pipeline(s)
 - Costs associated with temporary and permanent access roads required to install, maintain, and inspect the pipeline
 - Cost of ongoing corridor maintenance (clearing) to maintain pipe integrity

Moving the Point of Diversion downstream to a location on Tumalo Creek

The City considered moving its point of diversion (intake) from Bridge Creek east to a downstream location on Tumalo Creek. This alternative was considered because it would reduce the overall length of the pipeline, reduce pipe material costs, and present a higher opportunity for the City to approach its full water rights due to higher flows that would be available at a lower point of diversion. This option would not have a hydropower element, and was not studied in detail for the following reasons:

- Moving the City's point of diversion out of a protected watershed to a location downstream of developed areas accessible by road, private properties, and potential point and non-point sources of water contamination presents public health risks and could require higher level and more expensive water treatment than is currently proposed.
- Moving the point of diversion downstream and east to a location on Tumalo Creek would require construction of a new intake facility and installation of a new water supply pipeline in undeveloped forested lands. Pipeline construction and maintenance would require road building, and pipeline corridor maintenance would require ongoing vegetation and tree removal which would result in habitat and visual impacts.
- The City's water rights are not readily replaceable or easily relocated (point of diversion transferred downstream) and present a high degree of risk in relocation process.
- Opportunities for an all-gravity system become increasingly limited as the point of diversion is moved east and downhill. Shorter pipe alignments the City considered would have required some level of pumping, which is costly over time due to energy demand and maintenance of pumping systems. This alternative would also require construction of a new utility infrastructure to deliver power to the needed pumps.

EXHIBIT E

Exhibit E is an Environmental Report. It must be prepared pursuant to [18 C.F.R. § 4.38](#) and [18 C.F.R. § 4.92\(e\)](#) and must include the following information, commensurate with the scope and environmental impact of the hydroelectric facility's construction and operation:

This description does not include the entire conduit system, only the area where the hydroelectric facility will be placed. Even for proposals for power facilities to be contained within a closed pipe or contained vault (such as a valve house or water treatment facility), there must be a description of the area around the proposed hydroelectric facility that will be affected. Please address each resource area. If you determine that the project will have no effect on any area, say so and why you came to that conclusion.

(1) A description of the environmental setting in the vicinity of the facility, including:

VEGETATIVE COVER:

The proposed powerhouse will be located on gravel fill in an area mostly devoid of vegetation. Cover in the vegetated areas abutting the gravel fill is typical of upland forests in the vicinity and includes an overstory of ponderosa pine (*Pinus ponderosa*) and Douglas fir (*Pseudotsuga menziesii*) trees and an understory dominated by antelope bitterbrush (*Purshia tridentata*) and green leaf manzanita (*Arctostaphylos patula*). Herbaceous species are not abundant; however, grasses and forbs common to upland forests in the vicinity are present.

FISH AND WILDLIFE RESOURCES:

Lands surrounding the Project area in Oregon occupy the Level III USEPA Eastern Cascades Slopes and Foothills Ecoregion (Griffith 2010). Ecoregions, as defined and described by the USEPA, denote areas of general similarity in ecosystems and in the type, quality, and quantity of environmental resources. The Eastern Cascades Slopes and Foothills Ecoregion, known locally as the Ponderosa Pine/Bitterbrush Woodland, is a region of open forests of ponderosa pine. Some lodgepole pine (*Pinus contorta*) distinguish this region from the higher ecoregions to the west where fir and hemlock forests are common and lower dryer regions to the east where shrubs and grasslands are predominant (Griffith 2010). The ponderosa shrub forest/ ponderosa pine forest has an understory that varies. This understory is mostly made up of antelope bitterbrush, green leaf manzanita, snowberry (*Gaultheria* spp.) and Idaho fescue (*Festuca idahoensis*) (Thorson, T.D. et.al 2003). This vegetation is adapted to the prevailing dry continental climate and is highly susceptible to wildfire (Griffith 2010).

Typical wildlife that can be found in the Project vicinity includes reptiles, avian, and mammal species. The western rattlesnake (*Crotalus oreganus*) and the gopher snake (*Pituophis catenifer*) are reptile species that could be found within the area (Oregon State University, 2011). The avian species that could be commonly seen in the Project vicinity are turkey vulture (*Cathartes*

aura), morning dove (*Zenaida macroura*), common raven (*Corvus corax*), Steller's jay (*Cyanocitta stelleri*), mountain chickadee (*Poecile gambeli*), bushtit (*Psaltriparus minimus*), pygmy nuthatch (*Sitta pygmaea*), spotted towhee (*Pipilo maculatus*), and chipping sparrow (*Spizella passerina*) (Terres 1987).

Mammals typically found in the surrounding habitat include mule deer (*Odocoileus hemionus*), western spotted skunk (*Spilogale gracilis*), Merriam's ground squirrel (*Spermophilus canus*), least chipmunk (*Neotamias minimus*), big brown bat (*Eptesicus fuscus*), and little brown bat (*Myotis lucifugus*) (Oregon State University, 2011).

With the proposed powerhouse site consisting of a graded and graveled area with only sporadic herbaceous vegetation consistent with disturbed areas, it does not appear that the City of Bend's Project operations will have an effect on botanical or wildlife resources. Additionally, there do not appear to be any significant aquatic resources in the immediate vicinity of the Project, therefore no effects are anticipated.

WATER QUALITY AND QUANTITY:

The City of Bend utilizes the Bridge Creek Municipal Watershed for approximately 50% of the drinking water supply. The actual amount of water the City uses from this source depends on a variety of environmental impacts such as weather, snowmelt, streamflow, use by Tumalo Irrigation District, and community demands etc. The Deschutes National Forest and City of Bend staff conduct annual watershed inspections every September to evaluate uses in the watershed, watershed fire risk, and to determine projects for improving the water quality in the watershed.

The City's primary water sources are from surface water from Bridge Creek and groundwater from the Deschutes Aquifer. The City holds 12 groundwater rights that authorize the use of groundwater at a rate of up to 68.2 cfs (44.1 mgd) for municipal purposes. This groundwater use is authorized with 7 certificates and 5 permits. The City has 6 surface water rights authorizing the total use of up to 36.1 cfs (23.3 mgd) from Bridge Creek and Tumalo Creek for municipal purposes.

LAND AND WATER USES:

The proposed powerhouse site is located at the Outback property owned by the City of Bend. The site has been developed as the City of Bend Outback Reservoir well and CT. Facilities on the property include water storage reservoirs, a surface water chlorine contact reservoir, a camouflaged cellular tower, domestic wells that supply water to the City of Bend, exterior lighting, and multiple and miscellaneous auxiliary structures used for operating and maintaining the utility facility.

Along the southern boundary, the property abuts land owned by the U.S. Forest Service (USFS), zoned Forest Use 1 (F-1). The property abutting the southern boundary is also located within two Wildlife Area (WA) combining zones – Elk Habitat and Deer Winter Range. In addition, the property abutting the southern boundary of the subject property is also partially located within the Landscape Management combining zone surrounding Skyliners Road. The parcel immediately to the south of the subject property is owned by the USFS and the City's use of this parcel is allowed under a USFS Special Use Permit.

The remainder of the property is surrounded by a single privately owned parcel identified on Deschutes County Assessor’s map 171100 as tax lot 6205 and zoned RR-10. This adjacent property is also located within the WA combining zones for Deer Winter Range and the Landscape Management combining zone surrounding Skyliners Road.

Bend relies on two water supply sources: (1) Surface water from Bridge and Tumalo Creeks, , and (2) groundwater from the Deschutes Regional Aquifer. The Bridge Creek surface water supply system was developed in the 1920s as an unfiltered, gravity-operated system, and provides approximately half of the City of Bend’s annual drinking water supply.

RECREATIONAL USE:

There are no recreational uses within the Outback site. The site is fenced and closed to public access. Existing facilities are located inside a perimeter security fence with locked gates designed to prevent public access to the site. The proposed building and associated improvements will be located inside the existing fenced facility. Recreation on lands that pass through Bend Municipal Watershed is restricted by signage and self-issued permit system. It is restricted to hiking only; no bikes, dogs, or stock animals are permitted. The City pays an annual fee to the USFS to patrol recreational use within the protected watershed.

SOCIO-ECONOMIC CONDITIONS:

The proposed Project is located in Deschutes County, Oregon. Oregon has experienced a 30% population increase between 1990 and 2000, ranking 15th in the U.S. for growth rate. Deschutes County has experienced a 54% population increase between 1990 and 2000, ranking 1st for the State of Oregon growth rate (Census Scope 2000). This growth rate continued between 2000 and 2010, with the state population increasing by an additional 12% and the county population increasing by an additional 37.3% during the same period.

Incorporated areas in Deschutes County located in the vicinity of the Proposed Project include the City of Bend estimated population in 2009 of 82,280 and the City of Redmond with a 2009 population estimate of 25,800. Sisters and La Pine are the other two incorporated areas within the county having an estimated population in 2009 of 1,925 and 1,625 respectively (Oregon Blue Book 2011).

The business opportunities in Deschutes are very diversified, and include the following economic sectors:

Sector	Establishments	Number of Employees
Educational	52	287
Health Care	543	8,144
Manufacturing	299	5,359
Professional/Scientific	1015	3,572
Real Estate	452	1,782
Services (retail, entertainment, food services etc)	1480	21,170

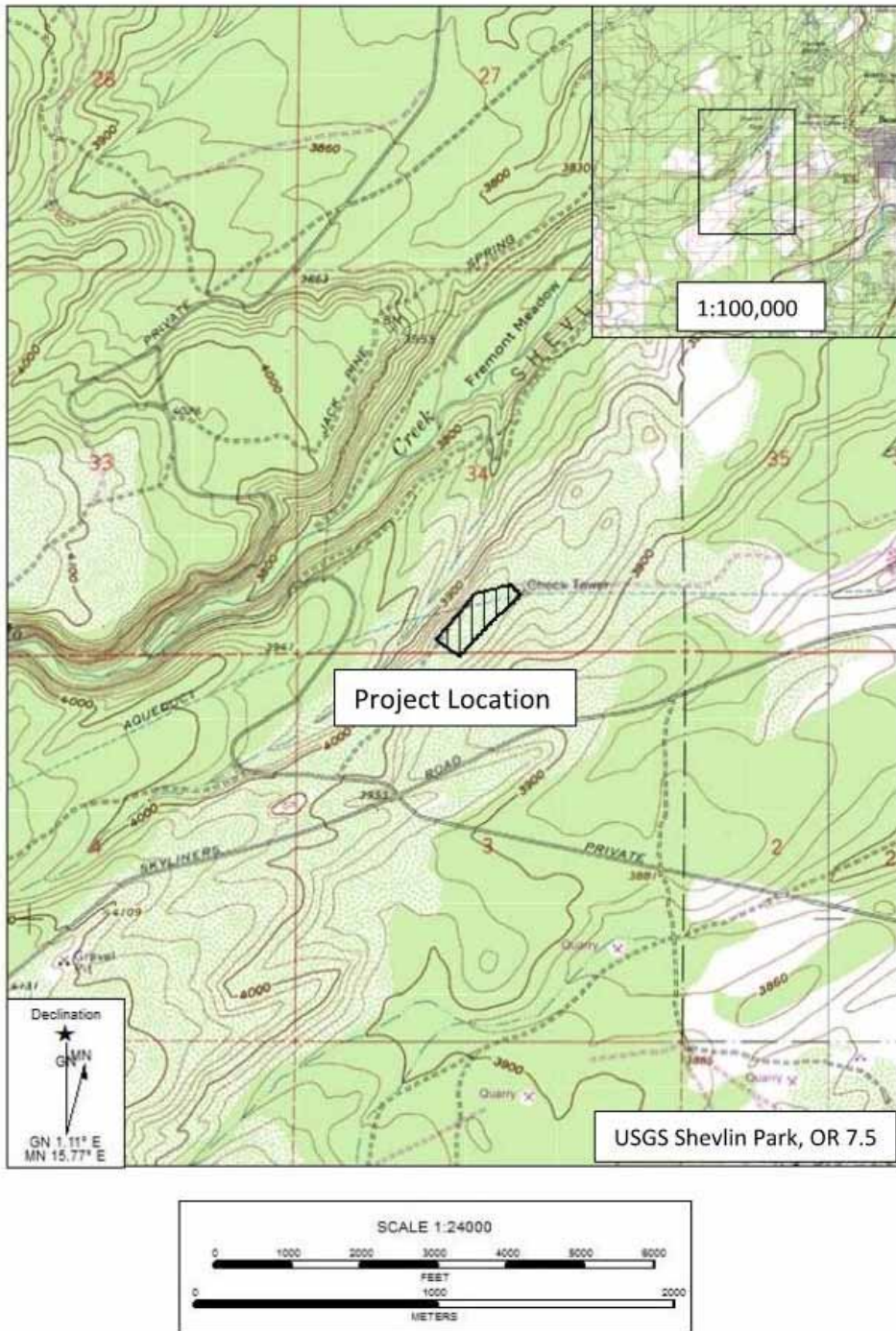
Source Census. Gov 2011

The proposed Project will not make a significant change in the socio-economic conditions of the surrounding area.

HISTORICAL AND ARCHEOLOGICAL RESOURCES, INCLUDING SITES ELIGIBLE FOR OR INCLUDED ON THE NATIONAL REGISTER OF HISTORIC PLACES:

A Phase I cultural resources study was completed on October 4, 2011, to identify potential effects within the Area of Potential Effect (APE) for the construction and operation of a proposed hydroelectric plant on developed, extensively disturbed land within the “Outback site,” owned by the City of Bend, Oregon. The study consisted of a documents search within a one mile radius circle centered on the Project location, an intensive pedestrian survey, and subsurface site discovery probes. Three prehistoric archaeological sites are situated within the search radius, but none were identified within the Project area (Figure 1). The intensive archaeological survey of the APE produced negative results from both surface inspection and subsurface probes. A No Effect determination was recommended. The State Historic Preservation Office (SHPO) concurred with the City that the proposed hydroelectric facility would have no effect on known cultural resources (November 29, 2011 letter from SHPO included as Appendix B-4).

Figure 1 - Project Location



VISUAL RESOURCES

The proposed powerhouse will blend in with the existing development on the site. The building will be earth tone in color and will be concealed from surrounding properties by an existing forested buffer that is approximately 50-feet wide. The building height will be 12 feet lower than the tallest existing water reservoir on the site. With the exception of the existing cell tower, structures on the Outback property are not visible from Skyliners Road.

ENDANGERED OR THREATENED SPECIES, CRITICAL HABITATS (IF NONE, STATE)

According to the USFWS and Oregon Fish and Wildlife Offices and websites maintained by the USFWS, a total of five terrestrial species and one aquatic species that are protected under the Endangered Species Act (ESA) have the potential to occur in habitats affected by the Project.

AQUATIC SPECIES LISTED UNDER THE ESA

According to the USFWS and Oregon Fish and Wildlife Offices and websites maintained by the USFWS, one aquatic species of special federal status potentially occurs in Deschutes County, Oregon. The species noted during the literature and data research was the bull trout (*Salvelinus confluentus*) (USFWS 2011).

The bull trout was federally listed as a threatened species on June 10, 1998. There is no final recovery plan for the bull trout. All of the plans at present are still in draft status (USFWS 2008). Critical habitat for the bull trout was designated in 2005. The critical habitat includes numerous watersheds in Montana, Idaho, Nevada, Washington, and Oregon (USFWS 2008). There is no critical habitat for the bull trout within the Project Boundary or within the immediate designated area (Federal Register 2010). Extensive bull trout surveys were conducted by the U.S. Forest Surveys in the summer and fall of 2011 in potentially affected reaches of Tumalo Creek, and no bull trout were observed.

TERRESTRIAL SPECIES LISTED UNDER THE ESA

According to the USFWS and Oregon Fish and Wildlife Offices and websites maintained by the USFWS, five species of special federal status potentially occur in Deschutes County, Oregon. The species noted during the literature and data research included the northern spotted owl (*Strix occidentalis caurina*), North American wolverine (*Gulo gulo luscus*), greater sage-grouse (*Centrocercus urophasianus*), yellow-billed cuckoo (*Coccyzus americanus*), and Oregon spotted frog (*Rana pretiosa*) (USFWS 2011).

Northern spotted owl (Strix occidentalis caurina)

The northern spotted owl was federally listed as a threatened species under the Endangered Species Act on June 26, 1990, in the Federal Register 55 FR 26114-26194 for Washington, Oregon, and California, and state-listed as threatened in California and Oregon, and state-listed as endangered in Washington. Critical habitat has been designated for the northern spotted owl

and the final revised recovery plan was released on June 30, 2011 (USFWS 2011b). There is no critical habitat designated within the Project Boundary.

Spotted owls are mostly nocturnal, but will hunt opportunistically during daylight hours. The predominant prey for these owls are Northern flying squirrels (*Glaucomys sabrinus*) and woodrats (*Neotoma* spp.). Other species that will be hunted include the red tree vole (*Arborimus longicaudus*), red-backed voles (*Clethrionomys gapperi*), mice, rabbits and hares, and other birds. The northern spotted owl is one of three spotted owl subspecies. The other subspecies include the California spotted owl (*Strix occidentalis occidentalis*) and the Mexican spotted owl (*Strix occidentalis lucida*). The distribution of the northern spotted owl includes southwestern British Columbia, western Washington and Oregon, and northwestern California (USFWS 2011c).

Northern spotted owls inhabit older forested habitats due to the structural characteristics required by the owl for nesting, roosting, and foraging. The northern spotted owl requires multi-layered, and multi-species canopy with moderate to high canopy closure. The older forested habitats typically contain a high number of trees with large cavities; large standing snags; a large quantity of large, fallen dead wood; and no vegetation in the midstory which is used for flight (USFWS 2011c).

The primary threat to this spotted owl subspecies is due to loss of habitat as a result of forest management and natural disasters such as fire, volcanic eruption, disease, and wind storms. Another significant threat to this owl is the competition with the expanding population of the barred owl (*Strix varia*) from the east (USFWS 2011c).

North American wolverine (Gulo gulo luscus)

The North American wolverine was federally listed as a candidate species on December 14, 2010, under the Endangered Species Act in the Federal Register 75 FR 78030 78061. No critical habitat has been designated for this largest terrestrial member of the weasel family where the adult males can weigh between 26 to 40 pounds, while females are around 17 to 26 pounds. Wolverines have glossy, dark-brown fur, a light face mask, and stripes running down both sides of their bodies. They are powerfully-built animals, with short legs and wide feet built for traveling across deep snow (USFWS 2010).

The North American wolverine is an opportunistic feeder, consuming any available food including primarily carrion, but will also eat small animals, birds, fruits, berries, and insects. Wolverines have an excellent sense of smell, enabling them to find food beneath deep snow (USFWS 2011d).

The wolverines have a large home range likely due to the availability and distribution of food, gender, age, and differences in habitat. Home ranges for adults can range from less than 39 square miles to as large as 348 square miles (USFWS 2011d).

The primary threat to the wolverine is from habitat loss due to climate warming. The wolverines inhabit near-arctic conditions wherever they occur. In the contiguous United States, the wolverine is restricted to high-elevation areas in the western U.S. where it is reliant on deep constant snow cover (USFWS 2011d).

Greater sage-grouse (*Centrocercus urophasianus*)

The greater sage-grouse, a member of the Phasianidae family, was federally listed as a candidate species on March 23, 2010 (Federal Register 75 FR 13910 14014). This grouse is the largest of its family in North America. Males can exceed 4-5 pounds and hens about 2-3 pounds. The adult of this grouse species have two large, skin sacs which are used in courtship displays and which are yellow-green in color. Additionally, males have yellow eyecombs which they display during spring courtship displays (USFWS 2011e).

The current range for the greater sage-grouse is Washington, Oregon, Idaho, Montana, North Dakota, Eastern California, Nevada, Utah, Colorado, South Dakota, Wyoming, and the Canadian Provinces of Alberta and Saskatchewan. Studies have shown that the greater sage-grouse presently only occupies approximately 56% of its historical range (USFWS 2011f).

During spring breeding, the male greater sage-grouse congregate and perform courtship displays in areas called “leks” which are open sites surrounded by denser sagebrush. Leks can be the size of a football field and are used for many generations. Greater sage-grouse males defend individual territories within the leks, by strutting, fanning their tails and producing a sound from the air sacs on their chests (drumming) to attract females. The mating season begins around March, but can be affected by weather conditions. After courtship, females lay 6-9 eggs from mid March to mid-May (USFWS 2011f).

The biggest threats facing the existence of the greater sage-grouse are habitat loss, fragmentation, and degradation, hunting, disturbance, life history, energy, mining, farm/ranch and residential development, invasive species, disease, and climate change (USFWS 2009a).

Yellow-billed cuckoo (*Coccyzus americanus*)

The yellow-billed cuckoo, a member of the Cuculidae family, was federally listed as a candidate species on July 25, 2001, for the population found west of the crest of the Rocky Mountains. This medium-sized bird (about 12 inches) in length, weighs around two ounces, has a slender, long-tailed profile, with a stout slightly down-curved bill (USFWS 2011g).

The yellow-billed cuckoo historically ranged in California, Oregon, Washington, and Arizona. It was also found along a few river reaches in New Mexico, western Colorado, western Wyoming, Idaho, Nevada, and Utah, and British Columbia, Canada. Presently it is not found in Oregon (USFWS 2011g). The habitat for the cuckoo in the eastern U.S. consists of parks, riparian woodlands, and other deciduous dominated forests, however, in the western U.S. its habitat is restricted to riparian cottonwood-willow forest (USFWS 2011g).

The biggest threats facing the existence of the western population of the yellow-billed cuckoo are the loss, degradation, and fragmentation of riparian cottonwood-willow forest. It is estimated throughout its western range habitat losses are over 85% (USFWS 2011g).

Oregon spotted frog (*Rana pretiosa*)

The Oregon spotted frog was listed as a candidate for listing under the Endangered Species Act in 1991. This medium sized frog named for the black spots that cover the head, back, sides, and legs has lost approximately 90% of its former range. Historic data documented this species from British Columbia south to the Pit River drainage in northeastern California. However, currently, this species is known to occur at 39 sites ranging from extreme southwestern British Columbia,

south through the eastern side of the Puget/Willamette Valley Trough and the Columbia River Gorge in south-central Washington, to the Cascades Range, and the Klamath alley in Oregon (USFWS. 2011h).

The Oregon spotted frog inhabits emergent wetland habitats in forested landscapes where it breeds in February or March at lower elevations and in late May or early June at higher elevations. Females may deposit egg masses at the same location in successive years in shallow, often temporary, pools no more than six inches deep. This species is the most aquatic native frog in the Pacific Northwest. It is almost always found in or near a perennial body of water that includes shallow water and abundant emergent or floating aquatic plants. These spotted frogs prefer fairly large, warm marshes around 9 acres that could sustain a large enough population to survive even with predation rates and reproductive failures (USFWS. 2011h).

The biggest threats facing the existence of the Oregon spotted frog are loss of preferred habitat (wetlands were drained, diked, and filled), non-native plant (e.g. reed canarygrass) invasions, and the introduction of exotic species such as bullfrogs that will eat the spotted frogs or outcompete them from their preferred habitat (USFWS. 2011h).

The construction and operation of a proposed Project will not affect the northern spotted owl, the North American wolverine, the greater sage-grouse, the yellow-billed cuckoo, or the Oregon spotted frog. Therefore, no specific measures are proposed by the applicant, because Project operations do not affect these wildlife species or their habitats.

(2) A description of the expected environmental impacts resulting from the continued operation of an existing small conduit hydroelectric facility, or from the construction and operation of a new proposed hydroelectric facility, including a discussion of the specific measures proposed by the applicant, the agencies consulted, and others to protect and enhance environmental resources and to mitigate adverse impacts of the facility on them.

[If there are no expected environmental impacts, say so and explain why. Do not assume that Commission staff can discern it from other parts of the application.]

No significant adverse effects to the environment are anticipated as a result of construction or operation of the proposed hydropower facility. The proposed hydropower facility would be located on developed extensively disturbed and currently bare land within the “Outback site,” owned by the City of Bend. There are no wetlands or surface waters, cultural resources, ESA species, or critical habitat within the Project Boundary.

(3) A description of alternative means of obtaining an amount of power equivalent to that provided by the proposed or existing facility.

[If you do not receive a conduit exemption, how will you get power? The Commission needs this information to determine if you will be adding power to or taking away power from the grid.]

Not applicable. The electric energy produced by the facility will be sold to the local utility. If the facility is not built, the energy will be dissipated rather than used to create clean, renewable, non-polluting electricity for the region’s use.

(4) Any additional information the applicant considers important.

Not Applicable

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- Thorson, T.D., Bryce, S.A., Lammers, D.A., Woods, A.J., Omernik, J.M., Kagan, J., Pater, D.E., and Comstock, J.A., 2003. Ecoregions of Oregon. Reston, Virginia, U.S. Geological Survey
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- USFWS 2011d. North American Wolverine *Gulo gulo luscus* Species Profile. U.S. Fish and Wildlife Service. Environmental Conservation Online System. September 15, 2011. [Online] <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A0FA>
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- USFWS. 2011f. Greater sage-grouse factsheet. U.S. Fish and Wildlife Service. Region 6, NWRS. March 2011.
- USFWS, 2011g. Yellow-billed cuckoo (*Coccyzus americanus*) Factsheet. U.S. Fish and Wildlife Service. Arizona. September 15, 2011. [Online] <http://www.fws.gov/southwest/es/arizona/Documents/Redbook/Yellow-Billed%20Cuckoo%20RB.pdf>
- USFWS. 2011h. Species Fact Sheet, Oregon spotted frog *Rana pretiosa*. U.S. Fish and Wildlife Service. April 28, 2011.

EXHIBIT F

Exhibit F is a set of drawings showing the structures and equipment of the small conduit hydroelectric facility and must conform to the specifications of [18 C.F.R. § 4.41\(g\)](#). The Commission needs this information in order to determine whether the structure and design of the project is feasible and meets our requirements for small conduit hydroelectric exemptions. Exhibit F drawings contain critical energy infrastructure information (CEII) and should be labeled as such on the drawing, [18 C.F.R. § 388.113\(c\)](#). CEII is specific engineering, vulnerability, or detailed design information that relates to the production, generation, transmission, or distribution of energy. The Commission protects this information by restricting public access to CEII materials. For more information please see, <http://www.ferc.gov/legal/ceii-foia.asp>.

The hydroelectric project drawings must conform to [18 C.F.R. § 4.39](#), which states that all maps must be drawn to scale, must be legible, and must contain a title block with the drawing title, graphical and numerical scale, and other pertinent information concerning the drawing. These drawings must include the dimensions of important structures such as the powerhouse and include details of the generating units.

Project drawings of all major structures must include:

- *Plans (overhead view);*
- *Elevation (front view);*
- *Profiles (side view); and*
- *Section drawings.*

In some cases, the Commission staff may waive the specific requirements identified above. If you are contemplating requesting a waiver, you should contact Commission to determine what you would need to file.

(Contains CEII not released to public)

EXHIBIT G

Exhibit G is a map of the hydroelectric project and boundary and must conform to the specifications of [18 C.F.R. § 4.41\(h\)](#), which states that the project boundary data must be in a geo-referenced electronic format, include a vicinity map of the project area, and a detailed drawing that shows all principal features as a whole in relation to the affected waterway and other permanent geographical features. The Exhibit G drawing is a general location map that shows the physical project features, project boundary, and land ownership. The Commission needs this information to determine: which facilities are under the Commission's jurisdiction; whether you own the land on which all hydroelectric facilities are located; and the location of the hydroelectric project for future inspections.

Maps must:

- *Show the location of all facilities and relationship to the nearest stream and town;*
- *Show the project boundary, which is a line enclosing all project works (including the powerhouse and appurtenant facilities, but not the conduit on which the hydroelectric facility is located);*
- *Have three known reference points (i.e. GPS or latitude/longitude coordinates);*
- *Be stamped by a registered land surveyor;*
- *Conform with [18 C.F.R. § 4.39](#) to have the appropriate size and scale;*
- *Be in geo-referenced format (each project feature and the coordinates for the reference points must be shown in relation on a map) ; and*
- *List all of the owners of property on which the project is located, including lands that the applicant owns or plans to acquire or has rights to occupy or plans to acquire rights (e.g., leases or easements).*

CONSULTATION

Consultation information lets the Commission know that you have notified all relevant federal and state agencies; Indian Tribes; non-governmental organizations; and interested parties of your proposal. Consultation also provides the agencies and the public opportunities to voice any concerns or request any studies that may be relevant to the proposed project. You must document that all three stages of the consultation process in [18 C.F.R. § 4.38](#) were fully satisfied.

Waivers

The City of Bend is not requesting any waivers to the consultation process.

Stage 1 Consultation Requirements

The City of Bend has complied with the Stage 1 consultation requirements of [18 C.F.R. § 4.38\(b\)](#).

- (1) Please see Appendix B-2 for the Initial Consultation Document sent to the consulted entities. The ICD provides a description of the proposed project.
- (2) On August 10, 2011, the City of Bend held a joint meeting with the pertinent agencies (see Appendix B-3)
- (3) The City of Bend informed and invited members of the public to attend the joint meeting. Please see the attached newspaper article or other proof of notification of the joint meeting (Appendix B-3).
- (4) At the August 10, 2011, public joint meeting as required by the Federal Energy Regulatory Commission to discuss the Initial Consultation Document for the Application for Conduit Exemption, there were 16 attendees (see Appendix B-3 sign-in sheet). Those attendees included:
 - One citizen of Bend who spoke in favor of the hydroelectric project
 - One mediator consultant as a private citizen
 - One Oregon Department of Fish and Wildlife (ODFW) representative
 - Three Oregon Water Rights Department representatives
 - Two USFS representatives
 - Four City of Bend representatives
 - Four HDR representatives
- (5) The City of Bend provided 60 days (October 9, 2011) for the agencies to comment on the study requests (Appendix B-3).

The following stakeholders provided comments on the Initial Consultation Document:

- Agencies
 - ODFW – High Desert Region
- NGOs
 - WaterWatch of Oregon
 - Central Oregon LandWatch

- Individuals
 - Bill Buchanan

(6) On September 9, 2011, the City of Bend held a site visit at the Outback Site. The announcement and attendee list are provided in Appendix B-3.

The following table summarizes comments received and the City of Bend's responses to the comments.

Reply to Stakeholder and Agency Comments

Oregon Department of Fish and Wildlife - High Desert Region	
Comment	Response
<p>1. ODFW’s concern is how increased flow through the conduit will be regulated so that the City is only taking what it needs to meet demand over time without diverting too much water from Bridge and Tumalo Creeks, thereby impacting fishery resources.</p>	<p>The City’s water rights only allow it to take water that can be used beneficially by rate payers within the City of Bend. The City will not divert water solely for the purpose of generating energy.</p> <p>The City is working closely with the USFS and Oregon Department of Fish and Wildlife (ODFW) to model its future surface water use under both “Build” and “No Build” alternatives, and develop findings for potential impacts to physical stream parameters, habitat, temperature, and resident fish. The goal of this work is to develop a prescribed operational approach that limits the City’s diversions based on available flow. The limitations would be set to avoid significant adverse effects to stream habitat and temperature.</p>
<p>2. Since the water is not allowed to be stored as part of the conduit exemption, there is cause for concern that excess water may be wasted and dumped.</p>	<p>The City’s existing system does not have flow control, and diverts water at a constant rate of approximately 18.2 cfs regardless of municipal demand. With the existing system, unused water is returned to Tumalo Creek about 9.5 miles downstream of the City’s intake facility. The City’s proposed surface water upgrades will include flow control that will allow the City to only divert water needed for beneficial use by rate payers. The new system will be closed, with no infrastructure to “waste” or “dump” diverted water, or return previously diverted water directly back to the creek.</p>

<p>3. If the City of Bend uses more water beyond its needs, the primary purpose of this project becomes a hydroelectric project and not a conduit exemption project.</p>	<p>Again, the City will only divert water needed for beneficial use and as allowed under its water rights.</p>
<p>4. Pursuant to 18 CFR 4.30, a conduit cannot be used primarily for the purposes of producing hydroelectric power. In reading Brown and Caldwell’s Technical Memorandum 12, it appears that the main reason for increasing the size of the piping is to accommodate the hydroelectric project.</p>	<p>The primary purpose of the proposed new conduit is to provide raw water to the City of Bend water treatment and storage facility at the Outback site. The water is distributed by the City of Bend for municipal uses. The pipeline size (30-inch diameter) is based on cost-effectiveness, access to allow internal welding, inspections and maintenance. Water velocities and pressure were also primary design drivers. The City will build a 30-inch diameter pipeline even if hydropower is not carried forward. This pipe size was evaluated and confirmed during a formal Value Engineering Study attended by a group of independent engineers.</p>
<p>5. Another concern is the City’s adherence to the three-stage consultation process. It has come to our attention that several interested parties have been left out of the consultation process. While we realize it is a time consuming and tedious process to try and notify all interested parties, it appears that some of the potential stakeholders who provided verbal and/or written comments previously, were omitted from the list included in Appendix A of the ICD.</p>	<p>The City of Bend used the FERC’s initial consultation list and identified an additional 10 potential interested parties. The public meeting was published in the required newspapers and copies of the ICD were available at the meeting. The City of Bend also has the ICD publically available on line for all interested parties. WaterWatch of Oregon, Central Oregon Land Watch, Native Fish Society, and Bill Buchanan have been added to the distribution list per their requests.</p>
<p>As stated in the ICD, water used at the powerhouse will discharge to the City of Bend water treatment plant. A bypass valve will be installed to provide uninterrupted water to the water treatment plant in case the turbine is out of service or flows exceed the turbine capacity or the State of Oregon water rights</p>	<p>Although the City’s proposed new pipes will have higher capacity than the existing pipes, water diversion rates will continue to be limited by municipal demand, water rights, and available flow using downstream flow control valves on the conduit. Further, the City is working with ODFW and the USFS (as described in response to comment No. 1</p>

<p>authorization to generate hydropower. Our concern goes back to excessive flows through the conduit and the potential to waste water since the capacity of the conduit will be increased with larger diameter pipe. Oregon law specifically states that municipal use must be “without waste” and does not allow for storage. It appears that more water may be diverted than what is needed by the City under its underlying water right permit. We would like to see more information on how flows will be regulated through the conduit to demonstrate that water will not be wasted as a result of developing this project</p>	<p>above) to develop a prescribed diversion plan that limits diversion rates according to available flow in a manner that ensures no significant adverse effects to habitat or temperatures in Tumalo Creek.</p>
<p>6. ODFW requests more information on the potential biological impacts of the proposed increased water diversion through the conduit, from both Bridge and Tumalo Creeks. There is a history of issues in the Tumalo and Deschutes basins that affect water quality and flows and the potential for additional negative impacts to the fishery are of specific concern to us.</p>	<p>The City worked with USFS & ODFW to perform an extensive, 3 month, \$150,000 effort to collect data on Tumalo Creek and model temperature and habitat. The results of this effort will be shared and thoroughly reviewed with ODFW. The City will meet with ODFW to review findings from the temperature and habitat modeling work described above in the response to comment No.1.</p>
<p>7. ODFW may require the City of Bend to install fish passage and fish screening per Oregon Statutes and administrative rules as they pertain to fish passage and screening.</p>	<p>The City of Bend has been consulting with ODFW Fish Division for the past year to discuss the fish passage and screening requirements. As of August 18, 2011, ODFW approved a 2.1 cfs minimum flow over the proposed fish ladder at the Bridge Creek Intake. The proposed screens have been designed with brushes for cleaning; there is a heating system to reduce frazil ice. To date there have been no major issues raised about the screens. Note: The City is currently pursuing a waiver on the fish ladder, and is working closely with ODFW on a net benefit proposal that would result in a higher net benefit (in lieu of building a ladder).</p>

<p>8. On Wednesday, November 2, 2011, Oregon Department of Fish and Wildlife (ODFW) staff met with City of Bend and HDR project staff with regards to the small conduit hydroelectric facilities proposed as part of the City of Bend Surface Water Project. ODFW staff who met at the HDR office included me, Amy Stuart, Ted Wise and Brett Hodgson. Other ODFW staff who participated in the meeting, via conference call, included Rick Kepler from our Salem headquarters office. Pete Baki, from our Salem headquarters office, was also able to join the conference call for a short period just prior to its conclusion. In addition, Peter Lickwar, from U.S. Fish and Wildlife Service also attended.</p> <p>This meeting/conference call was scheduled to address comments, submitted to HDR, by ODFW, in a letter dated October 14, 2011.</p>	<p>At the conclusion of the meeting, all ODFW staff involved agreed that the project purpose had been sufficiently clarified and that it does, in fact, meet the requirements for a small conduit exemption, per FERC guidelines. ODFW staff also agreed that the proposed design of the project, with regards to the placement of the conduit, and what the purpose of the bypass pipe would be, was sufficiently clarified.</p>
<p>WaterWatch of Oregon</p>	
<p>Comment</p>	<p>Response</p>
<p>9. It is clear from the City’s own materials that both the placement and size of the conduit are to allow the City to generate hydropower. Because the conduit is primarily for hydroelectric generation rather than municipal supply delivery this project does not qualify as a “conduit” under 18 CFR 4.30 as it would be in fact “primarily for the generation of electricity.”</p>	<p>The approximately 1,000 feet of elevation drop between the Intake Facility and the Outback site presents an opportunity for clean and renewable energy. The City has decided that a hydropower plant would be built as part of the proposed Surface Water Improvement Project. Both the state and federal processes required to operate a hydropower facility would allow the City to generate hydroelectric power using only water that is already being diverted for municipal use.</p>

<p>10. The City of Bend is required to distribute the ICD to interested parties. Appendix A submitted by the City of Bend is inadequate as it fails to include a number of conservation groups and individuals whom have registered concerns, both verbally and in writing, to the City of Bend regarding this project. Omitted from this list are: WaterWatch of Oregon, Central Oregon Landwatch, Native Fish Society, Trout Unlimited and a number of individuals that have written and/or testified in front of the City Council on this matter.</p>	<p>The City of Bend used the FERC’s initial consultation list and identified an additional 10 potential interested parties. The public meeting was published in the required newspapers and copies of the ICD were available at the meeting. The City of Bend also has the ICD publically available on line for all interested parties. WaterWatch of Oregon, Central Oregon Land Watch, Native Fish Society, and Bill Buchanan have been added to the distribution list per their requests. Trout Unlimited was included on the original distribution list. Any individual who would like to automatically receive information on this proceeding can do so by signing up for eService on the FERC’s web page at www.ferc.gov.</p>
<p>11. Specifically, this section contains a description of a bypass valve that will be installed to provide for uninterrupted water supply to the water treatment plant in case flows “exceed” the turbine capacity or the State of Oregon water rights to generate hydropower. The scenarios described are not allowed by Oregon law. Diversion in excess of amount put to beneficial use has been an issue for the City for years. There needs to be a much more detailed description of the bypass valve and the scenarios in which it would be used and the measures in place to ensure that the project complies with Oregon law.</p>	<p>Exhibit A of this application provides a detailed description of the bypass valve operation. The bypass valve allows water to bypass the turbine and discharge to the water filtration facility.</p>
<p>12. To ensure that the City’s current practice of diverting more water than needed to meet municipal demand and to address any questions/uncertainties regarding the actual plans for the “bypass valve,” the application to FERC should clearly spell out how the City will ensure</p>	<p>Exhibit A of this application provides a detailed description of the bypass valve operation. Once the new conduit with flow control valves is constructed, the City will divert only the water it is allowed under its State water rights.</p>

<p>that its diversion from Bridge Creek will be limited by municipal demand (in addition to other constraints).</p>	
<p>13. Given that this project is limited to the surface water diversion, the City should make clear to FERC what historical demand for surface water has been as opposed to overall demand for surface/groundwater combined.</p>	<p>We have attached WRD water use reports to show that historic demand for surface water has been far less than is anticipated for use under the City’s hydroelectric project plans.</p>
<p>14. The gauged flows reported in this section (Bridge Creek Flows and Water Availability) are on Bridge Creek at the intake point, which capture flows that come from both Bridge Creek and Tumalo Creek. Currently the City does not measure the amount of water it is diverting from Tumalo Creek under its Tumalo water rights. Given that the City, as a public entity, is required to report water use under each of its water rights, the City should in fact be measuring water diverted at both the Tumalo Creek diversion and the Bridge Creek diversion, at the diversion points. Moreover, to ensure the City is not taking more Bridge Creek water than is actually available (unsupplemented by Tumalo) the City should be required to install a streamflow gauge above the point it diverts Tumalo flow into Bridge Creek.</p>	<p>The City of Bend will be required to obtain a hydroelectric water right from the Oregon Water Resources Department (OWRD) before it can use water to generate hydropower. OWRD is required by the applicable statute to include a condition on the City’s hydroelectric water right certificate requiring the City to measure and report the quantity of water diverted.</p>
<p>15. The document states that the Oregon Water Resources Department can authorize use of existing water right certificates for generating power, however it does not state that this is subject to state permitting and regulatory process and subject to certain sideboards (i.e. fish</p>	<p>The ICD was the initial consultation document that contained the currently known information. In addition to the FERC process, the City of Bend is also undergoing the NEPA process with Forest Service who noticed the project on April 28, 2011, allowing for comments through June 6, 2011. In support of the NEPA process, the City has</p>

<p>passage and screening, limited to historic use, etc). In other areas of this document, the City does not firmly commit to fish passage/screening. The City should be clear in its application to FERC what in fact is required by state law and what the City’s plans are to meet these laws.</p>	<p>conducted a wetland delineation and stream surveys. The information pertinent to this application is provided in Exhibit E. The City has also been in consultation with ODFW regarding fish ladders and screening. The site has undergone a Cultural Resources Survey to support Section 106 of the National Historic Preservation Act. A letter from the Oregon SHPO is attached and the survey is discussed in Exhibit E. Also a desktop analysis of RTE species was completed and that information is provided in Exhibit E.</p>
<p>16. Given that the proposed conduit hydroelectric facility is dependent on diverting more surface water flow than the City has used historically, the City should study the effects of the proposed increased diversions over time on the fishery resources of Bridge and Tumalo Creeks (including effects on water quality). While the City has spent substantial sums building its case for the replacement/enlargement of pipes over other options (switching to groundwater, moving the diversion point downstream) it has yet to undertake a study outlining the impacts on the fish and wildlife dependent upon Tumalo and Bridge Creeks.</p>	<p>The statement, “given that the proposed conduit hydroelectric facility is dependent on diverting more surface water flow...” is in error.</p> <p>The proposed hydroelectric facility would easily operate at the current rates - and over a wide range - of water diversions.</p> <p>Also see responses to comments Nos. 1 and 6.</p>
<p>Bill Buchanan (Stakeholder)</p>	
<p>Comment</p>	<p>Response</p>
<p>17. I am concerned that the City project does not meet the criteria for a FERC conduit exemption. It would appear that the pipe, which runs parallel with the creek for 10-12 miles, has no purpose other than to generate head for electricity. If the primary purpose of the pipe were simply to provide water to the City of Bend, the City would logically save itself approximately \$20 million in</p>	<p>The primary purpose of the proposed new conduit is to provide raw water to the City of Bend water treatment and storage facility at the Outback site. The water is distributed by the City of Bend for municipal uses. The pipeline size (30-inch diameter) is based on cost-effectiveness, access to allow internal welding, inspections and maintenance. Water velocities and pressure were also primary design drivers. The City will build a 30-inch diameter pipeline even if</p>

<p>pipng cost and change its point of diversion to approximately 1 mile upstream of the Outback facility. The 30-inch pipe diameter also far exceeds the diameter needed for supplying the City’s existing water rights for consumption. City reports claim that the expansive size of the pipe is primarily for reducing friction loss so as to allow for more efficient energy production.</p>	<p>hydropower is not carried forward. This pipe size was evaluated and confirmed during a formal Value Engineering Study attended by a group of independent engineers.</p>
<p>18. Finally, the City master utility plans and water conservation plans all acknowledge that the City has, and will continue to have, a sufficient inventory of wells to entirely handle the City’s peak day demand without use of the surface water system. For these reasons, and for the reasons set forth in the City Council minutes, City Council discussions, presentations by staff and engineers, and various engineering reports, it is evident that the primary purpose of the City’s pipeline, as proposed, is for generation of power. Under such circumstances, a conduit exemption is inapplicable because the pipeline does not qualify as a “conduit” under FERC’s rules.</p>	<p>This assertion is not correct. The City will not continue to have sufficient inventory of wells to entirely handle the City’s peak day demand. Per the City’s Water Management Conservation Plan (June 2011), the City’s groundwater rights total 44.1 mgd while the future peak day demand is projected to be 65.5 mgd in 2030, so the City must retain its existing surface water source to meet future peak day demand. The City Council authorized re-building the surface water supply infrastructure without hydropower in November 2010. Then, after further economic analysis of hydropower, the City Council authorized adding the hydropower component in August 2011. The primary purpose of the City’s pipeline is for water supply, and hydropower is a non-essential opportunity, not a purpose driving the project.</p>
<p>19. I also disagree with the comments made at the public meeting on August 10, 2011, in which comments were stated to be limited to the powerhouse only. Comments should be received for all aspects of the project including whether or not the project is entitled to a conduit exemption. As such, I believe the notice and comment process is procedurally defective.</p>	<p>Individuals who attended the joint meeting were asked to limit their remarks to the proposed project area that will fall under FERC jurisdiction. The meeting attendees were reminded that there are opportunities for stakeholders to comment on the non-FERC jurisdictional components of the Water treatment project during the NEPA process and other Project public meetings. The City of Bend was on hand at the meeting and answered individual questions unrelated to the FERC process after the joint meeting</p>

	ended.
20. Please provide me with all future notices relating to this matter. Thank you.	Mr. Buchanan has been added to the project distribution list.
21. For the record, I join in and echo WaterWatch’s comments.	Please see responses to comments 9-16
Michael Tripp (Stakeholder)	
Comment	Response
22. I request that I be added to the notification mailing and emailing lists for meets, report releases, and other germane information.	Mr. Tripp has been added to the project distribution list.
23. This project should be considered a primary hydropower project. As a resident of Bend I have been involved in discussions of City’s proposed surface water improvement project. In this effort I have realized that the current project proposal has been constrained to be a hydropower project since the city made a “final project “ selection in 2009. The current proposed conduit was selected over other less expensive options for the city water utility so as to enable hydropower. This is evident in the Brown and Caldwell consultations that formed the basis of the 2009 “final project” selection, and the same constraint was applied to the Value Engineering report completed for the City of Bend in March of 2011.	Please see comments 1-15 and Exhibit A to provide further information on the proposed Project.
24. Furthermore, the city temporarily dropped hydro from the water utility plans when economic analysis in the fall of 2010 based on	Please see Exhibit A (12) Alternatives Not Selected for an explanation of the dismissal of other alternatives from the proposed water surface improvement project.

<p>the Brown and Caldwell work showed the hydro project would result in large economic losses. This inconvenience was circumvented by reallocating the costs of the conduit to water users so as to reduce the capital improvement costs of the hydro project (City Council, June, 2011) and then using inflated projected flows to predict economic benefit from the project. City Council on this basis approved formally proceeding with the hydro project and FERC exemption application (City Council, August, 2011). This re-labeling exercise does not change the fact that this is the same 2009 “final project” selected over other less expensive options for city water users. The conduit is not yet permitted much less built. The project, because of the hydro aspect, will require per ODFW effectively a new diversion dam at the intake. It is in fact a primary hydropower facility. It is a stretch to label this an exempted addition to a municipal water conduit when alternatives to the proposed new conduit have been dismissed because they do not enable hydropower.</p>	
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Stage 2 Consultation Requirements (completed with final application)

_____ [Applicant Name] has complied with the Stage 2 consultation requirements of [18 C.F.R. § 4.38\(c\)](#).

- (1) List any studies that the agencies requested or specify that no studies were requested. Provide the results of those studies or an explanation of the reason for not conducting those studies.
- (2) Please see attached letters showing that _____ [Applicant Name] has provided the agencies with:
 - a. A copy of the draft application;
 - b. Results of all of the studies;
 - c. A written request for review and comment.
- (3) _____ [Applicant Name] provided 90 days for the agencies to comment on the draft application prior to filing the final application with the Commission.

Stage 3 Consultation Requirements (completed with final application)

_____ [Applicant Name] has complied with the Stage 3 consultation requirements of [18 C.F.R. § 4.38\(d\)](#). Please see the mailing list attached to the application to show that _____ [Applicant Name] has provided the agencies with a copy of the final application.

VERIFICATION (completed with final application)

You must provide Verification in one of the following forms:

Either a sworn, notarized statement, which states:

1. As to any facts alleged in the application or other materials filed, be subscribed and verified under oath in the form set forth below by the person filing, an officer thereof, or other person having knowledge of the matters sent forth. If the subscription and verification is by anyone other than the person filing or an officer thereof, it shall include a statement of the reasons therefore.

This (application, etc.) is executed in the:

State of: _____
County of: _____

by: (Name) _____
(Address) _____

being duly sworn, depose(s) and say(s) that the contents of this (application, etc.) are true to the best of (his or her) knowledge or belief. The undersigned applicant(s) has (have) signed the (application, etc.) this _____ day of _____, 20____.

By: _____

Subscribed and sworn to before me, a _____ [Notary Public, or title of other official authorized by the state to notarize documents, as appropriate] of the State of _____ this day of _____, 20____.

/SEAL/ [if any]

(Notary Public, or other authorized official)

[See [18 C.F.R. § 4.32\(a\)\(4\)\(ii\)](#)]

Or an unsworn declaration in the following form:

2. “I declare (or certify, verify, or state) under penalty of perjury that the foregoing is true and correct. Executed on _____ [date].”

(Signature)

[See 28 U.S.C. § 1746 and [18 C.F.R. 385.2005\(b\)\(3\)](#)]

ATTACHMENTS

X Documentary evidence of the applicant's interest in the lands (Appendix A)

X Exhibit F (project drawings)

X Exhibit G (project maps)

Documentation of Consultation (as appropriate)

Waiver Request (Not applicable)

NA Letters (or other documentation) notifying agencies and affected Indian Tribes of waiver request

NA Letters (or other documentation) from agencies and affected Indian Tribes supporting the waiver request

Fees

X Documentation of the applicant's consultation regarding the statement of fees (Appendix B-1 – USFWS)

Stage 1

X Initial letters (ICD) sent to the consulted entities requesting comments (Appendix B-2)

X Newspaper article or other proof of notification of the joint meeting (Appendix B-3)

NA Copies of letters received from resource agencies and Indian tribes containing study requests – There were no studies requested

Stage 2 (to be provided in the final application)

_____ Letters documenting that a copy of the draft application; results of all of the studies; and a written request for review and comment were sent to agencies

_____ Copies of letters received from resource agencies, Indian tribes, or the public containing comments and recommendations

Stage 3 (to be provided in the final application)

_____ A copy of the transmittal letter certifying that the application has been sent to the consulted agencies