PMC-EF2a
(2/04/02)

U.S. DEPARTMENT OF ENERGY
EERE PROJECT MANAGEMENT CENTER
NEPA DETERMINATION

RECIPIENT: Earth By Design, Inc. **STATE:** OR

PROJECT TITLE : 45-Mile Hydroelectric Power Project Demonstration of new methodologies to reduce the LCOE for small, hydropower development (formerly 51 Mile Project)

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000486	DE-EE0005430	GFO-0005430-001	

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Order 451.1A), I have made the following determination:

CX, EA, EIS APPENDIX AND NUMBER:
Description:

B5.15 Small-scale renewable energy research and development and pilot projects	Small-scale renewable energy research and development projects and small-scale pilot projects, provided that the projects are located within a previously disturbed or developed area. Covered actions would be in accordance with applicable requirements (such as local land use and zoning requirements) in the proposed project area and would incorporate appropriate control technologies and best management practices.

Rational for determination:

Earth By Design, Inc. (EBD) is proposing to use Department of Energy funding to perform planning, design, engineering, construction, operation, performance monitoring, and a cost/benefit assessment for a hydroelectric facility on the North Unit Irrigation District's (NUID) Main Canal in Culver, Jefferson County, Oregon.

As part of the project, EBD would be installing three hydroelectric turbines and a control shed at the 45th mile of the 65 mile stretch of the canal. An elevation drop at this location would be utilized to run the turbines. The system would not dam the canal, only divert water; it is considered a "drop-in" hydro system that would produce an average annual generation of 18.126 gigawatt-hours.

The proposed hydro facilities would consist of an intake structure; a 2,700-foot-long, 96-inch diameter reinforced HDPE discharge pipes; a control shed powerhouse containing three Kaplan, axial flow Turbinator® 5,000 kW turbine units; and appurtenant facilities. Operations are expected to run approximately 190 days a year during the summer irrigation season.

The entire project is within a canal easement, which is owned by the Bureau of Reclamation (BOR). NUID owns the water rights and use of the canal. It is used to provide irrigation water for approximately 59,000 acres of county farmland in the County. The canal diversion starts in Deschutes County, Bend, Oregon and is fed by the Wickiup Reservoir, along the Deschutes and Crooked River.

Tasks proposed for this project include:

Task 1.0 Permitting and Power Purchase Agreement Activities
* Subtask 1.1 Construction Financing
* Subtask 1.2 Vendors, Bidding, and Equipment Selection
* Subtask 1.3 Land Lease Activities
* Subtask 1.4 Interconnection and Transmission (studies and agreements only)
* Subtask 1.5 Construction Permitting
* Subtask 1.6 Water Permitting
* Subtask 1.7 ITC 1603/Grants/Incentives
Task 2.0 Engineering Design Services
Task 3.0 Turbine Equipment
* Subtask 3.1 Equipment Testing and Manufacture
* Subtask 3.2 Reporting
Task 4.0 Construction

* Subtask 4.1 Construction
* Subtask 4.2 Operations During Construction
* Subtask 4.3 Environmental Permitting
Task 5.0 Equipment Testing
Task 6.0 Final Site Equipment Testing and Reporting
* Subtask 6.1 Final Testing
* Subtask 6.2 Final Report on Unit capability, performance & overall LCOE
Task 7.0 Hydropower Operations
Task 8.0 Project Management and Reporting

Federal Energy Regulatory Commission (FERC) -

EBD submitted an application for their project to FERC (Project No. 13817) pursuant to the Federal Power Act 16 USC 791a - 825r. On December 17, 2011 FERC granted EBD an exemption from licensing, otherwise known as a Conduit Exemption. Agency consultations (as listed below in permits) were conducted during this federal process. FERC determined, after reviewing EBD's application and other pertinent information, the issuance of their order is not a major federal action significantly affecting the quality of the human environment.

Bureau of Reclamation -

The Bureau of Reclamation is the owner of the NUID canal. A contract, signed November 7, 2011, between the Bureau of Reclamation and EBD allowed EBD the right and authority to enter upon, occupy and use the NUID canal. Under this contract EBD has agreed to comply with the Bureau's Safety and Health Standards, develop an Emergency Action Plan consistent with FERC's guidelines, and prepare a Standing Operating Procedure for the hydro facilities.

Permits/Approvals -

* FERC Conduit Exemption from Licensing Granted: Docket # P-13817-000
*Bureau of Reclamation – contract for canal use, signed 11/7/2011
* US Fish and Wildlife Service - concurrence of No Affect to listed species (FERC Section 7 Endangered Species Act consultation)
* State Historical Preservation Office Concurrence & Notice of Archaeology Report - No Adverse Effects determined (FERC Section 106 consultation)
* Oregon Department of Fish and Wildlife compliance (FERC consultation) – determination of minimal environmental affects
* Easement Agreement between private landowners and EBD (for underground pipeline) – signed and notarized 10-27-2011
* North Irrigation District authorization to utilize canal and water
* Oregon Department of Water Resources (ODWR) - permit for secondary use of irrigation (non-potable) waters for use in the generation of electricity
* Jefferson County Building Division – electrical permit would be acquired prior to construction

Land Use/ Water Rights -

Land clearing for construction purposes would consist of approximately 4.28 acres and excavation would consist of approximately 3.88 acres; both are within the BOR owned easement. Some excavation is expected on private land that has been disturbed by previous farming activities and trenching. A perpetual right of way agreement has been granted to EBD by the land owner.

This project does not affect any wetlands, riparian areas or FWS refuges as per the National Wetlands Inventory. The water is untreated and therefore deemed non-potable, so drinking water would not be affected by the project.

Biological Resources -

No trees or nesting areas would be affected by the construction of the hydro facilities. The construction would take place on an easement that is previously disturbed and is used regularly by vehicles and people. The only native plants in this region are listed as Shrub-Steppe, Dwarf Shrub- Steppe, wheat grass, and orchard grass. Minimal clearing of these shrubs and grasses would occur under the proposed project. There are no species in the project areas that are protected under the Endangered Species Act or listed as protected species by the State of Oregon. USFWS consultation determined no affects to avian species protected under the Migratory Bird Treaty Act.

No aquatic species would be affected by the project since the flows diverted are screened before entering the canal at the Wickiup reservoir and no fish species enter the canal.

Prime and Unique Farmland -

The farm lands adjacent to the project area, in Jefferson County, are designated as Prime and Unique Farmlands. The project work would primarily take place on the canal easement would not disturb private farmlands. There would be some excavation for pipe installation on private ground; however, Oregon Revised Statutes (ORS 215.710) and County Zoning Ordinances (DLCD) permit for (utility) hydroelectric projects on Prime and Unique Farmlands. The proposed project would install an underground pipe and perform restoration and reseeding practices. The land in question is currently not in use as farmland, but would continue to be available for this purpose so as to not disturb the existing use.

Cultural Resources -

The turbines, control shed and other visible features would be completely sited on BOR easements, and would have a small footprint. The facilities would be smaller than any of the farm-houses, barns or other structures in the region and would be contoured to the landscape.

A historical/cultural survey was performed for the region by the Heritage Stewardship Group. The report for this survey showed no potential concerns with visual, archeological, or tribal resources. A State Historic Preservation Office (SHPO) letter of concurrence, specific to this project's activities, was submitted as part of Section 106 requirements under the National Historical Preservation Act. The SHPO letter stated there would be no affects to historical resources. Due to its age, the canal is eligible for the National Register of Historic places, however the SHPO determined that the "proposed action is minor in comparison to the scale of the project and are compatible with the existing resource."

Noise -

The North Unit Irrigation District Main Canal is located in between farmlands with ongoing disturbances from farming activities and runs parallel with S.W. Bear Drive where there is a low to mid range level of ongoing traffic. The turbines for this project are not anticipated to create any more noise than the decibel levels from the flow of the water itself (as this project would be located in the midst of a series of sharp drops in canal elevation levels). The hydro facilities would only run for the 190 days when water is diverted into the canal, and noise from the facilities would be reduced to this timeframe. In the event the noise levels are above what is expected, EBD has pre-mitigation plans with the BOR and FERC which would involve providing noise-reducing materials for the turbines.

Public Consultation -

During the FERC license process federal consultations and public comment were conducted. The Warm Springs Tribes and other stakeholders were consulted and had no objections. A public newspaper notice and a public meeting were also held to allow the public and all stakeholders to comment or voice concerns; no objections or concerns were raised.

Based on the FERC and DOR analyses/determinations and the above information, DOE has determined that EBD project's tasks are consistent with activities identified in categorical exclusion B5.15 (Small-scale renewable energy research and development projects and small-scale pilot projects, provided that the projects are located within a previously disturbed or developed area).

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

Note to Specialist :

None Given.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Electronically Signed By Lori Gray /Lori Gray Date: 5/22/2012

NEPA Compliance Officer

FIELD OFFICE MANAGER DETERMINATION