



Department of Energy

Golden Field Office
15013 Denver West Parkway
Golden, Colorado 80401

FINDING OF NO SIGNIFICANT IMPACT

Hydro Green Energy, LLC: Real-World Demonstration of a New, American Low-Head Hydropower Turbine

DOE/EA-2017

AGENCY: U.S. Department of Energy (DOE), Office of Energy Efficiency and Renewable Energy (EERE)

ACTION: Finding of No Significant Impact (FONSI)

SUMMARY: DOE is proposing to provide federal funding¹ to Hydro Green Energy, LLC to fabricate, install and operate an interchangeable Modular Bulb Turbine™ (MBT) at the existing, U.S. Army Corps of Engineers (Corps or USACE)-owned and operated Braddock Locks and Dam on the Monongahela River ten miles east of Pittsburg, PA (Proposed Project). The turbine would be inserted into a Large Frame Module (LFM) and supporting civil infrastructure at the Braddock Locks and Dam. The DOE funded action would be part of a larger project to construct and operate a 5.25 megawatt (MW) hydroelectric power plant that would be integrated into the existing locks and dam. The larger project would include construction of the following facilities: (1) a powerhouse with seven turbine-generators at the left closure weir on the south side (river left) of the Corps' existing Braddock Locks and Dam, having a total installed capacity of 5.25 MW; (2) a 0.45-mile-long, 23-kilovolt (kV) transmission line; (3) a switchyard and control room; and (4) appurtenant facilities. The project's average annual electricity generation is estimated to be 32,263 megawatt-hours (MWh).

On September 17, 2012, Hydro Green Energy applied to the Federal Energy Regulatory Commission (FERC) for a license for the larger project. The license application included environmental analyses which FERC used to conduct a review under the National Environmental Policy Act (NEPA) and to prepare a Final Environmental Assessment for Original Hydropower License, Braddock Locks and Dam Hydroelectric Project, Pennsylvania (FERC Project No. 13739-002) (hereinafter, the FERC EA). The FERC EA analyzed the environmental impacts of the larger project, including DOE's Proposed Project. On June 13, 2014, FERC issued a Finding of No Significant Impact (FERC FONSI). A full discussion, analyses, and findings related to the potential impacts of construction and operation of the seven turbine project are contained in the FERC EA and FERC FONSI.

¹ Prior to the issuance of this FONSI, DOE authorized Hydro Green, LLC to use a percentage of the federal funding for preliminary activities, which include project management, administrative work, design and data analysis activities. These activities are associated with the proposed project and do not significantly impact the environment nor represent an irreversible or irretrievable commitment by the DOE in advance of this finding for Hydro Green's proposed project.

DOE reviewed the FERC EA to evaluate the potential environmental impacts of providing federal funding to the Proposed Project. DOE's review determined the FERC EA adequate and satisfactory in providing an upper limit of potential environmental impacts that could occur with the deployment and testing of the single 0.7 megawatt Modular Bulb Turbine. The analysis provided in the FERC EA supports DOE's determination that providing federal funding for the Proposed Project will not significantly affect the quality of the human and natural environment. The FERC EA has been adopted by DOE, in accordance with 40 CFR 1506.3 and 10 CFR 1021.200(d) and is hereby incorporated into this FONSI by reference.

DOE places a strong emphasis on avoiding, minimizing, and mitigating potentially adverse environmental impacts. As set forth in the FERC license issued as a result of the FERC EA, Hydro Green is required to incorporate mandatory project design criteria (e.g. applicant committed measures) which are intended to ensure that the potential for adverse impacts to natural and cultural resources are minimized, if not eliminated. The applicant committed measures include 1) installation and maintenance of a rest area along the Great Allegheny Passage's Steel Valley Trail, 2) operation of the project in a run-of-release mode using flows made available by the Corps, 3) development of a soil erosion and sediment control plan for use during construction, 4) development of an operation and compliance monitoring plan for use during operation, and 5) development of a water quality monitoring plan for use upstream and downstream of the Braddock Locks and Dam. Hydro Green's commitment to obtain and comply with all appropriate federal, state, and local permits required for the project and to minimize potential impacts through the implementation of the FERC license requirements shall be incorporated into, and enforceable through, DOE's financial assistance agreement.

Context of Potential Impacts

DOE must evaluate the significance of an action in several different contexts, such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend upon the effects in the locale rather than globally. Both short- and long-term effects are relevant.

The Proposed Project is located ten miles east of Pittsburgh at the Braddock Locks and Dam on the Monongahela River. The Corps' Braddock Locks and Dam is one of nine navigational structures, collectively known as the Corps' Monongahela River Locks and Dams system, which provide year-round navigation on the Monongahela River between Pittsburgh, Pennsylvania, and Fairmont, West Virginia. The Braddock Locks and Dam is located at river mile 11.2 within the boroughs of Braddock and West Mifflin, Pennsylvania. The lock chambers and operations buildings are situated along the right bank of the river adjacent to a major steel-making plant. The dam maintains a pool (Braddock pool) for 12.6 miles upstream to Locks and Dam 3 at Elizabeth, Pennsylvania. The Braddock Locks and Dam is operated by the Corps as a run-of-river facility in order to maintain a

near-constant upper pool level. The Proposed Project would not cause any significant adverse effects nationally, regionally, or at the statewide level.

Intensity of Potential Impacts

The following discussion is organized around the ten (10) intensity factors, described in the Council for Environmental Quality NEPA Implementing Regulations, 40 CFR 1508.27, which refer to severity of impact. The intensity of effects considered is in terms of the following:

1) Impacts that may be both beneficial and adverse:

As discussed in the FERC EA, there will be beneficial and adverse impacts to resources as described in Chapter 3 of the FERC EA which include: geology and soils (Chapter 3.3.1.2); water quality and quantity, biological resources (Chapter 3.3.2.2); terrestrial resources (Chapter 3.3.3.2); Threatened and Endangered species (Chapter 3.3.4.2); recreation, land use, aesthetics (Chapter 3.3.5.2); and cultural resources (Chapter 3.3.6.2). However, no significant impacts were identified that would require analysis in an Environmental Impact Statement (EIS). For the Proposed Project, there are no known significant irreversible resource commitments or irretrievable losses of the resources listed above.

The FERC EA evaluated adverse effects of the Proposed Project separately from beneficial effects, to determine whether such adverse effects would have been significant in their own right, and no such effects were found to be significant. The Proposed Project would have potential beneficial, yet minimal or unmeasurable effects to air quality due to a reduction in burning fossil fuel for generating electricity. The analysis in the FERC EA did not use beneficial effects to offset the potential significance of any adverse effect.

Accordingly, DOE concludes the Proposed Project would not have any significant adverse impacts and that the Proposed Project would have negligible to minor beneficial impacts to the resources evaluated in the FERC EA.

2) The degree to which the proposed action affects public health or safety:

The Proposed Project is required to comply with all state and federal regulations. In addition, under the FERC hydropower license, the Proposed Project would be subject to FERC's project safety requirements. As part of the licensing process, FERC staff will evaluate the adequacy of the Proposed Project facilities. Special articles will be included in any license issued, as appropriate. Before the project is constructed, engineers from FERC's New York Regional Office and the Corps would review the designs, plans, and specifications of the proposed generating modules, and other structures. During construction, engineers from FERC and the Corps will frequently inspect the project to ensure adherence to approved plans and specifications, special license articles relating to construction, operation, and maintenance, and accepted engineering practices and procedures. Once construction is complete and the project enters the operation phase, FERC engineers will inspect it on

a regular basis. Because the Braddock Locks and Dam is owned and operated by the Corps, FERC will coordinate with the Corps to fulfill its obligation to ensure that the project safety requirements are met.

Due to the measures described above and as analyzed in the FERC EA, the Proposed Project will not cause any significant effects on public health and safety.

3) Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas:

The Proposed Project is not located near park lands, wetlands, ecologically critical area or prime farmlands. There have been no known surface or subsurface archaeological resources identified in the project area. The Pennsylvania State Historic Preservation Office (SHPO) determined that although a high probability exists that archaeological resources are located in the project area, the proposed project would have no effect on archaeological sites. Per Article 405 of the FERC License, Hydro Green is required to stop all land-clearing and land-disturbing activities if an archaeological resource is discovered, and notify the SHPO as soon as possible. Based on the analysis provided in the FERC EA, DOE has concluded that the Proposed Project would not cause any adverse effects on unique characteristics of the geographic area.

4) The degree to which the effects on the quality of the human environment are likely to be highly controversial:

The effects on the quality of the human environment are not likely to be highly controversial. There is no known credible scientific controversy over the impacts of the Proposed Project. Nothing received as part of the public comment period of FERC's EA indicated a high level of controversy regarding the effects of the Proposed Project.

5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks:

The possible effects on the human environment from hydroelectric installations have been fully analyzed and supported by previous projects, studies, and publications. Actions similar to the Proposed Project have been implemented before throughout the United States. Mitigation measures, applicant committed measures, management requirements, standard practices, and monitoring would ensure effects are within the expected parameters. Accordingly, the effects of the Proposed Project are not highly uncertain, nor do they involve unique or unknown risks.

6) The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration:

The implementation of the Proposed Project is not likely to establish a precedent for future actions with significant effects. Because the modification of the Braddock Locks and Dam for power production is relatively small-scale in nature, it does not establish a precedent for future actions or represent a decision in principle about a future consideration. Neither scoping nor public comment for the Proposed Project raised any disputes pertaining to the appropriate scope of the project, connectedness of other actions, or reasonably foreseeable future actions other than those considered.

Accordingly, the Proposed Project would not establish a precedent.

7) *Whether the action is related to other actions with individually insignificant but cumulatively significant impacts:*

The FERC EA identified water quality and fisheries resources as having the potential to be cumulatively affected by the Proposed Project in combination with other past, present, and foreseeable future activities. These resources were selected because the construction and operation of the project, in conjunction with other activities in the lower Monongahela River, has the potential to cumulatively affect water quality and fisheries resources. The Corps' Lower Mon Project and the future development of hydropower facilities on additional Corps' navigational facilities were identified as reasonably foreseeable actions that, when combined with the proposed action, have the potential to result in cumulative effects on the environment.

The geographic scope of the cumulative effects analysis in the FERC EA was delineated by Charleroi Locks and Dam (Locks and Dam 4) on the Monongahela River downstream to the Emsworth Locks and Dam on the Ohio River.

The temporal scope of the cumulative effects analysis in the FERC EA included a discussion of the past, present, and reasonably foreseeable future actions and their effects on water quality and fisheries resources. Future actions were considered if they fell within the 50 years based on the terms of the FERC license.

No hydropower generation facilities are currently proposed on the Monongahela River between the Charleroi Locks and Dam and Emsworth Locks and Dam (i.e., the geographic scope of the cumulative effects analysis). Given the predominantly resident (i.e., non-migratory) fish community, future hydropower facilities associated with existing navigational dams are not likely to have a measurable impact on the fish community. Developing and implementing the required erosion and sediment control plan will help to reduce any cumulative effects to water quality in the Monongahela River.

When considering other activities within the area affected, the cumulative impacts of the Proposed Project are anticipated to be minor. Whether the Proposed Project is related to other actions with individually insignificant but cumulatively significant impacts is discussed in the FERC EA. As

supported by that discussion, DOE concludes the cumulative impacts of the Proposed Project would not be significant, and the Proposed Project is not related to other actions, that when combined, would have significant impacts.

8) *The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places (NRHP) or may cause loss or destruction of significant scientific, cultural, or historical resources:*

The FERC EA identifies cultural resources which could potentially be affected by the Proposed Project. In its letter dated April 17, 2012, the Pennsylvania SHPO determined that although a high probability exists that archeological resources are located in the project area, the Proposed Project would have no effects on any archeological sites. The letter also stated that should the scope of the project be amended to include additional ground-disturbing activity, the Pennsylvania SHPO should be contacted immediately and a Phase I Archaeological Survey may be necessary to locate all potentially significant archaeological resources. In regard to the historic structures, the Pennsylvania SHPO determined that the plans and specifications for the Proposed Project conform to the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings. As a result, the Pennsylvania SHPO concluded the project would have no adverse effect upon the National Register-eligible Monongahela River Navigation System.

Accordingly, DOE concludes the Proposed Project would have no adverse effect on districts, sites, highways, structures, or objects listed or eligible for listing in the National Register of Historic Places.

9) *The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act (ESA) of 1973:*

Five federally listed mussel species (the fanshell, snuffbox, pink mucket, orange-foot pimpleback, and sheepsnose) are listed by the United States Fish and Wildlife Service (USFWS) as potentially occurring within Allegheny County and the reach of the Monongahela River where the Braddock Project would be constructed.

USFWS' September 8, 2012, e-mail correspondence with Hydro Green stated that the USFWS concluded there would be no effect to federally listed species as a result of the Braddock Project, given its location and small footprint. In a letter dated November 23, 2011, the Pennsylvania Department of Conservation and Natural Resources (PA DCNR) also stated that no impact to species and resources of concern was likely. Further, no federally listed mussel species were detected during comprehensive mussel surveys in the lower Monongahela River, including the vicinity of the Braddock Locks and Dam.

Based on analysis provided in the FERC EA and informal consultation between Hydro Green, the USFWS and the PA DCNR, DOE has concluded that the Proposed Project would have no effect on endangered or threatened species or critical habitat.

10) Whether the action threatens a violation of federal, state, or local law or requirements imposed for the protection of the human environment:

The Proposed Project does not violate any federal, state, or local law or requirement imposed for the protection of the environment. Hydro Green is required under the FERC license to implement Best Management Practices (BMPs) to avoid or mitigate any potential effects concerning soils and erosion control, water quality, federally-listed species, or cultural resources. The Proposed Project and BMPs are consistent with applicable federal, state, and local laws and with agency policy and direction. The Proposed Project requires compliance with the following permits: FERC Original Hydropower License, PA DCNR, USACE Section 408, USACE Section 404, and USACE Section 10. The requirements will be incorporated into and enforceable through DOE's financial assistance agreement.

Conclusion

Based on the FERC EA and the above considerations, DOE finds that the Proposed Project is not a major action that constitutes a significant effect on the human environment. This finding and decision is based on the consideration of DOE's NEPA implementing regulations (10 CFR Part 1021) and the Council on Environmental Quality's (CEQ) criteria for significance (40 CFR 1508.27), both with regard to the context and the intensity of impacts analyzed in the FERC EA. Accordingly, the Proposed Project does not require the preparation of an environmental impact statement.

For questions about this FONSI or DOE's adoption of the FERC EA, please contact:


Roak Parker
NEPA Document Manager
U.S. Department of Energy
Golden Field Office
15013 Denver West Parkway
Golden, Colorado 80401
GONEPA@ee.doe.gov

For information about the DOE NEPA process, please contact:

Office of NEPA Policy and Compliance
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

<http://energy.gov/nepa/office-nepa-policy-and-compliance>

Issued in Golden, Colorado, this 27 day of October, 2015.



Timothy J. Meeks
Acting Manager