Low Impact Hydropower Institute

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LOW IMPACT HYDROPOWER QUESTIONNAIRE

[Excerpted from Part VI, Section E of the Low Impact Hydropower Certification Program. Words in italics are defined in Part VI, Section C, and line-by-line instructions are available in Section D of the program, available on-line in PDF format at http://www.lowimpacthydro.org.

E. LOW IMPACT HYDROPOWER QUESTIONNAIRE

Background Information	
1) Name of the *Facility.*	Orono Hydroelectric Project
2) Applicant's name, contact information and relationship to the Facility. If the Applicant is not the Facility owner/operator, also provide the name and contact information for the Facility owner and operator.	Scott D. Hall Manager of Environmental Services Black Bear Hydro Partners, LLC Davenport Street, PO Box 276 Milford, ME 04461 207-827-5364 - p 207-461-3617 - m 207-827-4102 - f
3) Location of Facility by river and state.	Stillwater Branch of the Penobscot River
4) Installed capacity.	2.78 MW (plus 3.75 MW w/ proposed

	additional powerhouse)
5) Average annual generation.	19,000 MWh (plus 25,373 MWh w/ proposed additional powerhouse)
6) Regulatory status.	FERC No. 2710; issued 12/8/2005, expires 11/30/2045
7) Reservoir volume and surface area measured at the high water mark in an average water year.	175 acres (plus XX acres with 0.6-ft headpond increase)
8) Area occupied by non-reservoir facilities (*e.g.*, dam, penstocks, powerhouse).	Approximately 1.2 acres (plus 0.3 acres w/ proposed additional powerhouse)
9) Number of acres inundated by the Facility.	n/a
10) Number of acres contained in a 200-foot zone extending around entire impoundment.	Approximately 111.5 acres
11) Please attach a list of contacts in the relevant Resource Agencies and in non-governmental organizations that have been involved in Recommending conditions for your Facility.	See attached
12) Please attach a description of the Facility, its mode of operation (*i.e.*, peaking/run of river) and a map of the Facility.	See attached – background information and project-specific data
Questions for For "New" Facilities Only: If the Facility you are applying for is "new" i.e., an existing dam that added or increased power generation capacity after August of 1998 please answer the following questions to determine eligibility for the program	The existing Orono Hydroelectric Project and the proposed additional powerhouse are both considered new since they are/will be brought on-line after August 1998.
13) When was the dam associated with the Facility completed?	1960
14) When did the added or increased generation first generate electricity? If the added or increased generation is not yet operational, please answer question 18 as well.	January 2009; proposed additional powerhouse anticipated in 2012
15) Did the added or increased power generation capacity require or include any new dam or other diversion structure?	No
16) Did the added or increased capacity include or require a change in water flow through the facility that worsened conditions for fish, wildlife, or water quality, (for example, did	No

operations change from run-of-river to peaking)?	
17 (a) Was the existing dam recommended for removal or decommissioning by resource agencies, or recommended for removal or decommissioning by a broad representation of interested persons and organizations in the local and/or regional community prior to the added or increased capacity? (b) If you answered "yes" to question 17(a), the Facility is not eligible for certification, unless you can show that the added or increased capacity resulted in specific measures to improve fish, wildlife, or water quality protection at the existing dam. If such measures were a result, please explain.	No
18 (a) If the increased or added generation is not yet operational, has the increased or added generation received regulatory authorization (e.g., approval by the Federal Energy Regulatory Commission)? If not, the facility is not eligible for consideration; and (b) Are there any pending appeals or litigation regarding that authorization? If so, the facility is not eligible for consideration.	n/a for existing powerhouse; pursuant to the Lower Penobscot River Multiparty Settlement Agreement, applications for proposed additional powerhouse to be submitted in 2010 upon the Penobscot River Restoration Trust's acquisition of three other Penobscot River hydroelectric projects .

A. Flows	PASS	FAIL
1) Is the Facility in *Compliance* with *Resource Agency Recommendations* issued after December 31, 1986 regarding flow conditions for fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking rate conditions, and seasonal and episodic instream flow variations) for both the reach below the tailrace and all bypassed reaches?	**YES = Pass, Go to B** N/A = Go to A2	NO = Fail
2) If there is no flow condition recommended by any Resource Agency for the Facility, or if the recommendation was issued prior to January 1, 1987, is the Facility in Compliance with a flow release schedule, both below the tailrace and in all bypassed reaches, that at a minimum meets Aquatic Base Flow standards or "good" habitat flow standards calculated using the Montana-Tennant method?	YES = Pass, go to B NO = Go to A3	

3) If the Facility is unable to meet the flow standards in A.2., has the Applicant demonstrated, and obtained a letter from the relevant Resource Agency confirming that demonstration, that the flow conditions at the Facility are appropriately protective of fish, wildlife, and water quality?	YES = Pass, go to B	NO = Fail
B. Water Quality	PASS	FAIL
1) Is the Facility either: a) In Compliance with all conditions issued pursuant to a Clean Water Act Section 401 water quality certification issued for the Facility after December 31, 1986? Or b) In Compliance with the quantitative water quality standards established by the state that support designated uses pursuant to the federal Clean Water Act in the Facility area and in the downstream reach?	**YES = Go to B2**	NO = Fail
2) Is the Facility area or the downstream reach currently identified by the state as not meeting water quality standards (including narrative and numeric criteria and designated uses) pursuant to Section 303(d) of the Clean Water Act?	YES = Go to B3 **NO = Pass**	
3) If the answer to question B.2 is yes, has there been a determination that the Facility is not a cause of that violation?	YES = Pass	NO = Fail
C. Fish Passage and Protection	PASS	FAIL
1) Is the Facility in Compliance with *Mandatory Fish Passage Prescriptions* for upstream and downstream passage of anadromous and catadromous fish issued by Resource Agencies after December 31, 1986?	**YES = Go to C5** N/A = Go to C2	NO = Fail
2) Are there historic records of anadromous and/or catadromous fish movement through the Facility area, but anadromous and/or catadromous fish do not presently move through the Facility area (*e.g.*, because passage is blocked at a downstream dam or the fish run is extinct)? a) If the fish are extinct or extirpated from the Facility area or downstream	YES = Go to C2a NO = Go to C3	

reach, has the Applicant demonstrated that the extinction or extirpation was not due in whole or part to the Facility? b) If a Resource Agency Recommended adoption of upstream and/or downstream fish passage measures at a specific future date, or when a triggering event occurs (such as completion of passage through a downstream obstruction or the completion of a specified process), has the Facility owner/operator made a legally enforceable commitment to provide such passage?	YES = Go to C2b N/A = Go to C2b YES = Go to C5 N/A = Go to C3	NO = Fail NO = Fail
3) If, since December 31, 1986: a) Resource Agencies have had the opportunity to issue, and considered issuing, a Mandatory Fish Passage Prescription for upstream and/or downstream passage of anadromous or catadromous fish (including delayed installation as described in C2a above), and b) The Resource Agencies declined to issue a Mandatory Fish Passage Prescription, c) Was a reason for the Resource Agencies' declining to issue a Mandatory Fish Passage Prescription one of the following: (1) the technological infeasibility of passage, (2) the absence of habitat upstream of the Facility due at least in part to inundation by the Facility impoundment, or (3) the anadromous or catadromous fish are no longer present in the Facility area and/or downstream reach due in whole or part to the presence of the Facility?	NO = Go to C5 N/A = Go to C4	YES = Fail
4) If C3 was not applicable: a) Are upstream and downstream fish passage survival rates for anadromous and catadromous fish at the dam each documented at greater than 95% over 80% of the run using a generally accepted monitoring methodology? Or b) If the Facility is unable to meet the fish passage standards in 4.a., has the Applicant demonstrated, and obtained a letter from the US Fish and Wildlife	YES = Go to C5	NO = Fail

Service or National Marine Fisheries Service confirming that demonstration, that the upstream and downstream fish passage measures (if any) at the Facility are appropriately protective of the fishery resource?		
5) Is the Facility in Compliance with Mandatory Fish Passage Prescriptions for upstream and/or downstream passage of *Riverine* fish?	YES = Go to C6 **N/A = Go to C6**	NO = Fail
6) Is the Facility in Compliance with Resource Agency Recommendations for Riverine, anadromous and catadromous fish entrainment protection, such as tailrace barriers?	YES = Pass, go to D **N/A = Pass, go to D**	NO = Fail
D. Watershed Protection	PASS	FAIL
1) Is there a buffer zone dedicated for conservation purposes (to protect fish and wildlife habitat, water quality, aesthetics and/or low-impact recreation) extending 200 feet from the high water mark in an average water year around 50 - 100% of the impoundment, and for all of the undeveloped shoreline	YES = Pass, go to E and receive 3 extra years of certification	**NO = go to D2**
2) Has the facility owner/operator established an approved watershed enhancement fund that: 1) could achieve within the project's watershed the ecological and recreational equivalent of land protection in D.1.,and 2) has the agreement of appropriate stakeholders and state and federal resource agencies?	YES = Pass, go to E and receive 3 extra years of certification	**NO = go to D3**
3) Has the facility owner/operator established through a settlement agreement with appropriate stakeholders and that has state and federal resource agencies agreement an appropriate shoreland buffer or equivalent watershed land protection plan for conservation purposes (to protect fish and wildlife habitat, water quality, aesthetics and/or low impact recreation)	YES = Pass, go to E	**NO = go to D4**
4) Is the facility in compliance with both state and federal resource agencies recommendations in a license approved shoreland management plan regarding protection, mitigation or enhancement of shorelands surrounding the project.	**YES = Pass, go to E**	No = Fail
E. Threatened and Endangered Species Protection	PASS	FAIL
1) Are threatened or endangered species listed under state or federal Endangered Species Acts present in the Facility area and/or downstream reach?	**YES = Go to E2**	

	NO = Pass, go to F	
2) If a recovery plan has been adopted for the threatened or endangered species pursuant to Section 4(f) of the Endangered Species Act or similar state provision, is the Facility in Compliance with all recommendations in the plan relevant to the Facility?	YES = Go to E3 **N/A = Go to E3**	NO = Fail
3) If the Facility has received authority to incidentally *Take* a listed species through: (i) Having a relevant agency complete consultation pursuant to ESA Section 7 resulting in a biological opinion, a habitat recovery plan, and/or (if needed) an incidental Take statement; (ii) Obtaining an incidental Take permit pursuant to ESA Section 10; or (iii) For species listed by a state and not by the federal government, obtaining authority pursuant to similar state procedures; is the Facility in Compliance with conditions pursuant to that authority?	YES = Go to E4 **N/A = Go to E5**	NO = Fail
4) If a biological opinion applicable to the Facility for the threatened or endangered species has been issued, can the Applicant demonstrate that: a) The biological opinion was accompanied by a FERC license or exemption or a habitat conservation plan? Or b) The biological opinion was issued pursuant to or consistent with a recovery plan for the endangered or threatened species? Or c) There is no recovery plan for the threatened or endangered species under active development by the relevant Resource Agency? Or d) The recovery plan under active development will have no material effect on the Facility's operations?	YES = Pass, go to F	NO = Fail
5) If E.2. and E.3. are not applicable, has the Applicant demonstrated that the Facility and Facility operations do not negatively affect listed species?	**YES = Pass, go to F**	NO = Fail
F. Cultural Resource Protection	PASS	FAIL
1) If FERC-regulated, is the Facility in Compliance with all requirements regarding Cultural Resource protection, mitigation or enhancement included in the FERC	**YES = Pass, go to G**	NO = Fail

license or exemption?	N/A = Go to F2	
2) If not FERC-regulated, does the Facility owner/operator have in place (and is in Compliance with) a plan for the protection, mitigation or enhancement of impacts to Cultural Resources approved by the relevant state or federal agency or *Native American Tribe*, or a letter from a senior officer of the relevant agency or Tribe that no plan is needed because Cultural Resources are not negatively affected by the Facility?	YES = Pass, go to G	NO = Fail
G. Recreation	PASS	FAIL
1) If FERC-regulated, is the Facility in Compliance with the recreational access, accommodation (including recreational flow releases) and facilities conditions in its FERC license or exemption?	**YES = Go to G3** N/A = Go to G2	NO = Fail
2) If not FERC-regulated, does the Facility provide recreational access, accommodation (including recreational flow releases) and facilities, as Recommended by Resource Agencies or other agencies responsible for recreation?	YES = Go to G3	NO = Fail
3) Does the Facility allow access to the reservoir and downstream reaches without fees or charges?	**YES = Pass, go to H**	NO = Fail
H. Facilities Recommended for Removal	PASS	FAIL
1) Is there a Resource Agency Recommendation for removal of the dam associated with the Facility?	**NO = Pass, Facility is Low Impact**	YES = Fail

The following provides additional information in support of the application for certification of the Orono Hydroelectric Project as a low impact facility. In addition, the Lower Penobscot River Multiparty Settlement Agreement, and the Orono Project FERC license, which incorporates the relevant provisions of the Lower Penobscot River Multiparty Settlement Agreement, are being provided separately.

A. Flows

The Lower Penobscot River Multiparty Settlement Agreement provided for the licensing of the Orono Hydroelectric Project, incorporating the pertinent minimum flow and contingent mitigation requirements provided for in Attachments A and B of the Agreement, including run-of-river operations and a minimum bypass flow of 200cfs. The signatories to the Agreement also filed supportive pleadings and those provisions are now included in the FERC license. In addition, the Project's license and Water Quality Certificate include provisions for water level and flow management. Please see attached.

B. Water Quality

The Orono Hydroelectric Project received its Water Quality Certification from the Maine Department of Environmental Protection on 15 December 2004. Please see attached.

C. Fish Passage and Protection

The Lower Penobscot River Multiparty Settlement Agreement provided for the licensing of the Orono Hydroelectric Project, incorporating the pertinent fish passage and contingent mitigation requirements (for existing and additional facilities) provided for in Attachments A and B of the Agreement. The license includes an article reserving FERC's authority to require the licensee to construct operate and maintain such fishways as may be prescribed by the Secretary of Interior of the Secretary of Commerce under Section 18 of the Federal Power Act. The signatories to the Agreement also filed supportive pleadings and those provisions are now included in the FERC license. Please see attached.

D. Watershed Protection

Since the FERC Project boundary for the Orono Hydroelectric Project primarily contains the land necessary for operation and maintenance of the project facilities, state and federal resource agencies did not request a formal shoreland management plan. However,

in addition to the standard FERC license requirements associated with erosion and sedimentation control the Project is subject to federal, state and local erosion and sedimentation control requirements.

E. Threatened and Endangered Species Protection

The Penobscot River run of Atlantic salmon was recently added to the Gulf of Maine population of Atlantic salmon that is listed as endangered under the Federal Endangered Species Act. As a result, Black Bear Hydro Partners, LLC is currently working with the US Fish and Wildlife Service and NOAA Fisheries to develop a species protection plan for its hydroelectric projects and operations which is expected to be completed over the next several months. Please see attached.

F. Cultural Resource Protection

Cultural resource assessments during the licensing process did not reveal any specific issues associated with the Orono Project. However, the license does include provisions to address cultural resource issues in the event they arise during the term of the license.

G. Recreation

The Orono Hydroelectric Project license and Water Quality Certificate contain recreation-related provisions for the project. Black Bear Hydro Partners, LLC has implemented the recreation plan in accordance with the license requirements. Please see attached.

Orono

FERC Number 2710
FERC License Expiration November 30, 2045
River Stillwater Branch of Penobscot
Town Orono
Drainage Area 2,535 Sq. Miles
Upstream Fish Passage Type Upstream Fishway for American Eel (new lift to be added)
Downstream Fish Passage Type Surface Weir Bypass, one-inch trashracks (enhancements to surface weir associated with additional development; new upstream fish lift with additional development)
Installed Capacity 2.78 MW; plus additional 3.75 MW with proposed powerhouse
Number of Units 4; plus 3 with additional proposed powerhouse
Type of Units Horizontal Francis; vertical propeller (2 fixed and 1 Kaplan) with proposed powerhouse
Dam Type Concrete Gravity
FERC Dam Classification Low Hazard
Dam Length 833 Ft.
Flashboard Height 2.4 Ft; 3.0 Ft with proposed headpond increase
Head Approx. 12 Ft. at Dam; 25 Ft. at Station
Surface Area 111.5 Acres
Energy Enhancement – additional 3.75 MW powerhouse added east of existing powerhouse at existing dam

Note: Penstocks in photo were replaced during refurbishment

Project works consist of: (1) an existing 1,178-foot-long by 15-foot-high dam including a 320-foot-long spillway topped with 2.4-foot-high flashboards; (2) an existing 2.3-mile-long reservoir, which has a surface area of 175 acres at the normal full pond elevation of 72.4 feet above mean sea level (msl); (3) a new 875-foot-long, 20-foot by 12-foot concrete penstock (plus additional proposed 350-foot-long, 25-foot by 12-foot concrete penstock); (4) a restored powerhouse containing four existing generating units with a total installed generating capacity of 2.78 MW (plus additional 3.75 MW with proposed 50-foot by 58-foot powerhouse); (5) three existing 325-foot-long, 2.4-kilovolt transmission lines (plus lines for proposed powerhouse); and (6) appurtenant facilities.