DE10-024

Leighton, Adele

From: Essex Hydro [essexhydro@essexhydro.com]
Sent: Friday, March 26, 2010 3:20 PM
To: Executive Director,; Noonan, Amanda; Ignatius, Amy L; arthur.larson@us.ngrid.com; Bernstein, Barbara; brian@freedomrenewable.com; Below, Clifton; danielle@grosolar.com; dhenry@thejordaninstitute.org; eatongm@nu.com; ep-infor@mcttelecom.com; eric.steltzer@nh.gov; frasemf@psnh.com; geo@usasolarstore.com; gilrichardson@wildblue.net; hmoffett@orr-reno.com; info@begreensolar.com; info@shakerwoodsfarm.com; Ruderman, Jack; jack@seasolarstore.com; jgoodman@windguysusa.com; joe.adams@grosolar.com; Osgood, Jon; Traum, Ken; laura.richardson@nh.gov; lemaygs@nu.com; madeline@nhsea.org; Reno, Maureen; Hatfield, Meredith; mitch@clearmountainsolar.com; mtessier@goffstownnh.gov; mweissflog@kwmanagement.com; nickelec2002@yahoo.com; niebling@pelletheat.com; OCA Litigation; palma@unitil.com; pdoscher@forestsociety.org; rebecca.ohler@des.nh.gov; sandra@plymouthenergy.org; scondon@alterisinc.com; Stephen Hickey; solarflare@pobox.com; Amidon, Suzanne; Frantz, Tom; Getz, Tom; tomburack@comcast.net; tressy.manning@grosolar.com; tvansant@alterisinc.com; tyler.austin@grosolar.com; Bill Heinz; wickesb@psnh.com; will@revisionenergy.com
Subject: DE 10-024, Renewable Energy Fund Notice of Opportunity to Comment on Additional Renewable Energy Initiative Programs

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Dear Ms. Howland,

Please find enclosed responses to questions that were posed to the Granite State Hydropower Association by Commissioner Ignatius at the public hearing held on March 18, 2010 in Docket No. DE 10-024. Hard copies are also being mailed to the Commission. Please feel free to contact me should you have any questions.

Richard A. Norman, President
Granite State Hydropower Association
617-367-0032

GRANITE STATE HYDROPOWER ASSOCIATION, INC.

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March 26, 2010

Debra A. Howland, Executive Director & Secretary
New Hampshire Public Utilities Commission
21 South Fruit Street, Suite 10
Concord, NH 03301-2429

Re: DE 10-024, Renewable Energy Fund Notice of Opportunity to Comment on Additional Renewable Energy Initiative Programs

Dear Ms. Howland:

On February 24, 2010, the Granite State Hydropower Association ("GSHA") submitted written comments in connection with Docket No. DE 10-024. On March 18, 2010, a representative of GSHA, Ms. Heidi Kroll, attended the public hearing for this docket. During that hearing, Commissioner Ignatius asked Ms. Kroll two questions about the operation of hydroelectric projects similar to those represented by GSHA. Ms. Kroll was not able to provide definitive answers to those questions at the public hearing, and indicated that GSHA would provide responses by the March 26, 2010 deadline.

GSHA's answers to those questions are as follows:

1. *How much does a fish ladder generally cost?*

   The cost of an upstream fish passage (variously referred to as a "ladder", an "elevator" or a "lift) is site-dependent and can vary widely. The selection of a fish passage will depend upon both cost effectiveness and agency review. The cost depends upon the size of the river (cubic feet per second of flow) and the operating head of the project (the height of the dam). Ms. Kroll ventured a guess that an upstream fish ladder might cost about $100,000. That would be true only for an extremely small hydroelectric plant located on a stream with a very low operating head. The average size of a GSHA member plant is about 1,000 kilowatts (i.e., 1 megawatt), and the average operating head in New Hampshire ranges from 20 to 30 feet. For that type of plant, a fish passage would easily cost $500,000 or more. Fish passages recently constructed in New England have cost in excess of $1,500,000. Florida Power and Light ("FPL," now NextEra™ Energy Resources) recently abandoned a plant in Maine, the Ft. Halifax project, because FPL determined it could not afford to install the prescribed fish elevator with an estimated cost of $3,500,000.

In addition to the initial capital cost of a fish lift, there are also associated operation and maintenance costs. Project owners must divert water flow from project turbines in order to operate the fish lift, thereby lowering the amount of generation that the hydroelectric plant can produce. Project owners also incur labor costs to operate the fish lifts and are confronted with ongoing maintenance and modification costs that can easily exceed $50,000 per year.

Fish restoration programs also require the installation of downstream fish passages. Depending upon the particular river in question, a hydroelectric plant may be required to install downstream fish passages well in advance of upstream fish passages. The cost of downstream fish passages is substantially less. Generally the passage entails the installation of one or more pipes or passages that divert water from the turbines and provide bypass flow for fish passage. The cost of these facilities, in almost all cases, would not exceed $100,000. However, as with upstream fish passages, project owners must divert water flow from project turbines in order to operate the fish lift, thereby lowering the amount of generation that the hydroelectric plant can produce.

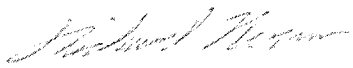
2. *Are there hydro plants where fish facilities either could not or would not be installed because it doesn't make sense or they are not required?*

GSHA does not know of any hydro plant that has voluntarily installed a fish lift. The installation and operation of fish lifts are prescribed as part of the Federal Energy Regulatory Commission ("FERC") review process. The U.S Fish and Wildlife Service, the National Oceanic and Atmospheric Administration (in some cases), and state fish and wildlife agencies participate in this process and have the delegated responsibility to review and approve lift designs and operations. Fish facilities are mandated for all hydro plants that are located on rivers that have been designated for fish restoration programs, with installation dates dependent upon the success of the downstream restoration program. In New England, both the Connecticut and Merrimack rivers and some of their tributaries have restoration programs for alewives, shad and salmon. There are also rivers in Maine that have similar restoration programs. Hydro plant operators must either accept responsibility for fish lifts as part of the FERC licensing process and bear the resultant costs, or choose to abandon their licenses, as was done recently by FPL.

GSHA hopes this information fully responds to the questions posed by Commissioner Ignatius. Please do not hesitate to contact GSHA if you require further information.

Sincerely,

GRANITE STATE
HYDROPOWER ASSOCIATION



Richard A. Norman
President

Cc: service list for DE 10-024