Commonwealth of Massachusetts

Division of Fisheries & Wildlife

MassWildlife

Wayne F. MacCallum, *Director*

February 23, 2010

Mr. Fred Ayer, Executive Director
Low Impact Hydropower Institute
34 Providence Street
Portland, ME 04103

Re: Request for Low Impact Hydropower Certification
Woronoco Hydroelectric Project (FERC #2631)

Dear Mr. Ayer,

The Massachusetts Division of Fisheries and Wildlife (Division) is the agency responsible for the protection and management of the fish and wildlife resources of the Commonwealth. As such we monitor operations at hydroelectric projects within the Commonwealth including the Woronoco hydroelectric project (project) owned by Woronco Hydro LLC (Woronoco). The development is located at river mile 18.5 on the Westfield River in, Russell, Massachusetts and is licensed by the Federal Energy Regulatory Commission (FERC) as Project Number 2631.

DFG is submitting these comments to LIHI in order to fulfill the requirements of the Massachusetts Department of Energy Resources ("DOER") Renewable Energy Portfolio Standard Regulations (225 CMR 14.00; "RPS I" and 225 CMR 15.00; "RPS II"). The RPS I and RPS II regulations were promulgated by DOER on January 1, 2009 and require that any hydroelectric project wishing to qualify as either a RPS I or RPS II generator first obtain LIHI certification. These regulations also require all relevant regulatory agencies to comment on the pending LIHI application.

The Department does not support Woronoco Hydro, LLC's application for LIHI Certification of the Woronoco hydroelectric project at this time, primarily due to its potential adverse impact on migratory fish passage and on riverine habitat upstream of the dam. Our concerns are discussed in greater detail below.

PROJECT
The Woronoco Project is an existing FERC licensed hydropower project. The project has a total rated capacity of 2,700 kilowatts (kW), and an average annual generation of about 6,700 MWh.

The project's principal features are:

1. two non-contiguous dam sections, with a height of about 25 feet above the riverbed, lengths of about 351 feet (south dam) and 307 feet (north dam), a steel sluice gate adjacent to the trashracks, a steel mud gate (north dam), a 655-foot-long earthen dike with a sheet steel core, and a crest elevation of 229.0 feet National Geodetic Vertical Datum (NGVD);

2. a 40-foot-wide by 15-foot-high intake structure, having trashracks with 1.25-inch clear bar spacing, and a 550-foot-long by 11-foot-diameter steel (with concrete liner) penstock;

3. a 59-foot-long by 59-foot-wide concrete and brick powerhouse containing three turbines and generating units, a gross head of 55 feet and a design head of 50 feet at 710 cfs, a total installed capacity of 2,700 kW, and a tailwater elevation of 174.0 feet.

4. an interim downstream fish passage facility, constructed in 1998 and located immediately in front of the trashracks with its discharge at the base of the south dam;

5. two upstream eelways (South and Middle channels);

6. a 1.2-mile-long impoundment, with a normal pool elevation of 229.0 feet, a surface area of 43 acres, and negligible usable storage;

7. a bypassed reach, with three channels varying in length from about 200 to about 1,000 feet

The project is licensed to operate the project in a run-of-river mode, by maintaining the impoundment elevation at 229.0 feet, with minimal fluctuations. The project must provide a year-round minimum flow of 57 cfs to the project's bypassed reach, with 22 cfs in the north channel and 35 cfs in the south channel.

AFFECTED RESOURCES

The Westfield River watershed drains an area of 517 square miles and encompasses 24 cities and towns in the counties of Franklin, Hampshire, Hampden, and Berkshire. The watershed is 48 miles long, 20 miles wide and it extends from the Berkshire Mountains to the Connecticut River. It includes 636 miles of rivers and streams and over 4550 acres of lakes and ponds and supports a population of approximately 85,000 people. The watershed is largely forested and sparsely populated, with most of the population concentrated in the southeastern corner of the basin in the cities of Holyoke and Westfield.

Elevations in the Westfield River basin range from 2,300 ft above sea level along the northwestern drainage divide in Windsor to 50 ft above sea level at the confluence of the Westfield and Connecticut Rivers.

The Westfield River flows through steep hills composed of thin, rocky soil. As a result, this river has wildly fluctuating stream flows that range from levels high enough for white water rafting in the spring, to no more than a trickle in some locations during the month of August.

The upper branches of the Westfield River are treasured for their free-flowing state, unencumbered by dams or other man-made obstacles. In fact, the West Branch Westfield River is the largest totally uncontrolled river in the State. The pristine condition of this part of river provides a healthy habitat for native fish and an abundance of other wildlife. It also provides an important recreational resource for the citizens of this state.

Due to the threat of dam construction in the upper reaches of the Westfield River, local groups petitioned the federal government to name sections of the river as part of the National Wild and Scenic River System. The purpose of the National Wild and Scenic River Act is to preserve the character and quality of a river; it does not set a river aside as a wilderness area and preclude all further development along it. It does, however, protect a river and its immediate surroundings from federally funded projects that would negatively impact its water quality, wildlife habitat, aesthetic quality, or any historical or cultural aspects of the river. This includes the prohibition of dams and powerlines.

To qualify for this designation "a river must be free-flowing in a natural condition and possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values".

The Department of the Interior found 43 miles of the Westfield River eligible for this designation in 1993. The sections include the middle, east and west branches that flow through Becket, Chester, Chesterfield, Cummington, Middlefield, and Worthington. Local bylaws have been created in these towns that prohibit dams, dredging, and filling and establish buffer requirements for future development.

The Pioneer Valley Planning Commission is working to extend the National Wild and Scenic eligibility to sections of the river that flow through Huntington, Washington, Windsor, and Savoy. Local "Stream Teams" exist that walk along the river and identify significant wildlife habitats, recreational, historical, and archeological features that would qualify these sections for this designation.

<u>Fishery Resources</u>

The Westfield River provides habitat to a diverse fish assemblage, from pristine high gradient, cold-water, streams to warm-water ponds and impoundments in the lower basin. The Department and MADEP recognize the three branches of the Westfield River above Huntington (the East, West, and Middle Branches) as Coldwater Fishery Resources.

These three branches and most of their tributaries are habitat for naturally reproducing populations of native brook trout. The three branches and 22 tributaries, including one (Bradley Brook, a.k.a. Black Brook, a.k.a. Stage Brook) that enters the Westfield River in the project impoundment, and one (Potash Brook) that enters the Westfield just downstream of the project, are stocked annually with Atlantic salmon fry as part of the multi-state, multi-agency Atlantic Salmon Restoration Program. The entire Westfield River is designated by NOAA Fisheries as Critical Habitat for Atlantic salmon. Each spring thousands of juvenile Atlantic salmon which have spent two years rearing in these streams migrate toward the sea and pass through the project area. After two more years at sea the surviving adult salmon return to the Westfield River to spawn. Returning salmon are trapped at the fish ladder on the first dam in the river in West Springfield. 90% of these salmon are transported to the USFWS Richard Cronin Salmon Station in Sunderland, MA where they are held until spawning. The salmon fry produced are stocked in the basin to continue the program. 10% of the returning adults are trucked upstream beyond the last major dam in the system (the USACE flood control dam at Knightville) and are release to spawn in the wild. After spawning, usually in December, these fish will migrate toward the sea, again passing through the project area.

The segment of the Westfield River which borders the project is classified by MADEP as a warmwater fishery because summer temperatures sometimes exceed 68 degrees F. In reality this segment of river is a transition zone between the coldwater reaches above and the warmwater reaches below. This section of river clearly supports coldwater fish, the project impoundment is annually stocked with trout and fish surveys above and below the project area have found trout and juvenile Atlantic salmon.

COMMENTS

River Flows

The project is licensed to operate in an instantaneous run of river mode and when operated in this manner does not have adverse effects on the flows of the Westfield River.

Water Quality

The project does not adversely affect the water quality of the Westfield River.

Fish Passage and Protection

The project is operating with an interim downstream fish passage facility, constructed in 1998. Recent testing of this facility (and some modifications) has not demonstrated its effectiveness. The applicant is under a current FERC order to repeat the effectiveness testing during the spring of 2010. In response to this order the applicant now proposes to:

- Install ¾ inch clear space Downstream Fish Protection Panels at the project turbine intake starting March 15, 2010 to be completed by April 1, 2010 (start of the smolt passage season).
- Conduct an Intake Velocity Study to occur after completion of the protection panel installation.
- Construct a new Downstream Fish Passage Facility during the 2010 summer season. The design of the new downstream fish passage system has been submitted for agency review.
- Perform Downstream Fish Passage Effectiveness Testing of the new facilities in spring 2011.

The Department has agreed to the applicant's proposal.

Watershed Protection

The project as currently operated does not adversely affect the watershed, however the applicant's proposal to install 30 inches of flashboards on the project dam will inundate marginal wetlands and upstream free-flowing habitats and have a detrimental effect on the watershed.

Threatened and Endangered Species Protection
Provisions of the project's FERC license, if followed, will provide adequate protection for threatened and endangered species found within the project area.

Cultural Resource Protection
The project does not adversely affect the cultural resources of the Westfield River.

Recreation
The project owner has installed a number of enhancements to the recreational opportunities of the Westfield River.

Facilities Recommended For Removal
This facility is not currently recommended for removal by the Department.

CONCLUSION
At this point in time, the Division can not support certification of the Woronoco project as "low impact". However, the FERC license has required the installation of various resource and recreational measures at the project. Woronoco has maintained consultation with this agency to address these license compliance requirements. Many of the compliance requirements have been completed while improvements to fish passage facilities and their effectiveness testing are on-going.

At such time that the remaining FERC license compliance requirements are completed, **and** so long as the project owner does not pursue their proposal to install 30 inches of flashboards on the project dam (thereby inundating marginal wetlands and upstream free-flowing habitats), the Department would support certification of the project as a low impact hydroelectric facility.

Sincerely,

Caleb Slater, Ph.D.
Anadromous Fish Project Leader

cc. Peter Clark, Woronoco Hydro
Alfred Nash, Renewable Power Consulting