Liisa Dowd  
Ice House Partners, Inc.  
323 West Main Street  
Ayer, MA 01432  

RE: Ice House Power Project  
FERC No. P-12769  

Dear Liisa Dowd:  

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. The Division has the following comments in response to the Article 14 draft plans (run-of-river monitoring, Sediment Removal, Eel Passage, and Fish Passage), dated September 2008 for the Ice House Power Project FERC No P-12769 located on the Nashua River, in Ayer, Massachusetts.

Background  

The Ice House Power Project consists of the existing facilities:

(1) the 300-foot-long, 10-foot-high Ice House Dam consisting of a 210-foot-long spillway topped with flashboards;  
(2) a 137-acre reservoir with a normal full pond elevation of 215 feet National Geodetic Vertical Datum;  
(3) a 50-foot-wide, 600-foot-long power canal;  
(4) a restored powerhouse containing two generating units with a total installed capacity of 270 kilowatts; and  
(5) appurtenant facilities.

The project will have an average annual generation of 2,500 megawatt-hours.

IHP propose that the project will be operated strictly run-of-river, will maintain 1 mgd (1.55 cfs) to the bypass reach, will provide fish passage when requested by the USFWS, and will provide designated canoe portage locations with signage and access for fisherman.

Draft Article 14 Plans

Run of River Monitoring/Maintaining Plan

Minimum flow  
IHP propose that the minimum flow (1.8 cfs) will be delivered to the bypass reach via a submerged orifice sized to release the minimum flow at normal pool height (top of flashboards). This should work, but plan should include more details. Please describe the exact nature of this opening (size, shape, location). Will this opening be a hole in the flashboards, a pipe or some other low level outlet? An orifice sized to deliver
only 1.8 cfs will be fairly small and could easily become clogged with debris. The plan should describe how the minimum flow will be monitored. The weekly “walk-around” of the facility described in the plan is not sufficient to guarantee the continuous delivery of the minimum flow.

Run of river operations
IHP propose that the project turbines will be manually operated when project flows exceed 170 cfs one turbine will be started and when project flows exceed 340 cfs the second turbine will be started. Likewise when project flows decrease below 340 cfs the one turbine will be shut down and when project flows drop below 170 cfs the other turbine will be shut down. IHP propose that these decisions will be guided by water surface elevation data from a gage installed on the upstream side of the dam. At present this water surface elevation data must be monitored manually and an alarm system is envisioned to alert “building occupants” that adjustment is required. As a backup, the turbines will break the vacuum lift in their penstocks and shut down at a water surface elevation described only as “substantially less” than top of flashboards.

As described, this operating scenario is unacceptable. Because hydroelectric projects normally operate 24 hours a day seven days a week, an alarm that notifies “building occupants” is insufficient to guarantee compliance with license articles. The backup plan of “substantial” drawdown of the project impoundment before automatic project shutdown will result in violations of both the minimum flow (orifice release calibrated to top of flashboards operations) and run of river requirements. The large surface area of the project impoundment guarantees that even a shallow draw down will represent a significant water volume that may take some time to refill at a low flow.

At the very least the project should be automated so that generation will cease if the water surface elevation of the project impoundment reaches a measurable distance below the normal top of flashboards. (This measurable distance is dependant on the accuracy of the measuring device- but we have used +/- 0.2 feet at other projects.)

If the IHP can demonstrate that the turbines break vacuum and shutdown at or about the time that the water surface elevation of the project impoundment reaches the normal top of flashboards this additional automation may not be required.

Eel passage
The information presented on the distribution of eels in the Merrimack River basin is incorrect.
- Eels are present throughout much of the Merrimack River watershed.
- Elvers have been observed at the Essex Dam in Lawrence, at the Pawtucket Dam in Lowell and at the Amoskeag Dam in Manchester.
- Eels have been found in fish surveys in the Nashua River - both upstream of the Pepperell Paper Project (Squannacook River) and upstream of the Ice House Project (Catacoonnug Brook).

As a general outline the eelway proposed is fine. The exact location and design of the eelway will require some onsite evaluation after the project starts generation to determine where elvers are approaching the project (in the tailrace or at the dam). The division would propose that next summer several temporary eelways (“eelavators”) be installed at several likely locations both at the dam and in the project tailrace to determine the best location for a permanent installation.

Fish Passage
The information presented on the distribution of anadromous fish in the Merrimack River basin is incorrect. Anadromous fish (American shad, River herring, and Atlantic salmon) have been observed using the fish passage facilities at the Essex Dam in Lawrence, at the Pawtucket Dam in Lowell and at the Amoskeag Dam in Manchester. Anadromous fish access to the Ice House Project is currently blocked by the Pepperell Paper Project Dam over 10 miles downstream. It should be made clear in the plan that no upstream fishway will be required at the Ice House Project until upstream fish passage has been installed at the
Pepperell Paper project and the Division and the USFWS have concluded that it is necessary. The conceptual fishway pictured in the draft plan is not acceptable.

- It is incomplete. At the time upstream passage is implemented downstream passage will also be required to allow safe passage of the juveniles on their seaward migration.
- Its location will depend on the flow pattern at the project during the fish migration season (April-June). The entrance should be located in the area of the highest flow- in the tailrace or right at the dam where the minimum flow/downstream passage discharges, depending on whether generation or spill is predominating at this time.
- The exact design will have to be approved by the Division and the USFWS and will depend on the target species.

I suggest that this section be left blank except for a statement that the IHP agree to install upstream fish passage (design to be determined in consultation with the Division and the USFWS) at such time that it is deemed necessary by the Division and the USFWS.

Thank you for this opportunity to comment.

Sincerely,

Caleb Slater, Ph.D.
Anadromous Fish Project Leader

cc: Bob Kubit, MADEP
    Melissa Grader, USFWS