United States Department of the Interior

FISH AND WILDLIFE SERVICE

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ORIGINAL

In Reply Refer To: FERC No. 1904-073
TransCanada Hydro Northeast Inc.
Connecticut River
COMMENTS ON TRANSCANADA'S REHEARING REQUEST OF FERC'S STUDY PLAN DETERMINATION

April 23, 2014

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E., Room 1A
Washington, DC 20426

Dear Secretary Bose:

This letter is in response to some of the points made in the request for rehearing on the Federal Energy Regulatory Commission's (FERC) Study Plan Determination (SPD) that TransCanada (TC) filed with FERC on March 24, 2014.

In its request, Winston & Strawn LLP, on behalf of TC, asserts that FERC's requirement that TC conduct a new, stand-alone hydroacoustics study was in error, arbitrary and capricious, and unsupported by substantial evidence. Herein, we provide for FERC's consideration responses to certain statements made by TC (via its legal counsel) relative to the U.S. Fish and Wildlife Service's (Service) position regarding the need for hydroacoustic technology.

- *TC states that the Service has shifted its position regarding why hydroacoustic technology is needed and what its use would be.*

On March 1, 2013, the Service submitted Study Request #6 (Impact of Vernon Project Operations on Downstream Migration of Juvenile American Shad) as part of our comments on TC's PAD. In that request, we stated that "Project discharge adjustments at the dam should be examined relative to timing, duration, and magnitude of juvenile shad migration to and through the dam, with hydroacoustic equipment for natural/wild fish information...Additional hydroacoustic assessment immediately upstream and downstream of the Vernon Dam will provide information on the timing of migration to and through this area." [emphasis added]

The Service again recommended using hydroacoustics to "determine timing, duration, and magnitude of the juvenile outmigration" in its July 15, 2013 comment letter on TC's Proposed Study Plan (PSP). The language used by the Service in the two letters is nearly identical and does not reflect a shift in our position. [emphasis added]

- *TC states that no stakeholder has submitted proposed modifications to TC's PSP or UPSP using the Study Criteria.*

The Service's original study request identified using hydroacoustic technology in Study 22. That request addressed all of the study criteria. Our comments on TC's PSP and UPSP reiterated our request to use hydroacoustic technology. Therefore, we did not propose a methodology that had not already been addressed pursuant to the Study Criteria.

- *TC misinterpreted comments made by the Service in its August 29, 2013 Revised Study Plan (RSP) letter.*

In response to TC's proposal to deploy a single-beam hydroacoustic transducer at the fish pipe, the Service stated "A single transducer near the fish pipe **may** provide sufficient insight into the timing, duration and relative abundance of the run **assuming that passage through the fish pipe is indicative of passage through other potential routes**. However, a single transducer directed towards the fish pipe will not allow an assessment of delay at the project" [emphasis added].

It appears that TC interpreted our statements to mean we agreed that passage through the fish pipe transducer was indicative of passage through other potential routes and therefore additional hydroacoustic transducers would not be needed at other potential passage routes for purposes of determining run timing, duration and magnitude. This is not the Service's position. Our statements were intended to highlight the fact that at present we have no data to support the assumption that passage through the fish pipe is indicative of passage through all other potential routes.

- *TC states that the Service has not explained how a comprehensive hydroacoustics array is consistent with generally accepted practice in the scientific community.*

Hydroacoustic technology has been used for many years at hydropower projects to examine and describe fish behavior through patterns of movement at various project structures (intakes, forebays, etc.) in relation to dam operations (Skalski *et al.* 1998; Nestler *at al.* 1999; Haro *et al.* 1999; Johnson *et al.* 1999; Johnson and Moursund 2000; Johnson *et al.* 2000; Johnson *et al.* 2005; McKinstry *et al.* 2005; Mueller *et al.* 2008; Hamel *et al.* 2008; Khan *et al.* 2009; Anonymous 2013). A common design feature in these studies is the use of multiple transducers in order to provide the necessary spatial coverage to adequately address study questions.

In addition, a search of FERC Online for the period 2000 to 2014 revealed that at least seven FERC projects (FERC Nos. 2145, 2365, 4678, 6842, 7481, 11393 and 12611) have used (or have agreed to use) hydroacoustic technology to monitor fish movement/passage.

- *TC believes that the Service has not sufficiently justified the need for hydroacoustics beyond the single-beam transducer at the fish pipe proposed by TC.*

The Service believes that it has justified the need for hydroacoustics, via both our written letters as well as during study plan development meetings. While the Service stands by the reasons previously submitted, below we provide more explicit details behind our justifications.

The hydroacoustic system requested by the Service will provide valuable information on the timing, duration and magnitude of the juvenile shad outmigration at the project, as well as aid in interpreting the results from the radio telemetry and turbine survival components of the study.

- The radio telemetry study will provide information on rate of movement and passage route selection of test fish. TC proposes to release 10 lots of 10 fish during the middle-to-late part of the passage season. Currently, it is unclear whether a sufficient number of shad large enough to tag (>110mm) will be available to use in the study. In addition, the overall number of test fish limits the number of environmental and/or operational scenarios that can be evaluated.

  Having concurrent hydroacoustic data would allow evaluation of timing, duration and relative abundance during the entire downstream migration, which would encompass a wide array of operational and environmental conditions. It also would ensure that some route selection data are collected (which could be inferred based on comparing the relative abundance of targets at each passage route within a given time frame), even in the event that the radio telemetry component of the study cannot be completed as proposed.

  As TC points out, radio telemetry allows for collecting data on individuals versus the population. The hydroacoustic data would allow for evaluating how congregations of targets (juvenile shad) change over time, over varying operational and environmental conditions, at different passage routes at the project.

- TC has not provided any supporting documentation that suggests a single-beam transducer at the fish pipe would provide data on timing, duration, and relative abundance of the run that is indicative of passage through other potential routes. While the radio telemetry element of the study may allow for verification of this assumption, it also could reveal that this assumption is false. Regardless, the results would not be known until the end of the passage season, which runs the risk of collecting data (single-beam transducer at the fish pipe) that is not sufficient for the Service to use in developing recommendations and/or prescriptions for any new license issued for the project for FERC to use in assessing the project impacts.

  Having concurrent full coverage hydroacoustic data would assist in interpreting the radio telemetry results (e.g., corroborate that test fish are behaving similar to wild fish with respect to route selection, as well as movements). While radio telemetry will allow determination of route selection of individuals, absent hydroacoustic data at all potential passage routes, we would not know whether those fish are selecting a route similar to

wild fish. For example, if the radio telemetry study shows that 50 percent of test fish use the fish pipe, but the single-beam transducer shows no wild targets using that route, it may indicate that the test fish are not behaving like wild fish. Although TC proposes to release the test fish with groups of wild fish to promote schooling behavior, without complementary hydroacoustic data, we would not know if the test fish actually pass a given route with or without a school.

- In September and October of 2012, the Service conducted boat electrofishing surveys along the immediate upstream shoreline (Vermont shore) of Vernon Station and repeatedly observed high levels of juvenile shad surface popping activity inside of the partial length fish diversion boom in the project forebay (Sprankle 2013). The proposed single transducer would not provide coverage for this important area which is in front of Vernon's turbine intakes.

  Although juvenile shad could not be sampled from the area where activity was observed because it was inside a cabled trash boom near the turbine intakes, data shown in that report (Sprankle 2013) were collected along the same shoreline and reflect fish densities/catch rates that align most clearly with this "inside" forebay area (again, an area that the single transducer would not cover). These observations speak to the need for a hydroacoustic system that encompasses different areas of the project. Data collected at the fish pipe only tell us what is happening at the fish pipe. We would not know (1) where other concentrations of targets (i.e., schools of shad) may be at the project; (2) how long those targets remain in those other areas; (3) whether the concentrations move among areas; or (4) how concentrations move among and/or within different project areas over varying operational and/or environmental conditions. Having a comprehensive at-dam array that covers all potential passage routes would fill in these important data gaps.

- The Service originally had expected that multiple arrays would be necessary to gather data on delay (i.e., time spent upstream of the dam before moving through and past the project). However, further review into the published literature has revealed a number of studies where use of a single, full coverage array provided information on fish behavior (i.e., passage, movement, milling, etc.) that we believe would help to answer any issues of delay at the project (Anonymous 2013; Khan *et al.* 2009; Hamel *et al.* 2008; Johnson *et al.* 1999).

The above information clearly shows the need for all three pieces of information: we need to know how quickly and by which routes the radio-tagged fish pass the project; we need to know the survival of test fish through different passage routes; and we need to know how the wild population behaves at the project over the course of outmigration (with respect to timing, duration, relative abundance, and patterns of movement at and among different passage routes). The result of each component will inform and aid in interpreting the results from the other components. Without all three, we could be left uncertain how to interpret data that showed, for example, all of the radio-tagged fish going through the fish pipe, but no hydroacoustic targets picked up at the fish pipe transducer, or, all the test fish going through the turbines, but the single-beam transducer indicates concentrations of targets only at the fish pipe.

- *TC disputes both FERC's and the Service's cost estimates to conduct the study requested.*

While the Service's cost estimate may have been low, we question why TC's estimate is so much higher than FirstLight's (FL) for a very similar study.[1] FL's Study 3.3.3 involves using hydroacoustics, radio telemetry and balloon tags to evaluate downstream passage of juvenile American shad. Relative to hydroacoustics, three separate systems would be deployed: one at the Northfield Mountain intake, one at Turners Falls Gatehouse, and one within the Cabot Station forebay. The estimated cost for the entire study is given as $400,000 to $500,000. This is significantly less than TC's estimate of $2.93 million.

Thank you for this opportunity to comment. If you have any questions regarding these comments, please contact Melissa Grader of this office at (413) 548-8002, extension 124.

Sincerely yours,

for Thomas R. Chapman
Supervisor
New England Field Office

[1] Revised Study Plan for the Turners Falls Hydroelectric Project (No. 1889) and Northfield Mountain Pumped Storage Project (No. 2485). August 14, 2013. FirstLight Power Resources.

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