



March 1, 2016

VIA ELECTRONIC FILING

Ms. Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Re: FirstLight Hydro Generating Company, FERC Project Nos. 2485 and 1889
Filing of Study Reports and Proposed Schedule and Process Plan for Remaining Study Reports

Dear Secretary Bose:

Pursuant to the schedule set forth in the Federal Energy Regulatory Commission's (FERC or Commission) Study Plan Determination issued February 21, 2014, and the Commission's Revised Process Plan and Schedule (Revised Schedule) issued September 14, 2015 for relicensing the Turners Falls Hydroelectric Project and Northfield Mountain Pumped Storage Project, FirstLight Hydro Generating Company (FirstLight) encloses for filing the following 13 study reports in support of the relicensing effort:

- 3.2.1 Water Quality Monitoring Study
- 3.3.4 Evaluate Upstream Passage of American Eel at the Turners Falls
- 3.3.6 Impact of Project Operations on Shad Spawning, Spawning Habitat and Egg Deposition in the Area of the Northfield Mountain and Turners Falls Projects
- 3.3.8 Computational Fluid Dynamics Modeling in the Vicinity of the Fishway Entrances and Powerhouse Forebays
- 3.3.9 Two-Dimensional Modeling of the Northfield Mountain Pumped Storage Project Intake/Tailrace Channel and Connecticut River Upstream and Downstream of the Intake/Tailrace
- 3.3.10 Assess Operational Impacts on Emergence of State-Listed Odonates in the Connecticut River
- 3.3.11 Fish Assemblage Assessment
- 3.3.12 Evaluate Frequency and Impact of Emergency Water Control Gate Discharge Events and Bypass Flume Events on Shortnose Sturgeon Spawning and Rearing Habitat in the Tailrace and Downstream from Cabot Station
- 3.3.20 Ichthyoplankton Entrainment Assessment at the Northfield Mountain Project
- 3.4.1 Baseline Study of Terrestrial Wildlife and Botanical Resources
- 3.5.1 Baseline Inventory of Wetland, Riparian and Littoral Habitat in the Turners Falls Impoundment, and Assessment of Operational Impacts on Special-Status Species
- 3.6.1 Recreation Use/User Contact Survey
- 3.6.5 Land Use Inventory

Gus Bakas

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In addition to these 13 studies, FirstLight is enclosing two addenda required by FERC in its January 15, 2015 Determination as follows:

- 3.2.2 Hydraulic Study of Turners Falls Impoundment, Bypass Reach and below Cabot
- 3.3.18 Impacts of the Turners Falls Canal Drawdown on Fish Migration and Aquatic Organisms

Table 1 (end of letter) lists all of the relicensing 39 studies, along with a status update on each study, which includes one of the following:

- the study is complete,
- the report is complete and is being filed with FERC as part of this USR or,
- the report is incomplete; the expected FERC filing date is listed in the table.

Process and Schedule Overview

Consistent with the Commission's Revised Schedule, FirstLight will hold a meeting with stakeholders and Commission staff to discuss the results of the 13 studies being filed today and any potential proposals to modify those studies. FirstLight will also provide an update on one of the ongoing studies, Study No. 3.3.16 *Habitat Assessment, Survey and Modeling of Suitable Habitat for State-Listed Mussel Species in the Connecticut River below Cabot*, regarding the development of Habitat Suitability Index Curves for mussels.

The meeting will be held on March 16, 2016 from 9:00 am to 5:00 pm at the Hotel Northampton (36 King Street, Northampton, MA 01060). For those who cannot attend in person, FirstLight will post the PowerPoint presentation to the Northfield website (<http://www.northfieldrelicensing.com/Pages/default.aspx>) prior to the March 16 meeting. In addition, FirstLight is offering the following call-in number 1-866-228-9900, Passcode 946935, for those who cannot attend in person.

Pursuant to the Revised Schedule, within 15 days following the study report meeting (March 31, 2016), FirstLight will file a meeting summary. Commission staff or any stakeholder may file a disagreement concerning the meeting summary and include any requests to modify the studies, or propose new studies, within 30 days (May 2, 2016). FirstLight will then have 30 days (May 30, 2016) to respond to the study disputes. Within 30 days (June 29, 2016) of FirstLight's response, any remaining disagreement will be resolved by the Commission, and the study plan will be amended, if necessary.

In the Revised Schedule, the Commission noted that if any studies had not been completed and filed by March 1, 2016, FirstLight must indicate in its March 1 filing when the study reports would be completed and filed. As reflected in Table 1 (end of letter), FirstLight proposes to file 10 study reports with the Commission on October 14, 2016. FirstLight agrees to undergo another study determination process—similar to the Initial Study Report, Updated Study Report, and the process initiated by the study reports filed herein—for those study reports to be filed in October. The dates for that process are set forth in Table 2, which also includes the other aspects of the ILP process plan and schedule through March 1, 2017.

FirstLight proposes not to undergo another study determination process for the study reports to be filed March 1, 2017. Given the small number of studies, FirstLight does not believe it would be an efficient use of the Commission's or relicensing participants' resources to schedule further study report meetings or establish yet another study determination process. By March 1, 2017, FirstLight's Final License Application will have been pending before the Commission for almost one year. Other relicensing participants will be free to comment on any remaining study reports. If the Commission believes further information is needed with respect to any of these studies, then the Commission can issue additional information requests.

Study No. 3.1.2 Northfield Mountain/Turners Falls Operations Impact on Existing Erosion and Potential Bank Instability

On November 12, 2015, the National Marine Fisheries Service (NMFS) requested the Commission modify Study Nos. 3.1.2 (Erosion) and 3.8.1 (Operations Model) if FirstLight proposed a change in project operation in the Draft or Final License Application. On December 2, 2015, in its Draft License Application (DLA), FirstLight proposed to increase the useable storage volume in the Upper Reservoir. In FirstLight's DLA filing, it acknowledged that additional analysis is needed on the associated effects of this proposed change on water levels in the Turners Falls Impoundment (TFI).

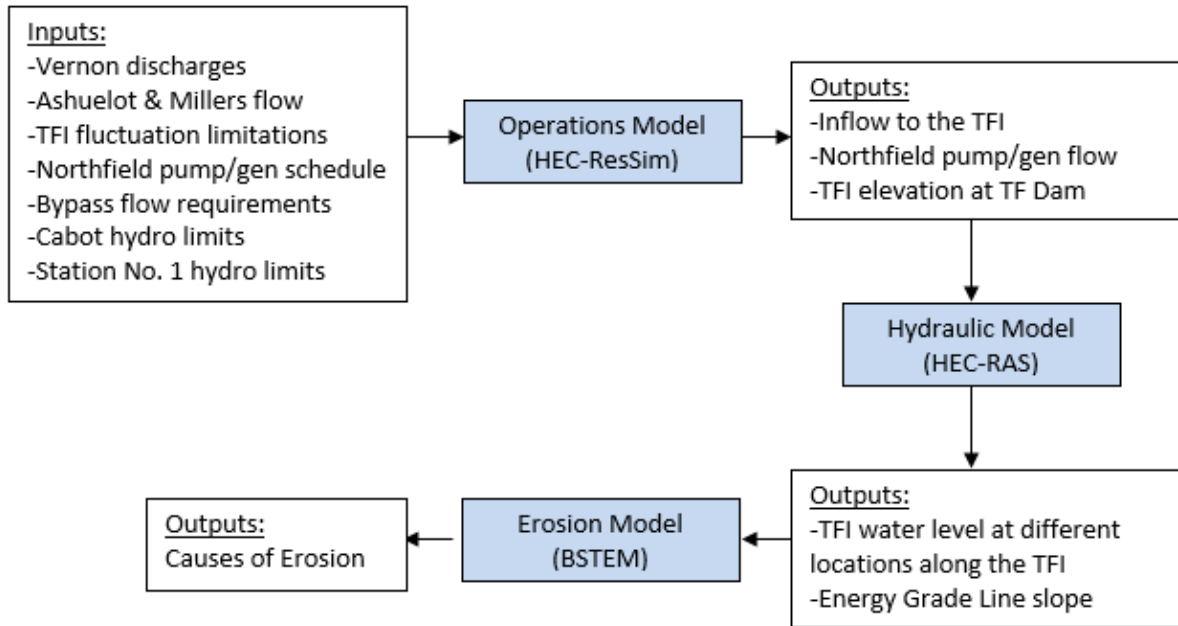
In its January 15, 2016 Determination on Requests for Study Modifications and New Studies, the Commission requested that in FirstLight's March 1, 2016 filing, it address any necessary changes to the approved study plan and describe any additional analysis it will perform to address the proposed change in operation of the Northfield Mountain Project. After the Commission reviews FirstLight's proposal and any comments from stakeholders, it will revise the approved study plan, if necessary, in the study modification letter slated to be issued on June 29, 2016. FirstLight's proposed supplemental analysis for Study Nos. 3.1.2 and 3.8.1 is as follows.

On August 8, 2014, FirstLight filed an application for a temporary amendment of the minimum and maximum Upper Reservoir elevations for the period December 1, 2014 through March 31, 2015. As part of that filing, FirstLight provided information on the expected change in the TFI water level fluctuations resulting from the increased use of the Upper Reservoir storage capacity. The existing operations model (developed in HEC-ResSim software) of the Project was used in the assessment. More specifically, an hourly time step model was developed based on 2002 hydrology (flow) and the actual 2009 Northfield Mountain Project pump/generation schedule. The operations model was run for this year to represent baseline conditions relative to TFI water levels. Next, the 2009 pump/generation schedule was modified to use more of the Upper Reservoir storage capacity during the winter period only, and this scenario (herein referred to as Scenario 1) was simulated in the same operations model. Results of the baseline and Scenario 1 were subsequently compared relative to the magnitude and frequency of TFI water level fluctuations.

FirstLight proposes to conduct the same analysis using the 2002 hydrology and 2009 pump/generation schedule, with the exception of modifying the pump/generation schedule to reflect year-round use of the Upper Reservoir storage capacity¹. The operations model output from the baseline and Scenario 1 simulations-- specifically, Vernon discharges, Northfield Mountain pump/generation flows, Ashuelot and Miller River flows, and the TFI water level at the Turners Falls Dam --- would serve as inputs to the TFI HEC-RAS hydraulic model. The hydraulic model would simulate the baseline and Scenario 1 conditions. The hourly hydraulic model output for the baseline and Scenario 1 simulations —specifically, the energy grade slope and water level at different locations in the TFI—would serve as inputs to the Bank Stability and Toe Erosion Model (BSTEM). BSTEM is being used as part of Study 3.1.2 to evaluate the causes of TFI streambank erosion. Accordingly, BSTEM would be used to determine any incremental increase in streambank erosion between the baseline and Scenario 1 simulations resulting from greater use of the Upper Reservoir storage capacity.

The schematic below highlights the various modeling steps.

¹ Similar to the modeling conducted for the Temporary Amendment, FirstLight operations personnel will determine (with the benefit of hindsight) how the Project would have been operated in this time period if the additional Upper Reservoir storage capacity had been available.



Relative to schedule, FERC indicated it will act on the proposed study revision by June 29, 2016. FirstLight proposes to file Study No. 3.1.2 with the Commission by October 14, 2016. Thus, there would be 3 ½ months between the Commission’s Determination and the proposed filing date. Given this, FirstLight will file Study No. 3.1.2 as scheduled on October 14, 2016, and file a separate addendum to complete the proposed assessment outlined above by December 1, 2016.

Study Report Availability

FirstLight is filing the 13 study reports and two addenda with the Commission electronically. To access the reports on the FERC website (<http://www.ferc.gov>), go to the “eLibrary” link, and enter the docket number, P-1889 or P-2485, to access the document. FirstLight is also making the reports available for download at the following website: <http://www.northfieldrelicensing.com>.

If you have any questions, or need additional information, please feel free to contact me.

Sincerely,

Gus Bakas

Table 1: Study Report Status Update

Study No.	Title	Study is Complete	Report filed on March 1, 2016	Date Report will be filed with FERC	Date FL is targeting to upload report to website	Comments
3.1.1	2013 Full River Reconnaissance	X				
3.1.2	Northfield Mountain/Turners Falls Operations Impact on Existing Erosion and Potential Bank Instability			10/14/2016	6/30/2016	
3.1.3	Sediment Monitoring Study			10/14/2016	9/15/2016	
3.2.1	Water Quality Monitoring Study		X			
3.2.2	Hydraulic Study of Turners Falls Impoundment, Bypass Reach and below Cabot	X (addendum required)				Addendum filed on 3/1/2016
3.3.1	Conduct Instream Flow Habitat Assessments in the Bypass Reach and below Cabot Station			10/14/2016	9/15/2016	
3.3.2	Evaluate Upstream and Downstream Passage of Adult American Shad			10/14/2016	9/15/2016	
3.3.3	Evaluate Downstream Passage of Juvenile American Shad			10/14/2016	9/15/2016	
3.3.4	Evaluate Upstream Passage of American Eel at the Turners Falls		X			
3.3.5	Evaluate Downstream Passage of American Eel			3/1/2017		
3.3.6	Impact of Project Operations on Shad Spawning, Spawning Habitat and Egg Deposition in the Area of the Northfield Mountain and Turners Falls Projects		X			
3.3.7	Fish Entrainment and Turbine Passage Mortality Study			10/14/2016		
3.3.8	Computational Fluid Dynamics Modeling in the Vicinity of the Fishway Entrances and Powerhouse Forebays		X			
3.3.9	Two-Dimensional Modeling of the Northfield Mountain Pumped Storage Project Intake/Tailrace Channel and Connecticut River Upstream and Downstream of the Intake/Tailrace		X			
3.3.10	Assess Operational Impacts on Emergence of State-Listed Odonates in the Connecticut River		X			
3.3.11	Fish Assemblage Assessment		X			
3.3.12	Evaluate Frequency and Impact of Emergency Water Control Gate Discharge Events and Bypass Flume Events on Shortnose Sturgeon Spawning and Rearing Habitat in the Tailrace and Downstream from Cabot Station		X			
3.3.13	Impacts of the Turners Falls Project and Northfield Mountain Project on Littoral Zone Fish Habitat and Spawning Habitat			10/14/2016	06/30/2016	

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Study No.	Title	Study is Complete	Report filed on March 1, 2016	Date Report will be filed with FERC	Date FL is targeting to upload report to website	Comments
3.3.14	Aquatic Habitat Mapping of Turners Falls Impoundment	X				
3.3.15	Assessment of Adult Sea Lamprey Spawning within the Turners Falls Project and Northfield Mountain Project Area			10/14/2016	06/30/2016	
3.3.16	Habitat Assessment, Surveys, and Modeling of Suitable Habitat for State-listed Mussel Species in the CT River below Cabot Station			10/14/2016	09/15/2016	
3.3.17	Assess the Impacts of Project Operations of the Turners Falls Project and Northfield Mountain Project on Tributary and Backwater Area Access and Habitat	X				
3.3.18	Impacts of the Turners Falls Canal Drawdown on Fish Migration and Aquatic Organisms	X (addendum required)				Addendum filed on 3/1/2016
3.3.19	Evaluate the Use of an Ultrasound Array to Facilitate Upstream Movement to Turners Falls Dam by Avoiding Cabot Station Tailrace			3/1/2017		
3.3.20	Ichthyoplankton Entrainment Assessment at the Northfield Mountain Project		X			
3.4.1	Baseline Study of Terrestrial Wildlife and Botanical Resources		X			
3.4.2	Effects of Northfield Mountain Project-related Land Management Practices and Recreation Use on Terrestrial Habitats	X				
3.5.1	Baseline Inventory of Wetland, Riparian and Littoral Habitat in the Turners Falls Impoundment, and Assessment of Operational Impacts on Special-Status Species		X			
3.6.1	Recreation Use/User Contact Survey		X			
3.6.2	Recreation Facilities Inventory and Assessment	X				
3.6.3	Whitewater Boating Evaluation	X				
3.6.4	Assessment of Day Use and Overnight Facilities Associated with Non-Motorized Boats	X				
3.6.5	Land Use Inventory		X			
3.6.6	Assessment of Effects of Project Operation on Recreation and Land Use			10/14/2016	09/15/2016	
3.6.7	Recreation Study at Northfield Mountain, including Assessment of Sufficiency of Trails for Shared Use	X				
3.7.1	Phase IA, IB, and Phase II Archaeological Surveys			TBD	NA (When complete, in accordance with FERC)	Phase IA report was filed in Dec 2014. A modified report was filed in May 2015. In its Phase IA report, FL stated

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Study No.	Title	Study is Complete	Report filed on March 1, 2016	Date Report will be filed with FERC	Date FL is targeting to upload report to website	Comments
					regulations, report will be filed with FERC as "privileged."	that it would complete Phase IB and Phase II, if needed, in the event that it is determined that observed erosion is Project-induced, or that there are other Project-related effects.
3.7.2	Historic Structures Inventory and National Register Evaluation	X				
3.7.3	Traditional Cultural Properties Study	X				
3.8.1	Evaluate the Impact of Current and Proposed Future Modes of Operation on Flow, Water Elevation and Hydropower Generation			3/1/2017		

Table 2 includes the major steps in the relicensing schedule starting in September 2015 through March 1, 2017. Tasks shown in blue are steps associated with the license application. Tasks in the other colors pertain to Integrated Licensing Process (ILP) process steps required by FERC.

- License Application
- Updated Study Report
- March 1, 2016 Study Reports
- September 15, 2016 Study Reports

Table 2: Relicensing Schedule – late 2015 and early 2017

FERC Reg	Lead	Activity	Timeframe	Due Date
§5.15(f)	FirstLight	File Updated Study Reports	No later than two years from Study Plan approval	09/14/2015
§5.15(c)(2)	FirstLight	Updated Study Results Meeting	Within 15 days of Updated Study Report	09/29-30/2015
§5.15(c)(3)	FirstLight	File Updated Study Results Meeting Summary	Within 15 days of Updated Study Results Meeting	10/14/2015
§5.15(c)(4)	Stakeholders/ FERC	File Updated Study Summary Disagreements/Modification to Study/Propose New Studies	Within 30 days of filing Meeting Summary	11/13/2015
§5.16(a)	FirstLight	File Draft License Application with the FERC and distribute to Stakeholders	Not later than 150 days before final application is due (final application is due 05/02/2016, 2 yrs prior to license expiration)	12/02/2015
§5.15(c)(5)	FirstLight	File Responses to Disagreements (if any)	Within 30 days of disputes	12/14/2015
§5.15(c)(6)	FERC	Resolution of Disagreements (if any)	Within 30 days of filing responses to disputes	01/13/2016
§5.15	FirstLight	Conduct 2016 Field Studies <ul style="list-style-type: none"> • Study 3.3.19 Ultrasonic Array 	Spring and Fall 2016	
§5.16(e)	Stakeholders/ FERC	Comments on Draft License Application, Additional Information Request (if necessary)	Within 90 day of filing Draft License Application	03/01/2016
§5.15(f)	FirstLight	File Study Reports		03/01/2016
§5.15(c)(2)	FirstLight	Study Report Meeting	Within 15 days of filing Study Reports	03/16/2016
§5.15(c)(3)	FirstLight	File Study Report Meeting Summary	Within 15 days of Study Report Meeting	03/31/2016
§5.16(a)	FirstLight	File Final License Application	Two years prior to license expiration	05/02/2016
§5.15(c)(4)	Stakeholders/ FERC	File Updated Study Summary Disagreements/Modification to Study/Propose New Studies	Within 30 days of filing Meeting Summary	05/02/2016
§5.15(c)(5)	FirstLight	File Responses to Disagreements (if any)	Within 30 days of disputes	05/30/2016

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FERC Reg	Lead	Activity	Timeframe	Due Date
§5.15(c)(6)	FERC	Resolution of Disagreements (if any)	Within 30 days of filing responses to disputes	06/29/2016
§5.15	FirstLight	Conduct 2016 Field Studies <ul style="list-style-type: none"> • Study 3.3.5 Downstream Passage of American Eel (Year 2) 	Summer and Fall 2016	
§5.15(f)	FirstLight	File Study Reports		10/14/2016
§5.15(c)(2)	FirstLight	Study Report Meeting	Within 15 days of filing Study Reports	10/18/2016
§5.15(c)(3)	FirstLight	File Study Report Meeting Summary	Within 15 days of Study Report Meeting	10/23/2016
§5.15(c)(4)	Stakeholders/ FERC	File Updated Study Summary Disagreements/Modification to Study/Propose New Studies	Within 30 days of filing Meeting Summary	11/22/2016
§5.15(c)(5)	FirstLight	File Responses to Disagreements (if any)	Within 30 days of disputes	12/22/2017
§5.15(c)(6)	FERC	Resolution of Disagreements (if any)	Within 30 days of filing responses to disputes	01/23/2017
§5.15(f)	FirstLight	File Study Reports		03/01/2017

Document Content(s)

Transmittal_Letter_of_3_1_2016_Study_Reports.PDF1