

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

TRANSCANADA HYDRO NORTHEAST INC.

Wilder Hydroelectric Project (FERC Project No. 1892-026)
Bellows Falls Hydroelectric Project (FERC Project No. 1855-045)
Vernon Hydroelectric Project (FERC Project No. 1904-073)

March 1, 2016 Updated Study Report
Status Summary of all Studies

March 1, 2016

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INTRODUCTION

TransCanada Hydro Northeast Inc. (TransCanada) is the owner and licensee of the Wilder Hydroelectric Project (FERC No. 1892) (Wilder Project), the Bellows Falls Hydroelectric Project (FERC No. 1855) (Bellows Falls Project), and the Vernon Hydroelectric Project (FERC No. 1904) (Vernon Project) on the Connecticut River in New Hampshire and Vermont. The Wilder Project, the Bellows Falls Project, and the Vernon Project are collectively referred to herein as the “TransCanada Projects.” The FERC licenses for these projects expire on April 30, 2019.

Background

On October 31, 2012, TransCanada filed with the Federal Energy Regulatory Commission (FERC or Commission) its Notice of Intent (NOI) to seek new licenses for each project, along with a separate Pre-Application Document (PAD) for each project.

FirstLight Hydro Generating Company (FirstLight) is the licensee of the Turners Falls Hydroelectric Project (FERC No. 1889) (the Turners Falls Project) and the Northfield Mountain Pumped Storage Project (FERC No. 2485) (the Northfield Mountain Project).¹ The current licenses for both the Turners Falls Project and the Northfield Mountain Project expire on April 30, 2018. On October 31, 2012, FirstLight filed with the Commission its NOI to seek new licenses for the Turners Falls Project and the Northfield Mountain Project, along with a single PAD for both projects (the FirstLight PAD).

On December 21, 2012, Commission Staff issued its Scoping Document 1 (SD1) for its National Environmental Policy Act analysis of the Connecticut River Projects. Commission Staff indicated in SD1 their intent to prepare a single environmental impact statement for the Connecticut River Projects. In January 2013 in various locations near the projects in New Hampshire, Vermont, and Massachusetts, Commission Staff held six project-specific scoping meetings and one additional scoping meeting to help identify the cumulative effects of licensing the Connecticut River Projects. On April 15, 2013, FERC issued its Scoping Document 2 (SD2), in response to verbal and written comments received at the scoping meetings as well as during the scoping process.

TransCanada received comments on the PADs as well as study requests for the TransCanada Projects from state and federal agencies, local officials, non-governmental organizations, and other interested parties (collectively, stakeholders). On April 16, 2013, TransCanada filed its Proposed Study Plan (PSP) pursuant to 18 Code of Federal Regulations (C.F.R.) § 5.11(a).² With its filing of the PSP, TransCanada included a study request responsiveness summary, identifying each study request, the study plan responsive to the request, and the rationale for why any particular study request was not adopted. The April 16,

¹ The TransCanada Projects, together with the Turners Falls Project and the Northfield Mountain Project, are collectively referred to as the “Connecticut River Projects.”

² Delays caused by FERC’s e-filing website prevented a filing on April 15, 2013.

2013, filing also included TransCanada's schedule for study plan meetings. TransCanada recognized that a single meeting would not be adequate to clarify and discuss its PSP. Therefore, it held a series of study plan meetings and discussions regarding its study plan proposals and received extensive feedback and participation from many interested stakeholders within resource-specific working groups.

Pursuant to 18 C.F.R. § 5.12, comments on the PSP were due on July 15, 2013 (i.e., within 90 days of the filing of the PSP). During the consultation process TransCanada received, discussed, and reviewed comments on its PSP from stakeholders. In addition, in response to comments received and consultation with stakeholders through the study plan meetings, TransCanada filed with FERC an Updated PSP on July 9, 2013.

TransCanada filed its Revised Study Plan (RSP) to address the effects of continued operation of the TransCanada Projects on August 14, 2013. The RSP includes 33 individual studies and data collection efforts. The RSP reflects comments received during the study plan meetings and discussions as well as formal comments filed by stakeholders with FERC. Each of the study plans is described in detail in the RSP.

On August 27, 2013, Entergy announced plans to decommission the Vermont Yankee Nuclear Power Plant (VY) during the fourth quarter of 2014. VY withdraws cooling water from, and discharges it back into, TransCanada's reservoir for the Vernon Project. The effect of decommissioning VY changed the baseline conditions at the Vernon Project.

In a September 13, 2013, Study Plan Determination (SPD), the Director delayed issuing determinations for 20 aquatic resource studies, pending a technical meeting on the issue of VY's decommissioning; however, determinations were issued for the remaining 13 studies unlikely to be affected by VY's continued operation or decommissioning. These studies were approved with or without modifications. In addition, four requested studies were determined to be not required in that SPD (Table 1-2).

On September 24, 2014, TransCanada filed a request for clarification on specific aspects of the determination, and the Director provided clarification on those aspects in a letter dated October 22, 2013.

The VY technical meeting was held on November 26, 2013, to identify aquatic resource studies: (1) not affected by operation of VY that could be implemented in 2014; (2) likely affected by operation of VY; and (3) that may need modification due to the decommissioning of VY.

On December 31, 2013, TransCanada submitted revisions to five study plans based on the November 26, 2013, technical meeting and on follow-up discussions with agencies and stakeholders. Minor revisions were made to the following study plans: 6 – *Water Quality*; 13 – *Tributary and Backwater Area Fish Access and Habitats*; 18 – *American Eel Upstream Passage Assessment*; 21 – *American Shad Telemetry*; and 23 – *Fish Impingement, Entrainment, and Survival*.

On February 21, 2014, the Director issued another SPD for those 20 aquatic resource studies and a “new” Vernon Hydroacoustic Study, that the SPD referred to as a “study requested but not adopted by TransCanada”. Fifteen of the 20 proposed studies were deferred until 2015 to allow for the new post-VY baseline condition. Five studies were determined to be not affected by the VY decommissioning and were approved without modification for implementation in 2014.

On March 24, 2014, TransCanada filed a request for rehearing arguing against the need to conduct the newly requested Vernon Hydroacoustic Study; however, stakeholder consultation was conducted and the requested study plan was filed on September 15, 2014. A technical meeting was held on November 20, 2014 to discuss issues surrounding the potential use of hydroacoustics at Vernon. Subsequently, on May 14, 2015 the Director issued an order eliminating the requirement to conduct the Vernon Hydroacoustic Study and approving the Updated RSP for Study 22 – Downstream Migration of Juvenile American Shad at Vernon that TransCanada had filed on February 3, 2015.

During 2013 and 2014, several studies were initiated, and on September 15, 2014, TransCanada filed its Initial Study Report (ISR), held an Initial Study Results Meeting on September 29, 2014, and filed the meeting summary on October 14, 2014. Written comments on the ISR were received from the US Fish and Wildlife Service (FWS) and The Nature Conservancy (TNC) on November 11, 2014. TransCanada filed a response to those comments on December 15, 2014.

On January 16, 2015, TransCanada filed a request to extend for one year the current terms of the project licenses for Wilder, Bellows Falls, and Vernon Hydroelectric Projects. On July 22, 2015 the Director granted the request and project licenses now expire on April 30, 2019.

In 2015, fishery and water quality studies, delayed by the VY closing, were initiated and several incomplete studies that began in 2014 continued.

An Updated Study Report (USR) was filed on September 14, 2015 and the Updated Study Results Meeting was held on October 1 – 2, 2015. A meeting summary was filed on October 14, 2015. Written comments on the USR were received from Mr. John Bruno, Connecticut River Watershed Council, New Hampshire Fish and Game Department, Vermont Department of Environmental Conservation, FWS and TNC. TransCanada filed a response to those comments on December 14, 2015. The Director issued an SPD on January 15, 2016 withholding staff determinations on stakeholder-requested study modifications to ILP Studies 3, 5, 13, 14, 15, and 18 pending completion of those studies.

Also on September 14, 2015 the Director issued a Revised Process Plan and Schedule for the Connecticut River Projects that identified March 1, 2016 as a “target” filing deadline for Updated Study Reports on studies yet to be completed. Any remaining study reports that could not be filed by March 1, 2016 would be identified along with a respective filing date.

In this March 1, 2016 Updated Study Report, TransCanada has included: 1.) Ten final study reports and supporting data, 2.) Three interim study reports (two of which, along with other studies still in progress require stakeholder input prior to completing the study and report) and 3.) a schedule for completing and filing the remaining study reports. Lastly, TransCanada has proposed comment period deadlines with the understanding that FERC will make the final determination on formal comment deadlines.

March 1, 2016 Updated Study Report

This March 1, 2016 Updated Study Report (USR) is being filed in accordance with the Revised Process Plan and Schedule issued September 14, 2015, and includes:

1. Final ILP Study Reports filed separately:
 - a. Study 1 – Historical Riverbank Position and Erosion Study Report
 - b. Study 4 – Hydraulic Modeling Study Report
 - c. Study 6 – Water Quality Monitoring Study Report
 - d. Study 10 – Fish Assemblage Study Report, and appendices filed in zipfile format
 - e. Study 11 – American Eel Survey Report, and appendices filed in Excel format
 - f. Study 12 – Tessellated Darter Study Report, and appendices filed in Excel format
 - g. Study 18 – American Eel Upstream Passage Assessment Study Report
 - h. Study 30 – Recreation Facility Inventory and Use & Needs Assessment Study Report
 - i. Study 31 – Whitewater Boating Flow Assessment Study Report
 - j. Study 32 – Bellows Falls Aesthetic Flow Study Report
 - k. Supporting Geodatabase with new or revised ArcGIS Shapefiles for Studies 1, 6, 12, 14/15, 16, and 30, filed in a single zipfile containing one or more study-specific zipfiles.
 - l. Physically filed DVD (original and two copies) of supplementary video footage of Study 31 whitewater demonstration flows.
2. Interim Study Reports
 - a. Study 9 – Instream Flow Study Interim Report
 - b. Study 14 and 15 – Resident Fish Spawning Study Interim Report (combined report)
 - c. Study 16 – Sea Lamprey Spawning Assessment Interim Report, and appendices filed in Excel format
3. Status Summary of all ILP Studies (herein).

Updated Study Results Meeting

In accordance with 18 C.F.R. § 5.15(c)(2), TransCanada has scheduled the following meetings and meeting agenda to discuss the study results and TransCanada or stakeholder proposals, if any, to modify the study plan in light of the progress of the study plan and data collected.

- March 17, 2016, 9:00 a.m. – 4:30 p.m. TransCanada’s conference room in TransCanada’s River Control Center, 255 Wilder Dam Road, Wilder, VT.
- March 18, 2016, 9:00 a.m. – 4:30 p.m. at TransCanada’s conference room in TransCanada’s River Control Center, 255 Wilder Dam Road, Wilder, VT.

Updated Study Report Meeting Agenda - Thursday March 17, 2016

- 9 am – Introductions
- 9:15 - Summary of progress on the following ILP Studies:

Study No.	Study Title
1	Historical Riverbank Position and Erosion Study (Report filed 03/01/2016)
2	Riverbank Transect Study (Report not yet filed)
3	Riverbank Erosion Study (Report not yet filed)
4	Hydraulic Modeling Study (Report filed 03/01/2016)
5	Operations Modeling Study (Report not yet filed)
6	Water Quality Study (Report filed 03/01/2016)
7	Aquatic Habitat Mapping Study (Report filed 03/02/2015) – nothing to report
8	Channel Morphology and Benthic Habitat Study (Preliminary report filed 03/02/2015)
Break ~ 10:45 – 11:00	
30	Recreation Facility Inventory and Use & Needs Assessment (Report filed 03/01/2016)
31	Whitewater Boating Flow Assessment (Report filed 03/01/2016)
32	Bellows Falls Aesthetic Flow Study (Report filed 03/01/2016)
25	Dragonfly and Damselfly Inventory and Assessment (Report not yet filed)
26	Cobblestone and Puritan Tiger Beetle Survey (Report not yet filed)
27	Floodplain, Wetland, Riparian, and Littoral Vegetation Habitats Study (Report filed 09/14/2015)
28	Fowler's Toad Survey (Report not yet filed)
29	Northeastern Bulrush Survey (Report not yet filed)

Study No.	Study Title
Lunch ~ 12:15 – 12:45 pm - brought in	
10	Fish Assemblage Study (Report filed 03/01/2016)
11	American Eel Survey (Report filed 03/01/2016)
12	Tessellated Darter Survey (Report filed 03/01/2016)
16	Sea Lamprey Spawning Assessment (Preliminary report filed 03/01/2016)
17	Upstream Passage of Riverine Fish Species Assessment (Report not yet filed)
Break ~ 2:00 – 2:15	
19	American Eel Downstream Passage Assessment (Report not yet filed)
20	American Eel Downstream Migration Timing Assessment (Report not yet filed)
21	American Shad Telemetry Study (Report not yet filed)
22	Downstream Migration of Juvenile American Shad – Vernon (Report not yet filed)
23	Fish Impingement, Entrainment and Survival Study (Report not yet filed)
33	Cultural and Historic Resources Study (some reports not yet filed)
Questions Schedule for March 18 meeting	

Updated Study Report Meeting Agenda - Friday March 18, 2016

- 9:00 - Summary of progress and consultation on the following ILP Studies:

Study No.	Study Title
13	Tributary and Backwater Fish Access and Habitats Study (Preliminary report filed 09/14/2015)
18	American Eel Upstream Passage Assessment (Report filed 03/01/2016)
14 and 15	Resident Fish Spawning in Impoundments and Riverine Sections Study (Preliminary report filed 03/01/2016)
Break ~ 11:00 – 11:15	
9	Instream Flow Study (Preliminary report filed 03/01/2016)

Study No.	Study Title
24	Dwarf Wedgemussel and Co-occurring Mussel Study – Delphi Panel and HSCs (Phase I Study report filed 09/15/2014, Phase II report filed 03/02/2015)
Lunch ~ 12:30 – 1:00 pm - brought in	
Questions Meeting summary to be filed, comments on USR due Schedule for additional reporting	

WebEx Meeting Access Information

Hydro Relicensing Updated Study Report Mtg. 3-17-16

Thursday, March 17, 2016

9:00 am | Eastern Daylight Time (New York, GMT-04:00) | 8 hrs

Click on the “Join WebEx meeting” link below

[Join WebEx meeting](#)

Meeting number: 923 610 846

Meeting Abcde12345

Join by phone

1-866-469-3239 Call-in toll-free number (US/Canada)

001-800-514-3550 Mexico toll free

Access code: 923 610 846

Hydro Relicensing Updated Study Report Mtg. 3-18-16

Friday, March 18, 2016

9:00 am | Eastern Daylight Time (New York, GMT-04:00) | 8 hrs

Click on the “Join WebEx meeting” link below

[Join WebEx meeting](#)

Meeting number: 926 078 254

Meeting Abcde12345

Join by phone

1-866-469-3239 Call-in toll-free number (US/Canada)

001-800-514-3550 Mexico toll free

Access code: 926 078 254

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Status Summary of All ILP Studies

The table below summarizes the current status of all 33 ILP studies and provides an anticipated schedule for completion for each study. Additional comments on the Process Plan and Schedule follow the table.

Study No.	Study Title	Status as of 03/01/2016	Next Steps and Remaining Activities	Anticipated Filing Deadline
1	Historical Riverbank Position and Erosion Study	Report filed 03/01/2016	n/a	n/a
2	Riverbank Transect Study	In progress	Completion of data analysis, incorporate Operations Model output into analysis, finalize and file report	07/15/2016
3	Riverbank Erosion Study	In progress	Completion of data analysis, incorporate Operations Model output into analysis, finalize and file report	07/15/2016
4	Hydraulic Modeling Study	Report filed 03/01/2016	n/a	n/a
5	Operations Modeling Study	In progress	Generate model output for studies that remain in progress, analyze sub-hourly effects as needed, and analyze alternative operating scenarios proposed.	08/01/2016 Final report with alternatives analysis pending consultation on resource studies
6	Water Quality Study	Report filed 03/01/2016	n/a	n/a
7	Aquatic Habitat Mapping Study	Report filed 03/02/2015	n/a	n/a
8	Channel Morphology and Benthic Habitat Study	[Preliminary] Report filed 03/02/2015	Further analysis and final report based upon operations model output	05/15/2016

Study No.	Study Title	Status as of 03/01/2016	Next Steps and Remaining Activities	Anticipated Filing Deadline
9	Instream Flow Study	Interim Report filed 03/01/2016	Report addendum pending habitat time series, dual flow analysis, and stakeholder consultation	Pending stakeholder feedback but TransCanada proposes 07/15/2016
10	Fish Assemblage Study	Report filed 03/01/2016	n/a	n/a
11	American Eel Survey	Report filed 03/01/2016	n/a	n/a
12	Tessellated Darter Survey	Report filed 03/01/2016	n/a	n/a
13	Tributary and Backwater Fish Access and Habitats Study	[Preliminary] Report filed 09/14/2015	Further analysis and final report based upon operations model output	05/15/2016
14 and 15	Resident Fish Spawning in Impoundments Study and Resident Fish Spawning in Riverine Sections Study	Consolidated Interim Report filed 03/01/2016.	Further analysis and final report based upon operations model output	05/15/2016
16	Sea Lamprey Spawning Assessment	Interim Report filed 03/01/2016	Further analysis and final report based upon operations model output	05/15/2016
17	Upstream Passage of Riverine Fish Species Assessment	In progress	Complete data compilation and analysis; finalize and file report	05/15/2016
18	American Eel Upstream Passage Assessment	Report filed 03/01/2016	n/a	n/a
19	American Eel Downstream Passage Assessment	In progress	Complete data compilation and analysis; finalize and file report	05/15/2016
20	American Eel Downstream Migration Timing Assessment	In progress	Complete and file report	05/15/2016

Study No.	Study Title	Status as of 03/01/2016	Next Steps and Remaining Activities	Anticipated Filing Deadline
21	American Shad Telemetry Study - Vernon	In progress	Complete data compilation and analysis; finalize and file report	05/15/2016
22	Downstream Migration of Juvenile American Shad - Vernon	In progress	Complete data compilation and analysis; finalize and file report	05/15/2016
23	Fish Impingement, Entrainment, and Survival Study	In progress	Complete and file report	05/15/2016
24	Dwarf Wedgemussel and Co-occurring Mussel Study	In progress	Report pending Delphi panel results and Habitat Suitability Index (or Curve) development; and stakeholder consultation. Phase 1 and Phase 2 study reports were filed 09/15/2014 and 03/02/2015, respectively.	Delphi panel and HSC report, pending stakeholder feedback TransCanada proposes 05/15/2016
25	Dragonfly and Damselfly Inventory and Assessment	In progress	Complete analysis based upon operations model output and final report	05/15/2016
26	Cobblestone and Puritan Tiger Beetle Survey	In progress	Complete analysis based upon operations model output and final report	05/15/2016
27	Floodplain, Wetland, Riparian, and Littoral Vegetation Habitats Study	Preliminary Report filed 09/14/2015	Complete analysis based upon operations model output and final report	05/15/2016
28	Fowler's Toad Survey	In progress	Complete analysis based upon operations model output and final report	05/15/2016

Study No.	Study Title	Status as of 03/01/2016	Next Steps and Remaining Activities	Anticipated Filing Deadline
29	Northeastern Bulrush Survey	In progress	Complete analysis based upon operations model output and final report	05/15/2016
30	Recreation Facility Inventory and Use & Needs Assessment	Report filed 03/01/2016	n/a	n/a
31	Whitewater Boating Flow Assessment - Bellows Falls and Sumner Falls	Report filed 03/01/2016	n/a	n/a
32	Bellows Falls Aesthetic Flow Study	Report filed 03/01/2016	n/a	n/a
33	Cultural and Historic Resources Study	In progress	Phase IB Archaeological Identification Surveys – Wilder, Bellows Falls, and Vernon Projects: NH Report accepted by NESHPO; VT Report in internal review to be finalized and filed.	05/15/2016
			Phase II Archaeological Site Evaluation Surveys – Wilder and Vernon Projects: NH field work completed and report expected by 04/01/2016; VT field work to be conducted in spring 2016 and report expected by 08/01/2016.	08/01/2016
			Traditional Cultural Properties report in draft, to be finalized and filed.	05/15/2016

Process Plan and Schedule Considerations

1. Thirteen study reports (including three interim reports) are included in this USR. The USR meeting to discuss these studies is scheduled for March 17-18, 2016 with a formal comment period remaining open through April 30, 2016.
2. Twelve study reports (plus addendums or revisions to four reports filed previously or as part of this USR) are expected to be filed by May 15, 2016. Components of Study 33 – Cultural and Historic Resources are also expected to be filed on or before May 15, 2016. Based upon that anticipated report-specific filing schedule, another study meeting could be scheduled within 15 days of that filing with an anticipated formal comment period remaining open until July 15, 2016.
3. Reports for Study 9 – Instream Flow and Study 24 –Dwarf Wedgemussel, cannot be finalized without additional aquatics working group feedback and input. TransCanada will discuss this at the March 18 meeting and schedule further consultation meetings or conference calls specific to these two studies, once the Study 24 Delphi panel results and proposed reach specific Habitat Suitability Indices (or Curves) are developed (expected to be available by May 1, 2016). An interim report for Study 9 is included in this USR filing so that the aquatics working group can review and provide comments in advance of the consultation.
4. Due to the vast amount of data collected and the complexity of analysis required, reports for the erosion studies (studies 2 and 3) are not expected to be filed until July 15, 2016. Another study meeting focused on the erosion studies will be scheduled within 15 days of that filing with an anticipated formal comment period remaining open through August 31, 2016.
5. The final report for Study 5 which may include operational alternatives analysis as needed for particular resource studies, based on consultation with applicable working groups on the results of resource studies that use Study 5 output in their project effects analysis, is expected by September 15, 2016.

Based on these considerations, TransCanada recommends the FERC approve and establish formal comment periods as follows:

1. For final study reports filed on March 1, 2016, a comment period until April 30, 2016.
2. For final study reports filed between March 2 and May 15, 2016, as identified above, a comment period until July 15, 2016 is recommended.
3. For final study reports filed between May 15 and August 1, 2016, as identified above, a comment period until October 1, 2016 is recommended.