

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)

Study Request Responsiveness Summary

April 15, 2013

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## **INTRODUCTION**

On October 31, 2012, TransCanada Hydro Northeast Inc. (TransCanada) filed with the Federal Energy Regulatory Commission (Commission or FERC), Notices of Intent to file applications for new licenses for the existing Wilder Hydroelectric Project (FERC Project No. 1892-026); Bellows Falls Hydroelectric Project (FERC Project No. 1855-045); and Vernon Hydroelectric Project (FERC Project No. 1904-073) (Projects) in accordance with 18 C.F.R. § 5.5. The current license for each project expires on April 30, 2018. TransCanada is using FERC's Integrated Licensing Process (ILP) as set forth in Title 18 of the US Code of Federal Regulations (C.F.R.), Part 5 to relicense the three Projects.

Simultaneous to filing of the NOIs, TransCanada filed Pre-Application Documents (PADs) for each of the three projects. The PADs provided FERC and interested parties with summaries of existing, relevant, and reasonably available information that was in TransCanada's possession as supplemented by a due diligence search of other sources of information about the projects and related environmental resources.

On December 21, 2012, the Commission issued its Scoping Document 1 (SD1) for the projects, and in January 2013 several public scoping meetings were held for interested parties to provide comments on the project PADs, to provide comments and suggestions to the Commission on the SD1, and to identify any resource studies that would help provide a framework for collecting pertinent information on the resource areas under consideration necessary for the Commission to prepare the Environmental Impact Statements (EISs) for the projects.

TransCanada received a total of 245 individual study requests related to the Wilder, Bellows Falls, and Vernon Projects in 23 letters from entities and individuals that were filed with or requested by the Commission on or before March 1, 2013. Additional comments without formal study requests were received from another 21 interested parties, but those are not addressed in this responsiveness summary. This document summarizes each individual study request (by requester) and TransCanada's response.

Some study requests did not meet one or more of the seven Integrated Licensing Process (ILP) study request criteria (18 C.F.R. § 5.9(b)) in substantive ways and have been excluded from the PSP on that basis. In such cases, our response indicates which of the seven ILP study plan criteria (18 C.F.R. § 5.9(b)(1)-(7)) that the request failed to meet.

Study requests that have been incorporated into study plans are identified in the tables that follow and are addressed in more detail in TransCanada's Proposed Study Plan (PSP) being filed simultaneously with the Commission. The following table identifies the acronyms used for study requesters in their respective responsiveness tables and throughout the PSP.

<b>Request Submittal Authors</b>	<b>Acronym Used in the PSP</b>
Appalachian Mountain Club, Vermont River Conservancy, and Friends of the Connecticut River Paddler's Trail	AMC-VRC-FRs
City of Lebanon, New Hampshire Planning Office	Leb
Connecticut River Joint Commissions	CRJC
Connecticut River Watershed Council	CRWC
Federal Energy Regulatory Commission	FERC
Lipfert, F. William, Jr. and Jennifer Lipfert	Lipfert
Mudge, John T. B.	Mudge
National Park Service	NPS
New England Flow and American Whitewater	NEF-AW
New England Flow, American Whitewater and Appalachian Mountain Club	NEF-AW-AMC
New Hampshire Department of Environmental Services	NHDES
New Hampshire Fish and Game Department	NHFG
New Hampshire Natural Heritage Bureau	NHNHB
The Nature Conservancy	TNC
The Nolumbeka Project	Nolumb
Town of Lyme, New Hampshire, City of Lebanon, New Hampshire, and O. Ross McIntyre	Lyme-Leb-McInt

<b>Request Submittal Authors</b>	<b>Acronym Used in the PSP</b>
Town of Rockingham, Vermont Conservation Commission	Rock
Trout Unlimited, Deerfield River Chapter	TU
Trustees of Pine Park Association, Hanover New Hampshire	Han
Two Rivers-Ottauquechee Regional Commission	TwoRiv
US Fish and Wildlife Service	FWS
Vermont Agency of Natural Resources	VANR
Vermont State Historical Preservation Office	VTSHPO

**Appalachian Mountain Club, Vermont River Conservancy, and Friends of the Connecticut River Paddlers’ Trail**

Date of Letter: 2/28/2013. Three letters were filed, one for each project.

<b>Study Request No.</b>	<b>Project</b>	<b>AMC-VRC-FRs Study Request</b>	<b>Response</b>
1	Wilder, Bellows Falls, Vernon	Study of Project Facilities to Support Multiple-day Self-Powered Boating Trips on the CT River	Addressed in Study Plan No. 30
2	Wilder	Controlled Whitewater Flow Study for the Sumner Falls Reach	Addressed in Study Plan No. 31
2	Bellows Falls	Controlled Whitewater Flow Study in the Bypass Reach below the Bellows Falls Dam	Addressed in Study Plan No. 31
2	Vernon	Study of the Proper Presentation and Preservation of Important Historical Resources	<p>TransCanada has not developed a study plan for this request.</p> <p>This is a mitigation request for an educational program (materials, kiosk, etc.) at the site, and preservation of historical records of the site that TransCanada might have. TransCanada considers this to be a request for a specific mitigation measure associated with historic resources more typical of what would be found in a Programmatic Agreement or Management Plan for Historic Resources, rather than a study request. Since this study request would not inform measures that could be considered for a new license it does not meet FERC study criteria 6.</p>
3	Wilder		
4	Bellows Falls		

Study Request No.	Project	AMC-VRC-FRs Study Request	Response
3	Bellows Falls	Study of the Potential to Create a Whitewater Park in the Bellow Falls Bypass Reach	<p>TransCanada has not developed a study plan for this request.</p> <p>This is a mitigation request for a specific recreational enhancement - a white water park. A suitability analysis must be completed to determine the suitability and capability for white water recreation in the Bellows Falls bypass. Boating fatalities have occurred in the past in this reach and therefore a thorough analysis must be undertaken prior to any recommended mitigation or proposal. However, preliminary analysis is included in Study Plan 31. In addition, multiple agencies have requested aquatic habitat assessments and fish passage studies that also encompass this reach. All of which requires a thorough analysis of all resources affected and suitability prior to considering this as a reasonable component in an overall project mitigation strategy.</p>
3	Vernon	Study of the Economic Health of Ownership and Creation of a Decommissioning or Trust Fund	TransCanada has not developed a study plan for this request.
4	Wilder		This issue will be addressed in the economic analysis and amortization requirement in each Project License. Existing information available to FERC is sufficient to address this issue. Consequently this request does not meet FERC study criteria 4.
5	Bellows Falls		

**City of Lebanon, New Hampshire Planning Office**

Date of Letter: Received by FERC on 2/25/2013

The City of Lebanon referenced 18 CFR § 5.9(b) the ILP Study Plan Criteria in the header of its letter to FERC regarding relicensing of the Wilder Project. However, the letter included only comments on the Wilder PAD, and no study requests as defined by 18 CFR § 5.9(b).

**Connecticut River Joint Commissions, Inc.**

Date of Letter: 3/1/2013

Study Request No.	Project	CRJC Study Request	Response
1	Wilder, Bellows Falls, Vernon	Study Request for Watershed-wide Storm water Model	<p>The primary issues relative to the TransCanada projects, for which this study request is proposed, are being addressed through methods similar to those requested but within a more limited geographic scope than proposed in this request .</p> <p>Developing a model for the entire Connecticut River watershed would be beyond the defined geographic scope of the projects and would be cost prohibitive (FERC study criteria 7). See Study Plan Nos. 4, 5, 7, 9, 27, 30, 33</p>



**Connecticut River Watershed Council**

Date of Letter: 3/1/2013

Study Request No.	Project	CRWC Study Request	Response
1	Wilder	Shoreline and downstream erosion from water level fluctuation in the impoundment and downstream from peaking operations for Wilder Dam	Addressed in Study Plan Nos. 2 and 3
2	Bellows Falls	Shoreline and downstream erosion from water level fluctuation in the impoundment and downstream from peaking operations for Bellows Falls Dam	Addressed in Study Plan Nos. 2 and 3
3	Vernon	Shoreline and downstream erosion from water level fluctuation in the impoundment and downstream from peaking operations for Vernon Dam	Addressed in Study Plan Nos. 2 and 3
4	Wilder, Bellows Falls, Vernon	Climate Change as it Relates to Continued Operation of the Vernon, Bellows Falls, Wilder, Northfield Mountain Pumped Storage, and Turners Falls Projects	<p>TransCanada does not propose to develop a specific study plan that addresses climate change as it relates to project operations.</p> <p>Such a study would not necessarily inform potential mitigation measures (FERC study criteria 4) and would be cost prohibitive (FERC study criteria 7). Potential operational measures that could be considered will be informed by the water level and project operations modeling (Study Plan 4 and 5, and water quality monitoring (Study plan 6).</p>

<b>Study Request No.</b>	<b>Project</b>	<b>CRWC Study Request</b>	<b>Response</b>
5	Wilder	Continuous water temperature monitoring (25 minute intervals) at various locations within the Wilder Hydroelectric Project Impoundment and Tailrace, and Connecticut River downstream of the Wilder Dam	Addressed in Study Plan No. 6
6	Bellows Falls	Continuous water temperature monitoring (25 minute intervals) at various locations within the Bellows Falls Hydroelectric Project Impoundment and Tailrace, and Connecticut River downstream of the Bellows Falls Dam	Addressed in Study Plan No. 6
7	Vernon	Continuous water temperature monitoring (25 minute intervals) at various locations within the Vernon Hydroelectric Project Impoundment and Tailrace, and Connecticut River downstream of the Vernon Dam	Addressed in Study Plan No. 6
8	Wilder	Water quality monitoring within the project impoundment and tailrace, Wilder Hydroelectric Project	Addressed in Study Plan No. 6
9	Bellows Falls	Water quality monitoring within the project impoundment and tailrace, Bellows Falls Hydroelectric Project	Addressed in Study Plan No. 6
10	Vernon	Water quality monitoring within the project impoundment and tailrace, Vernon Hydroelectric Project	Addressed in Study Plan No. 6
11	Wilder, Bellows Falls, Vernon	Model River Flows and Water Levels Upstream and Downstream from the Wilder, Bellows Falls, and Vernon Stations and Integration of Project Modeling with Downstream Project Operations	Addressed in Study Plan Nos. 4 and 5

<b>Study Request No.</b>	<b>Project</b>	<b>CRWC Study Request</b>	<b>Response</b>
12	Bellows Falls	Bellows Falls Bypass Flow (aquatic resources)	Addressed in Study Plan No. 9
13	Wilder, Bellows Falls, Vernon	Channel Morphology and Benthic Habitat Impacts at the Vernon, Bellows Falls and Wilder Projects	Addressed in Study Plan No. 8
14	Wilder, Bellows Falls, Vernon	In-stream Flow Habitat Assessment Downstream of Wilder, Bellows Falls, and Vernon Dams	Addressed in Study Plan No. 9
15	Wilder, Bellows Falls, Vernon	Determine the Fish Assemblage in Vernon, Bellows Falls and Wilder Project-Affected Areas	Addressed in Study Plan No. 10
16	Wilder, Bellows Falls, Vernon	Impacts of Water Level Fluctuations on Aquatic Vegetation, Including Invasive Species, in the Vernon, Bellows Falls and Wilder Project Impoundments and Riverine Reaches	Addressed in Study Plan Nos. 27 and 29
17	Wilder, Bellows Falls, Vernon	Impacts of the Vernon, Bellows Falls and Wilder Project Impoundment Water Fluctuations on Resident Fish Spawning	Addressed in Study Plan No. 14
18	Wilder, Bellows Falls, Vernon	Impacts of Water Fluctuations Downstream of the Vernon, Bellows Falls and Wilder Projects on Resident Fish Spawning	Addressed in Study Plan No. 15
19	Wilder, Bellows Falls, Vernon	Impacts of the Vernon, Bellows Falls and Wilder Project Operations on Tributary and Backwater Area Access and Habitats	Addressed in Study Plan No. 13

<b>Study Request No.</b>	<b>Project</b>	<b>CRWC Study Request</b>	<b>Response</b>
20	Wilder, Bellows Falls, Vernon	Determine Upstream Passage Needs for Riverine Fish Species in the Bellows Falls, Wilder and Vernon Fishways	Addressed in Study Plan No. 17
21	Wilder, Bellows Falls, Vernon	Shad Population Model for the Connecticut River	<p>TransCanada did not develop a study plan for this request.</p> <p>For a number of reasons, TransCanada does not believe this is a reasonable request. The effects of the Vernon and Bellows Falls projects on the whole of the population of American shad in the Connecticut River is proportionally small given the other impacts shad experience in the river (e.g., entrainment at Mt. Tom and Vermont Yankee, and three dams below Vernon).</p> <p>The numerous American shad studies TransCanada is proposing will identify project-specific effects on American shad. The cost to create a shad population model for the Connecticut River compared to the effects of the projects on the resource is excessive (FERC study criteria 7).</p>
22	Vernon	Telemetry Study of Upstream and Downstream Migrating Adult American Shad to Assess Passage Routes, Effectiveness, Delays, and Survival	Addressed in Study Plan No. 21

<b>Study Request No.</b>	<b>Project</b>	<b>CRWC Study Request</b>	<b>Response</b>
23	Bellows Falls, Vernon	Impact of Project Operations on Shad Spawning, Spawning Habitat, and Egg Deposition in the Project Areas of the Turners Falls, Northfield Mountain Pumped Storage and Vernon Project Areas and downstream from Bellows Falls Dam	Addressed in Study Plan No. 21
24	Vernon	Impact of Vernon Project Operations on Downstream Migration of Juvenile American Shad	Addressed in Study Plan No. 22
25	Wilder, Bellows Falls, Vernon	American Eel Survey Upstream of the Vernon, Bellows Falls, and Wilder dams	Addressed in Study Plan No. 11
26	Wilder, Bellows Falls, Vernon	Evaluation of Timing of Downstream Migratory Movements of American Eels on the Mainstem Connecticut River	Addressed in Study Plan No. 20
27	Wilder, Bellows Falls, Vernon	Upstream American Eel Passage Assessment at Vernon, Bellows Falls and Wilder Projects	Addressed in Study Plan No. 18
28	Wilder, Bellows Falls, Vernon	Downstream American Eel Passage Assessment at Vernon, Bellows Falls, and Wilder	Addressed in Study Plan No. 19
29	Wilder, Bellows Falls, Vernon	Assessment of Adult Sea Lamprey ( <i>Petromyzon marinus</i> ) Spawning within the Wilder, Bellows Falls, and Vernon Project Areas	Addressed in Study Plan No. 16
30	Wilder, Bellows Falls	Effects of the Wilder and Bellows Falls Projects on the Dwarf Wedgemussel ( <i>Alasmidonta heterodon</i> )	Addressed in Study Plan No. 24

<b>Study Request No.</b>	<b>Project</b>	<b>CRWC Study Request</b>	<b>Response</b>
31	Wilder, Bellows Falls, Vernon	Project Effects on Populations of Tessellated Darter, <i>Etheostoma olmstedi</i>	Addressed in Study Plan No. 12

### **Federal Energy Regulatory Commission**

Date of Letter: 3/1/2013

<b>Study Request No.</b>	<b>Project</b>	<b>FERC Study Request</b>	<b>Response</b>
1	Wilder, Bellows Falls, Vernon	Water Level Fluctuation Study	Addressed in Study Plan Nos. 4 and 5
2	Wilder, Bellows Falls, Vernon	River Bank Transect Study	Addressed in Study Plan No. 2
3	Wilder, Bellows Falls, Vernon	Historical River Bank Position and Erosion	Addressed in Study Plan No. 1
4	Wilder, Bellows Falls, Vernon	Riverbank Erosion Study	Addressed in Study Plan Nos. 2 and 3
5	Wilder, Bellows Falls, Vernon	Aquatic Habitat Mapping	Addressed in Study Plan No. 7
6	Wilder, Bellows Falls, Vernon	Aquatic Habitat Instream Flow Study	Addressed in Study Plan No. 9
7	Wilder, Bellows Falls, Vernon	Baseline Fisheries Population Study	Addressed in Study Plan No. 10
8	Wilder, Bellows Falls, Vernon	Assessment of Fish Impingement, Entrainment, and Survival Study	Addressed in Study Plan No. 23

<b>Study Request No.</b>	<b>Project</b>	<b>FERC Study Request</b>	<b>Response</b>
9	Bellows Falls, Vernon	American Shad Upstream Migration and Behavioral Study	Addressed in Study Plan No. 21
10	Wilder, Bellows Falls, Vernon	Recreation Facility Inventory and Use & Needs Assessment	Addressed in Study Plan No. 30
11	Bellows Falls	Whitewater Boating Flow Assessment	Addressed in Study Plan No. 31
12	Vernon	Vernon Project Cultural Resources Study	Addressed in Study Plan No. 33

**Lipfert, F. William, Jr., and Jennifer Lipfert**

Date of Letter: 3/1/2013

<b>Study Request No.</b>	<b>Project</b>	<b>Lipfert Study Request</b>	<b>Response</b>
1	Wilder	Evaluate the benefits of imposing a rate of change limitation in flow of 5,000 cfs per hour (or similar value) at Wilder.	<p>This request does not meet the criteria for a study request under §5.9(b) in that it lacks sufficient detail to define how the study would be conducted or what data would be used (FERC study criterion 5 and 6).</p> <p>However, TransCanada will be performing several erosion studies and using hydraulic and operations models to assess project impacts including all contributing factors and assessment of potential mitigative factors as requested in this study request.</p> <p>See Study Plan Nos. 1 through 5</p>

**Mudge, John T. B.**

Date of Letter: 2/27/2013

<b>Study Request No.</b>	<b>Project</b>	<b>Mudge Study Request</b>	<b>Response</b>
1	Wilder	Evaluate the effects of the operation of the Wilder Dam on the erosion of farmland along the Connecticut River	Addressed in Study Plan Nos. 2 and 3

**National Park Service**

Date of Letter: 2/28/2013

<b>Study Request No.</b>	<b>Project</b>	<b>NPS Study Request</b>	<b>Response</b>
1	Wilder, Bellows Falls, Vernon	Study of Project Facilities to Support Multiple-day Self-Powered Boating Trips on the Connecticut River	Addressed in Study Plan No. 30
2a	Bellows Falls	Controlled Whitewater Flow Study in the Bypass Reach Below the Bellows Falls Dam With Potential for Development of a Whitewater Park	Addressed in Study Plan No. 31
2b	Wilder	Controlled Whitewater Flow Study at Sumner Falls	Addressed in Study Plan No. 31



Study Request No.	Project	NPS Study Request	Response
3	Wilder, Bellows Falls, Vernon	Preservation of Cultural, Historical, and Educational Resources	<p>TransCanada has not developed a study plan for this request.</p> <p>This is a mitigation request for an educational program (materials, kiosk, etc.) at the site, and preservation of historical records of the site that TransCanada might have. TransCanada considers this to be a request for a specific mitigation measure associated with historic resources more typical of what would be found in a Programmatic Agreement or Management Plan for Historic Resources, rather than a study request. Since this study request would not inform measures that could be considered for a new license it does not meet FERC study criteria 6.</p>
4	Wilder, Bellows Falls, Vernon	Creation of a Decommissioning Fund	<p>TransCanada has not developed a study plan for this request.</p> <p>This issue will be addressed in the economic analysis and amortization requirement in each Project License. Existing information available to FERC is sufficient to address this issue. Consequently this request does not meet FERC study criteria 4.</p>

## New England Flow and American Whitewater

Date of Letter: 3/1/2013 (two letters, one each for Wilder and Bellows Falls)

Study Request No.	Project	NEF-AW Study Request	Response
1	Wilder	We request a "Controlled Whitewater Flow Study" for the Sumner Falls Reach.	<p>This request does not meet the criteria for a study request under §5.9(b). It lacks study methodology, level of effort and cost, and the nexus appears to be based on pre-Project conditions rather than the existing project.</p> <p>However, this study was requested by others following the study criteria and the concept will be addressed by Study Plan No. 31</p>
2 3	Wilder Bellows Falls	We request a study of the adequacy of camping, sanitary and other facilities such as portages available for multiple-day kayaking or canoe trips.	<p>This request does not meet the criteria for a study request under §5.9(b). It lacks study methodology, level of effort and cost, and the nexus appears to be based on pre-Project conditions rather than existing.</p> <p>However, this study was requested by others following the study criteria and the concept will be addressed by Study Plan No. 30</p>
3 4	Wilder Bellows Falls	We request an economic analysis for the site recreation potential.	<p>This request does not meet the criteria for a study request under §5.9(b).</p> <p>It lacks a level of effort and cost (FERC study criteria 7), and the nexus appears to be based on pre-Project conditions rather than existing Project operations (FERC study criteria 7).</p>

Study Request No.	Project	NEF-AW Study Request	Response
4 5	Wilder Bellows Falls	Compensation for Impacts of Lost Whitewater Recreation.	<p>This request does not meet the criteria for a study request under §5.9(b).</p> <p>It lacks study methodology (FERC study criteria 6), level of effort and cost (FERC study criteria 7), and the nexus appears to be based on pre-Project conditions rather than existing Project operations (FERC study criteria 5). Additionally, it is a request for mitigation.</p>
1	Bellows Falls	We Request a Controlled Whitewater Flow Study in the bypass reach below the Bellows Falls Dam.	<p>This request does not meet the criteria for a study request under §5.9(b).</p> <p>It lacks study methodology (FERC study criteria 6), level of effort and cost (FERC study criteria 7), and the nexus appears to be based on pre-Project conditions rather than existing Project operations (FERC study criteria 5).</p> <p>However, this study was requested by others following the study criteria and the concept will be addressed by Study Plan No. 31</p>

<b>Study Request No.</b>	<b>Project</b>	<b>NEF-AW Study Request</b>	<b>Response</b>
2	Bellows Falls	We request a study to provide public Access for whitewater boating, rafting, and canoeing.	<p>This request does not meet the criteria for a study request under §5.9(b). It lacks study methodology (FERC study criteria 6), level of effort and cost (FERC study criteria 7), and the nexus appears to be based on pre-Project conditions rather than existing Project operations (FERC study criteria 5).</p> <p>However, elements of this study were requested by others following the study criteria and the concept will be addressed by Study Plans No. 30 and 31.</p>

**New England Flow, American Whitewater, and Appalachian Mountain Club**

Date of Letter: 2/28/2013 (three letters filed under one cover letter)

<b>Study Request No.</b>	<b>Project</b>	<b>NEF-AW-AMC Study Request</b>	<b>Response</b>
1	Wilder	Controlled Whitewater Flow Study for the Sumner Falls Reach	Addressed in Study Plan No. 31

<b>Study Request No.</b>	<b>Project</b>	<b>NEF-AW-AMC Study Request</b>	<b>Response</b>
1	Bellows Falls	Whitewater Park Feasibility Study	<p>TransCanada has not developed a study plan for this request.</p> <p>This is a mitigation request for a specific recreational enhancement - a white water park. A suitability analysis must be completed to determine the suitability and capability for white water recreation in the Bellows Falls bypass. Boating fatalities have occurred in the past in this reach and therefore a thorough analysis must be undertaken prior to any recommended mitigation or proposal. However, preliminary analysis is included in Study Plan 31. In addition, multiple agencies have requested aquatic habitat assessments and fish passage studies that also encompass this reach. All of which requires a thorough analysis of all resources affected and suitability prior to considering this as a reasonable component in an overall project mitigation strategy.</p>
1	Vernon	Mitigation for Impacts on the Connecticut River and Loss of Whitewater Recreation below each dam	TransCanada did not develop a study plan for this request.
4	Wilder		This is a request for mitigation based on pre-project conditions. The baseline for project impact analysis is the current projects and operations. Therefore, there is no nexus to the projects as licensed, FERC study criteria 5.
5	Bellows Falls		
2	Wilder	Camping, Sanitary and Other Facilities Such as Portages Available for Multiple-day	Addressed in Study Plan No. 30

<b>Study Request No.</b>	<b>Project</b>	<b>NEF-AW-AMC Study Request</b>	<b>Response</b>
2	Vernon	Kayaking or Canoe Trips	
3	Bellows Falls		
2	Bellows Falls	Public Access Study	Addressed in Study Plan No. 30
3	Wilder	Economic Impacts Assessment	TransCanada considers it premature to conduct a contingent valuation study pertaining to whitewater boating opportunities at Sumner Falls and the Bellows Falls bypassed reach until the potential whitewater boating opportunities are defined. TransCanada plans to do this by implementing Study Plan 31.  The request for a contingent valuation study at Vernon is based on pre-project conditions. The baseline for project impact analysis is the current projects and operations. Therefore, there is no nexus to the projects as licensed, FERC study criteria 5.
3	Vernon		
4	Bellows Falls		

**New Hampshire Department of Environmental Services**

Date of Letter: 3/1/2013

<b>Study Request No.</b>	<b>Project</b>	<b>NHDES Study Request</b>	<b>Response</b>
1a	Wilder	Recreational Survey and Enhancement Study at Wilder Hydroelectric Project	Addressed in Study Plan No. 30

<b>Study Request No.</b>	<b>Project</b>	<b>NHDES Study Request</b>	<b>Response</b>
1b	Bellows Falls	Recreational Survey and Enhancement Study at Bellows Falls Hydroelectric Project	Addressed in Study Plan No. 30
1c	Vernon	Recreational Survey and Enhancement Study at Vernon Hydroelectric Project	Addressed in Study Plan No. 30
2	Wilder, Bellows Falls, Vernon	Telemetry Study of Upstream and Downstream Migrating Adult American Shad to Assess Passage Routes, Effectiveness, Delays, and Survival	Addressed in Study Plan No. 21
3	Wilder, Bellows Falls, Vernon	Evaluation of Timing of Downstream Migratory Movements of American Eels on the Mainstem Connecticut River	Addressed in Study Plan No. 20
4	Bellows Falls, Vernon	Impact of Project Operations on Shad Spawning, Spawning Habitat, and Egg Deposition in the Project Areas of the Turners Falls, Northfield Mountain Pumped Storage and Vernon Project Areas and downstream from Bellows Falls Dam	Addressed in Study Plan No. 21
5	Bellows Falls	Bellows Falls Bypass Flow (aquatic resources)	Addressed in Study Plan No. 9

Study Request No.	Project	NHDES Study Request	Response
6	Wilder, Bellows Falls, Vernon	Shad Population Model for the Connecticut River	<p>TransCanada did not develop a study plan for this request.</p> <p>For a number of reasons, TransCanada does not believe this is a reasonable request. The effects of the Vernon and Bellows Falls projects on the whole of the population of American shad in the Connecticut River is proportionally small given the other impacts shad experience in the river (e.g., entrainment at Mt. Tom and Vermont Yankee, and three dams below Vernon).</p> <p>The numerous American shad studies TransCanada is proposing will identify project-specific effects on American shad. The cost to create a shad population model for the Connecticut River compared to the effects of the projects on the resource is excessive (FERC study criteria 7).</p>
7	Wilder, Bellows Falls, Vernon	American Eel Survey Upstream of the Vernon, Bellows Falls, and Wilder Dams	Addressed in Study Plan No. 11
8	Wilder, Bellows Falls, Vernon	Channel Morphology and Benthic Habitat Impacts at the Vernon, Bellows Falls and Wilder Projects	Addressed in Study Plan No. 8
9	Wilder, Bellows Falls, Vernon	Downstream American Eel Passage Assessment at Vernon, Bellows Falls, and Wilder	Addressed in Study Plan No. 19



<b>Study Request No.</b>	<b>Project</b>	<b>NHDES Study Request</b>	<b>Response</b>
10	Wilder, Bellows Falls, Vernon	In-stream Flow Habitat Assessment Downstream of Wilder, Bellows Falls, and Vernon Dams	Addressed in Study Plan No. 9
12	Wilder, Bellows Falls, Vernon	Impacts of Water Fluctuations Downstream of the Vernon, Bellows Falls and Wilder Projects on Resident Fish Spawning	Addressed in Study Plan No. 15
12	Wilder, Bellows Falls	Effects of the Wilder and Bellows Falls Projects on the Dwarf Wedgemussel ( <i>Alasmidonta heterodon</i> )	Addressed in Study Plan No. 24
13	Wilder, Bellows Falls, Vernon	Determine the Fish Assemblage in Vernon, Bellows Falls and Wilder Project-Affected Areas	Addressed in Study Plan No. 10
14a	Wilder, Bellows Falls, Vernon	Model River Flows and Water Levels Upstream and Downstream from the Wilder, Bellows Falls, Vernon, Turners Falls and Northfield Mountain Pump Storage Stations and Integration of Project Modeling with Downstream Project Operations	Addressed in Study Plan Nos. 4 and 5
15a	Wilder, Bellows Falls, Vernon	Impacts of Water Level Fluctuations on Riparian and Aquatic Vegetation, Including Invasive Species, in the Vernon, Bellows Falls and Wilder Project Impoundments and Riverine Reaches	Addressed in Study Plan Nos. 27 and 29
16	Wilder, Bellows Falls, Vernon	Impacts of the Vernon, Bellows Falls and Wilder Project Impoundment Water Fluctuations on Resident Fish Spawning	Addressed in Study Plan No. 14
17	Wilder, Bellows Falls, Vernon	Impacts of the Vernon, Bellows Falls and Wilder Project Operations on Tributary and Backwater Area Access and Habitats	Addressed in Study Plan No. 13

<b>Study Request No.</b>	<b>Project</b>	<b>NHDES Study Request</b>	<b>Response</b>
18	Wilder, Bellows Falls, Vernon	Impingement and Entrainment of Resident Fish Species at the Wilder, Bellows Falls and Vernon Intakes	Addressed in Study Plan No. 23
19	Wilder, Bellows Falls, Vernon	Assessment of Adult Sea Lamprey ( <i>Petromyzon marinus</i> ) Spawning within the Wilder, Bellows Falls, and Vernon Project Areas	Addressed in Study Plan No. 16
20	Wilder, Bellows Falls, Vernon	Determine Upstream Passage Needs for Riverine Fish Species in the Bellows Falls, Wilder and Vernon Fishways	Addressed in Study Plan No. 17
21a	Wilder	Wilder Hydroelectric Project: Shoreline and downstream erosion from water level fluctuation in the impoundment and downstream from peaking operations	Addressed in Study Plan Nos. 2 and 3
21b	Bellows Falls	Bellows Falls Hydroelectric Project: Shoreline and downstream erosion from water level fluctuation in the impoundment and downstream from peaking operations	Addressed in Study Plan Nos. 2 and 3
21c	Vernon	Vernon and Turners Falls Hydroelectric Projects: Shoreline and downstream erosion from water level fluctuation in the impoundment and downstream from peaking operations in New Hampshire	Addressed in Study Plan Nos. 2 and 3
22a	Wilder	Continuous water temperature monitoring (25 minute intervals) at various locations within the Wilder Hydroelectric Project Impoundment and Tailrace, and Connecticut River downstream of the Wilder Dam	Addressed in Study Plan No. 6

<b>Study Request No.</b>	<b>Project</b>	<b>NHDES Study Request</b>	<b>Response</b>
22b	Bellows Falls	Continuous water temperature monitoring (25 minute intervals) at various locations within the Bellows Falls Hydroelectric Project Impoundment and Tailrace, and Connecticut River downstream of the Bellows Falls Dam	Addressed in Study Plan No. 6
22c	Vernon	Continuous water temperature monitoring (25 minute intervals) at various locations within the Vernon Hydroelectric Project Impoundment and Tailrace, and Connecticut River downstream of the Vernon Dam	Addressed in Study Plan No. 6
23	Wilder, Bellows Falls, Vernon	Project Effects on Populations of Tessellated Darter, <i>Etheostoma olmstedi</i>	Addressed in Study Plan No. 12
24	Wilder, Bellows Falls, Vernon	Upstream American Eel Passage Assessment at Vernon, Bellows Falls and Wilder Projects	Addressed in Study Plan No. 18
25a	Wilder	Wilder Hydroelectric Project: Water quality monitoring within the project impoundment and tailrace	Addressed in Study Plan No. 6
25b	Bellows Falls	Bellow Falls Hydroelectric Project: Water quality monitoring within the project impoundment, bypass, and tailrace	Addressed in Study Plan No. 6
25c	Vernon	Vernon Hydroelectric Project: Water quality monitoring within the Vernon project impoundment and tailrace and in the Turner Falls Impoundment in New Hampshire	Addressed in Study Plan No. 6
26	Vernon	Impact of Vernon Project Operations on Downstream Migration of Juvenile American Shad	Addressed in Study Plan No. 22

<b>Study Request No.</b>	<b>Project</b>	<b>NHDES Study Request</b>	<b>Response</b>
27	Wilder, Bellows Falls, Wilder	Climate Change as it Relates to Continued Operation of the Vernon, Bellows Falls, Wilder, Northfield Mountain Pumped Storage, and Turners Falls Projects	<p>TransCanada does not propose to develop a specific study plan that addresses climate change as it relates to project operations.</p> <p>Such a study would not necessarily inform potential mitigation measures (FERC study criteria 4) and would be cost prohibitive (FERC study criteria 7). Potential operational measures that could be considered will be informed by the water level and project operations modeling (Study Plan 4 and 5, and water quality monitoring (Study plan 6).</p>

### **New Hampshire Fish and Game Department**

Date of Letter: 2/27/2013

<b>Study Request No.</b>	<b>Project</b>	<b>NHFG Study Request</b>	<b>Response</b>
1a	Wilder	Recreational Survey and Enhancement Study at Wilder Hydroelectric Project	Addressed in Study Plan No. 30
1b	Bellows Falls	Recreational Survey and Enhancement Study at Bellows Falls Hydroelectric Project	Addressed in Study Plan No. 30
1c	Vernon	Recreational Survey and Enhancement Study at Vernon Hydroelectric Project	Addressed in Study Plan No. 30

<b>Study Request No.</b>	<b>Project</b>	<b>NHFG Study Request</b>	<b>Response</b>
2	Vernon	Telemetry Study of Upstream and Downstream Migrating Adult American Shad to Assess Passage Routes, Effectiveness, Delays, and Survival	Addressed in Study Plan No. 21
3	Wilder, Bellows Falls, Vernon	Evaluation of Timing of Downstream Migratory Movements of American Eels on the Mainstem Connecticut River	Addressed in Study Plan No. 20
4	Vernon	Impact of Project Operations on Shad Spawning, Spawning Habitat, and Egg Deposition in the Project Areas of the Turners Falls, Northfield Mountain Pumped Storage and Vernon Project Areas and downstream from Bellow Falls Dam	Addressed in Study Plan No. 21
5	Bellows Falls	Bellows Falls Bypass Flow (aquatic resources)	Addressed in Study Plan No. 9

<b>Study Request No.</b>	<b>Project</b>	<b>NHFG Study Request</b>	<b>Response</b>
6	Wilder, Bellows Falls, Vernon	Shad Population Model for the Connecticut River	<p>TransCanada did not develop a study plan for this request.</p> <p>For a number of reasons, TransCanada does not believe this is a reasonable request. The effects of the Vernon and Bellows Falls projects on the whole of the population of American shad in the Connecticut River is proportionally small given the other impacts shad experience in the river (e.g., entrainment at Mt. Tom and Vermont Yankee, and three dams below Vernon).</p> <p>The numerous American shad studies TransCanada is proposing will identify project-specific effects on American shad. The cost to create a shad population model for the Connecticut River compared to the effects of the projects on the resource is excessive (FERC study criteria 7).</p>
7	Wilder, Bellows Falls, Vernon	American Eel Survey Upstream of the Vernon, Bellows Falls, and Wilder Dams	Addressed in Study Plan No. 11
8	Wilder, Bellows Falls, Vernon	Channel Morphology and Benthic Habitat Impacts at the Vernon, Bellows Falls and Wilder Projects	Addressed in Study Plan No. 8
9	Wilder, Bellows Falls, Vernon	Downstream American Eel Passage Assessment at Vernon, Bellows Falls, and Wilder	Addressed in Study Plan No. 19

<b>Study Request No.</b>	<b>Project</b>	<b>NHFG Study Request</b>	<b>Response</b>
10	Wilder, Bellows Falls, Vernon	In-stream Flow Habitat Assessment Downstream of Wilder, Bellows Falls, and Vernon Dams	Addressed in Study Plan No. 9
11	Wilder, Bellows Falls, Vernon	Impacts of Water Fluctuations Downstream of the Vernon, Bellows Falls and Wilder Projects on Resident Fish Spawning	Addressed in Study Plan No. 15
12	Wilder, Bellows Falls	Effects of the Wilder and Bellows Falls Projects on the Dwarf Wedgemussel ( <i>Alasmidonta heterodon</i> )	Addressed in Study Plan No. 24
13	Wilder, Bellows Falls, Vernon	Determine the Fish Assemblage in Vernon, Bellows Falls and Wilder Project-Affected Areas	Addressed in Study Plan No. 10
14	Wilder, Bellows Falls, Vernon	Model River Flows and Water Levels Upstream and Downstream from the Wilder, Bellows Falls, and Vernon Stations and Integration of Project Modeling with Downstream Project Operations	Addressed in Study Plan Nos. 4 and 5
15	Wilder, Bellows Falls, Vernon	Impacts of Water Level Fluctuations on Aquatic Vegetation, Including Invasive Species, in the Vernon, Bellows Falls and Wilder Project Impoundments and Riverine Reaches	Addressed in Study Plan Nos. 27 and 29
16	Wilder, Bellows Falls, Vernon	Impacts of the Vernon, Bellows Falls and Wilder Project Impoundment Water Fluctuations on Resident Fish Spawning	Addressed in Study Plan No. 14
17	Wilder, Bellows Falls, Vernon	Impacts of the Vernon, Bellows Falls and Wilder Project Operations on Tributary and Backwater Area Access and Habitats	Addressed in Study Plan No. 13

<b>Study Request No.</b>	<b>Project</b>	<b>NHFG Study Request</b>	<b>Response</b>
18	Wilder, Bellows Falls, Vernon	Impingement and Entrainment of Resident Fish Species at the Wilder, Bellows Falls and Vernon Intakes	Addressed in Study Plan No. 23
19	Wilder, Bellows Falls, Vernon	Assessment of Adult Sea Lamprey ( <i>Petromyzon marinus</i> ) Spawning within the Wilder, Bellows Falls, and Vernon Project Areas	Addressed in Study Plan No. 16
20	Wilder, Bellows Falls, Vernon	Determine Upstream Passage Needs for Riverine Fish Species in the Bellows Falls, Wilder and Vernon Fishways	Addressed in Study Plan No. 17
21a	Wilder	Wilder Hydroelectric Project: Shoreline and downstream erosion from water level fluctuation in the impoundment and downstream from peaking operations	Addressed in Study Plan Nos. 2 and 3
21b	Bellows Falls	Bellows Falls Hydroelectric Project: Shoreline and downstream erosion from water level fluctuation in the impoundment and downstream from peaking operations	Addressed in Study Plan Nos. 2 and 3
21c	Vernon	Vernon Hydroelectric Project: Shoreline and downstream erosion from water level fluctuation in the impoundment and downstream from peaking operations	Addressed in Study Plan Nos. 2 and 3
22a	Wilder	Continuous water temperature monitoring (25 minute intervals) at various locations within the Wilder Hydroelectric Project Impoundment and Tailrace, and Connecticut River downstream of the Wilder Dam	Addressed in Study Plan No. 6



<b>Study Request No.</b>	<b>Project</b>	<b>NHFG Study Request</b>	<b>Response</b>
22b	Bellows Falls	Continuous water temperature monitoring (25 minute intervals) at various locations within the Bellows Falls Hydroelectric Project Impoundment and Tailrace, and Connecticut River downstream of the Bellows Falls Dam	Addressed in Study Plan No. 6
22c	Vernon	Continuous water temperature monitoring (25 minute intervals) at various locations within the Vernon Hydroelectric Project Impoundment and Tailrace, and Connecticut River downstream of the Vernon Dam	Addressed in Study Plan No. 6
23	Wilder, Bellows Falls, Vernon	Project Effects on Populations of Tessellated Darter, <i>Etheostoma olmstedi</i>	Addressed in Study Plan No. 12
24	Wilder, Bellows Falls, Vernon	Upstream American Eel Passage Assessment at Vernon, Bellows Falls and Wilder Projects	Addressed in Study Plan No. 18
25a	Wilder	Wilder Hydroelectric Project: Water quality monitoring within the project impoundment and tailrace	Addressed in Study Plan No. 6
25b	Bellows Falls	Bellow Falls Hydroelectric Project: Water quality monitoring within the project impoundment, bypass, and tailrace	Addressed in Study Plan No. 6
25c	Vernon	Vernon Hydroelectric Project: Water quality monitoring within the project impoundment and tailrace	Addressed in Study Plan No. 6
26	Vernon	Impact of Vernon Project Operations on Downstream Migration of Juvenile American Shad	Addressed in Study Plan No. 22

**New Hampshire Natural Heritage Bureau**

Date of Letter: 2/27/2013

Study Request No.	Project	NHNHB Study Request	Response
Appendix A	Wilder, Bellows Falls, Vernon	Impacts of Water Level Fluctuation in Project Impoundments on Wetlands	Addressed in Study Plan Nos. 27 and 29
Appendix B	Wilder, Bellows Falls, Vernon	Establishment of Permanent Plots to Assess the Impacts of Ongoing Operations on Floodplain Forest Communities	<p>TransCanada has not developed a study plan for this request.</p> <p>The purpose of this request is to identify long term trends in changes to floodplain forests. Therefore, this is a mitigation request and hence there is no nexus to the projects as licensed, and the request does not meet FERC study criteria 5. Further, since this study request would not inform measures that could be considered for a new license it does not meet FERC study criteria 6.</p> <p>However, an assessment of current project effects on floodplain forests is included in Study Plan No. 27.</p>
Appendix C	Wilder	River Levels Relative to Jesup's Milk-Vetch Populations	Based on comments from the New Hampshire Natural Heritage Bureau (NHNHB), the Jesup's milk vetch study conducted in 2012 and provided to NHNHB for review addresses the concerns of this study request. That report will be filed with FERC by April 30, 2013.

Study Request No.	Project	NHNHB Study Request	Response
Appendix D	Wilder, Bellows Falls, Vernon	River Levels Relative to RTE Plant Species and Exemplary Natural Communities	<p>TransCanada has not developed a study plan for this request as we believe we have completed a study that addresses this request.</p> <p>In its PAD comments, NHNHB noted that from Section 3.9.1: "The RTE project area does not include areas affected by dam releases from Wilder..." and NHNHB requests that the RTE project area be extended downstream to the next Impoundment area.</p> <p>Page 3-1 of the Wilder PAD (and the Bellows Falls and Vernon PADs) defines the RTE project area incorrectly. The correct definition should read "within a 1,000-foot buffer to the <u>project affected area</u>" which includes the riverine reaches. Section 3.1 of the 2012 RTE study report correctly states (and Figure 3.1-1 illustrates): "The study area (Figure 3.1.-1) includes the riverine environment within and immediately adjacent to the range of normal operational flows and impoundment elevations of the Projects. <u>This area extends from the upper limits of the Wilder impoundment in Newbury, Vermont and Haverhill, New Hampshire to Vernon dam at Vernon, Vermont and Hinsdale, New Hampshire.</u></p> <p>Therefore, based on comments from NHNHB, the Rare, Threatened and Endangered Plant Species study conducted in 2012 and provided to NHNHB for review addresses the concerns of this study request. That report will be filed with FERC by April 30, 2013.</p>

## The Nature Conservancy

Date of Letter: 3/1/2013

Study Request No.	Project	TNC Study Request	Response
1	Wilder, Bellows Falls, Vernon	Evaluation of Project Effects on Impoundment Water Surface Elevations and River Flow Regime	Addressed in Study Plan Nos. 4 and 5
2	Wilder, Bellows Falls, Vernon	Instream Flow Habitat Assessment	Addressed in Study Plan No. 9
3	Wilder, Bellows Falls, Vernon	Impacts of Water Level Fluctuations on Floodplain, Wetland, Riparian, and Littoral Vegetation Communities and Habitats	Addressed in Study Plan No. 27
4	Wilder, Bellows Falls, Vernon	Determine fish assemblage structure in project-affected areas	Addressed in Study Plan No. 10
5	Wilder, Bellows Falls	Effects of the Wilder and Bellows Falls Projects on the Dwarf Wedgemussel ( <i>Alasmidonta heterodon</i> )	Addressed in Study Plan No. 24
6	Wilder, Bellows Falls, Vernon	Project Effects on Populations of Tessellated Darter, <i>Etheostoma olmstedi</i>	Addressed in Study Plan No. 12

**The Nolumbeka Project, Inc.**

Date of Letter: 2/28/2013

Study Request No.	Project	Nolumb Study Request	Response
1	Wilder, Bellows Falls, Vernon	Comprehensive investigation and mapping of ancient traversing trail systems and fishing stations, etc.	<p>The area to be studied by this request is not clearly defined (FERC study criteria 6), but appears to identify areas outside of TransCanada’s three projects. Also, no nexus to the projects is provided (FERC study criteria 5).</p> <p>However, surveys requested by others at all three projects should address the requesters concern for conducting field studies within each project’s APE. Reports containing confidential site information will have a limited distribution that will be determined by state agencies.</p> <p>See Study Plan No. 33</p>
2	Wilder, Bellows Falls, Vernon	Comprehensive field survey of wildlife and botanical species/habitat	<p>This request does not meet the criteria for a study request under §5.9(b). The requester does not define a geographic range or study methodology (FERC study criteria 6), and no nexus between project operations and effects on the requested study resource is identified (FERC study criteria 5). However, some aspects of this request are similar to valid study requests by others.</p> <p>See Study Plan Nos. 26, 27, 28, 29</p>
3	N/A	Stabilization of the Wissatinneway property	<p>This site is not in the area of the TransCanada Projects. Therefore it has no nexus to the project (FERC study criteria 5).</p>

<b>Study Request No.</b>	<b>Project</b>	<b>Nolumb Study Request</b>	<b>Response</b>
4	N/A	Creation of a National Historical Park around the Great Falls fight site	This site is not in the area of the TransCanada Projects. Therefore it has no nexus to the project (FERC study criteria 5).
5	N/A	Falls Brook cleanup	This site is not in the area of the TransCanada Projects. Therefore it has no nexus to the project (FERC study criteria 5).

**Town of Lyme, New Hampshire Office of the Selectboard, City of Lebanon, New Hampshire City Manager,  
and O. Ross McIntyre**

Date of Letter: 2/26/2013

<b>Study Request No.</b>	<b>Project</b>	<b>Lyme-Leb-McInt Study Request</b>	<b>Response</b>
1	Wilder	Obtain data concerning piping erosion at the shoreline of the Wilder Dam impoundment and ascertain whether erosion may be reduced by changes in water level management practices	Addressed in Study Plan Nos. 2 and 3

**Town of Rockingham, Vermont Conservation Commission**

Date of Letters: 3/1/2013 (five submittals)

Study Request No.	Project	Rock Study Request	Response
4.2.1	Bellows Falls	Evaluate the projects operation and maintenance on Riverbank erosion (including the potential effects on protected species, cultural resources and structural integrity) of the Saxtons River Commissary Brook Estuary, Herrick’s Cove and Upper Meadows areas	Addressed in Study Plan No. 3
4.2.2	Bellows Falls	Evaluate the Water Quantity and Quality of water entering the project area reservoir and impoundment area especially the Saxtons River, Commissary Brook Estuary and Williams River Estuary, Upper Meadows, Herricks Cove and CT River Reach around the BF Island formed by the canal.	Addressed in Study Plan No. 27, also see Study Plan No. 6
4.2.4	Bellows Falls	Terrestrial Resources: Williams River Estuary and Commissary Brook Estuary, Upper Meadows; – surveying TransCanada properties to document and locate where there are no buffers – (Upper Meadows) – federally endangered species – protection of the Northeastern Bulrush	Addressed in Study Plan Nos. 27 and 29

<b>Study Request No.</b>	<b>Project</b>	<b>Rock Study Request</b>	<b>Response</b>
4.2.6	Bellows Falls	Evaluate the adequacy of existing recreation and public use facilities in meeting existing and future regional public use and river access needs, the effect of project operations on quality and availability of flow-dependent and water level-dependent recreation opportunities	Addressed in Study Plan No. 30
4.2.8	Bellows Falls	Evaluate the adequacy of the aesthetics between the dam and the Hydro Power Plant area Canal	Addressed in Study Plan No. 32



**Trout Unlimited, Deerfield River Chapter**

Date of Letter: 3/1/2013

Study Request No.	Project	TU Study Request	Response
1	Bellows Falls, Vernon	Shad Population Model for the Connecticut River	<p>TransCanada did not develop a study plan for this request.</p> <p>For a number of reasons, TransCanada does not believe this is a reasonable request. The effects of the Vernon and Bellows Falls projects on the whole of the population of American shad in the Connecticut River is proportionally small given the other impacts shad experience in the river (e.g., entrainment at Mt. Tom and Vermont Yankee, and three dams below Vernon).</p> <p>The numerous American shad studies TransCanada is proposing will identify project-specific effects on American shad. The cost to create a shad population model for the Connecticut River compared to the effects of the projects on the resource is excessive (FERC study criteria 7).</p>
2	Bellows Falls, Vernon	Telemetry Study of Upstream and Downstream Migrating Adult American Shad to Assess Passage Routes, Effectiveness, Delays, and Survival	Addressed in Study Plan No. 21

<b>Study Request No.</b>	<b>Project</b>	<b>TU Study Request</b>	<b>Response</b>
3	Bellows Falls, Vernon	Impact of Project Operations on Shad Spawning, Spawning Habitat, and Egg Deposition in the Project Areas of the Turners Falls, Northfield Mountain Pumped Storage and Vernon Project Areas and downstream from Bellow Falls Dam	Addressed in Study Plan No. 21
4	Bellows Falls, Vernon	Evaluation of Timing of Downstream Migratory Movements of American Eels on the Mainstem Connecticut River	Addressed in Study Plan No. 20
5	Bellows Falls, Vernon, Wilder	American Eel Survey Upstream of the Vernon and Bellows Falls dams	Addressed in Study Plan No. 11
6	Wilder, Bellows Falls, Vernon	Downstream American Eel Passage Assessment at Vernon and Bellows Falls	Addressed in Study Plan No. 19
7	Wilder, Bellows Falls, Vernon	Model River Flows and Water Levels Upstream and Downstream from the Wilder, Bellows Falls, and Vernon Stations and Integration of Project Modeling with Downstream Project Operations	Addressed in Study Plan Nos. 4 and 5
8	Wilder, Bellows Falls, Vernon	Upstream American Eel Passage Assessment at Vernon and Bellows Falls Projects	Addressed in Study Plan No. 18
9	Vernon	Impact of Vernon Project Operations on Downstream Migration of Juvenile American Shad	Addressed in Study Plan No. 22

**Trustees of Pine Park Association, Hanover New Hampshire**

Date of Letter: 2/27/2013

<b>Study Request No.</b>	<b>Project</b>	<b>HAN Study Request</b>	<b>Response</b>
1	Wilder	Obtain data concerning piping erosion at the shoreline of the Wilder Dam impoundment and ascertain whether erosion may be reduced by changes in water level management practices by the dam operator	Addressed in Study Plan Nos. 1, 2, 3, 4, 5

**Two Rivers-Ottauquechee Regional Commission**

Date of Letter: 3/1/2013

<b>Study Request No.</b>	<b>Project</b>	<b>Two-Riv Study Request</b>	<b>Response</b>
1	Wilder	Comprehensive Recreation and River Access Study	Addressed in Study Plan No. 30
2	Wilder	Study on the Economic Activity Generated by Recreational Activity in the Project Area	TransCanada did not develop a study plan for this request.  It was unclear in the request as to how the information obtained would be used in the development of new license conditions (FERC study criterion 5 and 6).
3	Wilder	River Bank Erosion Study	Addressed in Study Plan Nos. 2 and 3

<b>Study Request No.</b>	<b>Project</b>	<b>Two-Riv Study Request</b>	<b>Response</b>
4	Wilder	Comprehensive Decommissioning Study	<p>TransCanada has not developed a study plan for this request.</p> <p>This issue will be addressed in the economic analysis and amortization requirement in each Project License. Existing information available to FERC is sufficient to address this issue. Consequently this request does not meet FERC study criteria 4.</p>

## **U.S. Fish and Wildlife Service**

Date of Letter: 3/1/2013

<b>Study Request No.</b>	<b>Project</b>	<b>FWS Study Request</b>	<b>Response</b>
1	Wilder, Bellows Falls, Vernon	Model River Flows and Water Levels Upstream and Downstream from the Wilder, Bellows Falls, and Vernon Stations and Integrate Project Modeling with downstream Project Operations	Addressed in Study Plan Nos. 4 and 5
2	Wilder, Bellows Falls, Vernon	Instream Flow Habitat Assessment Downstream of Wilder, Bellows Falls, and Vernon Dams	Addressed in Study Plan No. 9
3	Bellows Falls	Bellows Falls Bypass Flow (aquatic resources)	Addressed in Study Plan No. 9

<b>Study Request No.</b>	<b>Project</b>	<b>FWS Study Request</b>	<b>Response</b>
4	Bellows Falls, Vernon	Impacts of the Operations of the Turners Falls, Northfield Mountain Pumped Storage, Vernon and Bellows Falls Projects on Shad Spawning, Spawning Habitat, and Egg Deposition	Addressed in Study Plan No. 21
5	Bellows Falls, Vernon	Telemetry Study of Upstream and Downstream Migrating Adult American Shad to Assess Passage Routes, Effectiveness, Delays, and Survival	Addressed in Study Plan No. 21
6	Vernon	Impact of Vernon Project Operations on Downstream Migration of Juvenile American Shad	Addressed in Study Plan No. 22
7	Bellows Falls, Vernon	Shad Population Model for the Connecticut River	<p>TransCanada did not develop a study plan for this request.</p> <p>For a number of reasons, TransCanada does not believe this is a reasonable request. The effects of the Vernon and Bellows Falls projects on the whole of the population of American shad in the Connecticut River is proportionally small given the other impacts shad experience in the river (e.g., entrainment at Mt. Tom and Vermont Yankee, and three dams below Vernon).</p> <p>The numerous American shad studies TransCanada is proposing will identify project-specific effects on American shad. The cost to create a shad population model for the Connecticut River compared to the effects of the projects on the resource is excessive (FERC study criteria 7).</p>

<b>Study Request No.</b>	<b>Project</b>	<b>FWS Study Request</b>	<b>Response</b>
8	Wilder, Bellows Falls, Vernon	American Eel Survey Upstream of the Vernon, Bellows Falls, and Wilder Dams	Addressed in Study Plan No. 11
9	Wilder, Bellows Falls, Vernon	Upstream American Eel Passage Assessment at Vernon, Bellows Falls, and Wilder Projects	Addressed in Study Plan No. 18
10	Wilder, Bellows Falls, Vernon	Evaluation of Timing of Downstream Migratory Movements of American Eels on the Mainstem Connecticut River	Addressed in Study Plan No. 20
11	Wilder, Bellows Falls, Vernon	Downstream American Eel Passage Assessment at the Vernon, Bellows Falls, and Wilder Project	Addressed in Study Plan No. 19
12	Wilder, Bellows Falls, Vernon	Assessment of Adult Sea Lamprey Spawning within the Wilder, Bellows Falls, and Vernon Project Areas	Addressed in Study Plan No. 16
13	Wilder, Bellows Falls	Effects of the Wilder and Bellows Falls Projects on the Dwarf Wedgemussel	Addressed in Study Plan No. 24
14	Wilder, Bellows Falls, Vernon	Project Effects on Populations of Tessellated Darter	Addressed in Study Plan No. 12
15	Wilder, Bellows Falls, Vernon	Determine the Fish Assemblage in Vernon, Bellows Falls and Wilder Project-Affected Areas	Addressed in Study Plan No. 10
16	Wilder, Bellows Falls, Vernon	Determine Upstream Passage Needs for Riverine Fish Species in the Bellows Falls, Wilder and Vernon Fishways	Addressed in Study Plan No. 17

<b>Study Request No.</b>	<b>Project</b>	<b>FWS Study Request</b>	<b>Response</b>
17	Wilder, Bellows Falls, Vernon	Impacts of the Vernon, Bellows Falls, and Wilder Project Impoundment Level Fluctuations on Resident Fish Spawning	Addressed in Study Plan No. 14
18	Wilder, Bellows Falls, Vernon	Impacts of the Vernon, Bellows Falls and Wilder Project Operations on Tributary and Backwater Area Access and Habitats	Addressed in Study Plan No. 13
19	Wilder, Bellows Falls, Vernon	Impacts of Water Level Fluctuations on Aquatic Vegetation, Including Invasive Species, in the Vernon, Bellows Falls and Wilder Project Impoundments and Riverine Reaches	Addressed in Study Plan Nos. 27 and 29
20	Wilder, Bellows Falls, Vernon	Water Quality Modeling	Addressed in Study Plan No. 6
21	Wilder, Bellows Falls, Vernon	Climate Change as it Relates to Continued Operation of the Vernon, Bellows Falls, Wilder, Northfield Mountain Pumped Storage, and Turners Falls Projects	<p>TransCanada does not propose to develop a specific study plan that addresses climate change as it relates to project operations.</p> <p>Such a study would not necessarily inform potential mitigation measures (FERC study criteria 4) and would be cost prohibitive (FERC study criteria 7). Potential operational measures that could be considered will be informed by the water level and project operations modeling (Study Plan 4 and 5, and water quality monitoring (Study plan 6).</p>

**Vermont Agency of Natural Resources**

Date of Letter: 3/1/2013

Study Request No.	Project	VANR Study Request	Response
1	Wilder, Bellows Falls, Vernon	Shoreline and downstream erosion from water level fluctuation in the impoundment and downstream from peaking operations (separate requests for each project, each request identified as request 1)	Addressed in Study Plan Nos. 2 and 3
2	Wilder, Bellows Falls, Vernon	Water quality monitoring within the project impoundment and tailrace (separate requests for each project, each request identified as request 2)	Addressed in Study Plan No. 6
3	Wilder, Bellows Falls, Vernon	Continuous water temperature monitoring at various locations within the impoundment and tailrace, and downstream Connecticut River (separate requests for each project, each request identified as request 3)	Addressed in Study Plan No. 6
4	Wilder, Bellows Falls, Vernon	Model river flows and water levels upstream and downstream from the Wilder, Bellows Falls and Vernon stations and integration of project modeling with downstream project operations	Addressed in Study Plan Nos. 4 and 5



<b>Study Request No.</b>	<b>Project</b>	<b>VANR Study Request</b>	<b>Response</b>
5	Wilder, Bellows Falls, Vernon	Climate change as it relates to continued operation of the Vernon, Bellows Falls and Wilder projects	<p>TransCanada does not propose to develop a specific study plan that addresses climate change as it relates to project operations.</p> <p>Such a study would not necessarily inform potential mitigation measures (FERC study criteria 4) and would be cost prohibitive (FERC study criteria 7). Potential operational measures that could be considered will be informed by the water level and project operations modeling (Study Plan 4 and 5, and water quality monitoring (Study plan 6).</p>
6	Bellows Falls	Bypass flow and habitat (aquatic resources)	Addressed in Study Plan No. 9
7	Wilder, Bellows Falls, Vernon	In-stream flow habitat assessment of downstream reaches	Addressed in Study Plan No. 9
8	Wilder, Bellows Falls, Vernon	Project effects on channel morphology and benthic habitat impacts	Addressed in Study Plan No. 8
9	Vernon	Juvenile shad outmigration	Addressed in Study Plan No. 22

<b>Study Request No.</b>	<b>Project</b>	<b>VANR Study Request</b>	<b>Response</b>
10	Vernon	Shad population model for the Connecticut River	<p>TransCanada did not develop a study plan for this request.</p> <p>For a number of reasons, TransCanada does not believe this is a reasonable request. The effects of the Vernon and Bellows Falls projects on the whole of the population of American shad in the Connecticut River is proportionally small given the other impacts shad experience in the river (e.g., entrainment at Mt. Tom and Vermont Yankee, and three dams below Vernon).</p> <p>The numerous American shad studies TransCanada is proposing will identify project-specific effects on American shad. The cost to create a shad population model for the Connecticut River compared to the effects of the projects on the resource is excessive (FERC study criteria 7).</p>
11	Bellows Falls, Vernon	Impact of project operations on shad spawning, spawning habitat and egg deposition	Addressed in Study Plan No. 21
12	Bellows Falls, Vernon	Telemetry study of upstream and downstream migrating adult American shad to assess passage routes, effectiveness, delays, and survival	Addressed in Study Plan No. 21
13	Wilder, Bellows Falls, Vernon	Fish assemblage in project-affected areas	Addressed in Study Plan No. 10

<b>Study Request No.</b>	<b>Project</b>	<b>VANR Study Request</b>	<b>Response</b>
14	Wilder, Bellows Falls, Vernon	Impacts of downstream water fluctuations on resident fish spawning	Addressed in Study Plan No. 15
15	Wilder, Bellows Falls, Vernon	Upstream American eel survey	Addressed in Study Plan No. 11
16	Wilder, Bellows Falls, Vernon	Project effects on populations of tessellated darter, <i>Etheostoma olmstedi</i>	Addressed in Study Plan No. 12
17	Wilder, Bellows Falls, Vernon	Assessment of adult sea lamprey ( <i>Petromyzon marinus</i> ) spawning within the project areas	Addressed in Study Plan No. 16
18	Wilder, Bellows Falls, Vernon	Impacts of impoundment water level fluctuations on resident fish spawning	Addressed in Study Plan No. 14
19	Wilder, Bellows Falls, Vernon	Impacts of project operations on tributary and backwater area access and habitats	Addressed in Study Plan No. 13
20	Wilder, Bellows Falls, Vernon	Evaluation of timing of downstream migratory movements of American eels on the mainstem Connecticut River	Addressed in Study Plan No. 20
21	Wilder, Bellows Falls, Vernon	Downstream American eel passage	Addressed in Study Plan No. 19
22	Wilder, Bellows Falls, Vernon	Upstream American eel passage assessment	Addressed in Study Plan No. 18

<b>Study Request No.</b>	<b>Project</b>	<b>VANR Study Request</b>	<b>Response</b>
23	Wilder, Bellows Falls, Vernon	Impingement and entrainment of resident fish species at project intakes	Addressed in Study Plan No. 23
24	Wilder, Bellows Falls, Vernon	Determine upstream passage needs for riverine fish species at project fishways	Addressed in Study Plan No. 17
25	Wilder, Bellows Falls, Vernon	Impact of impoundment water level fluctuations on wetlands (separate requests for each project, each request identified as request 25)	Addressed in Study Plan No. 27
26	Wilder, Bellows Falls, Vernon	Impacts of water level fluctuations on aquatic vegetation, including invasive species, in project impoundments	Addressed in Study Plan Nos. 27 and 29
27	Wilder, Bellows Falls	Project effects on the dwarf wedgemussel ( <i>Alasmidonta heterodon</i> )	Addressed in Study Plan No. 24

Study Request No.	Project	VANR Study Request	Response
28	Wilder, Bellows Falls, Vernon	Assess the impact of project operations on state-listed rare, threatened and endangered plant species and significant natural communities	<p>TransCanada did not develop a study plan for this request as we believe we have completed a study that addresses this request.</p> <p>Based on comments from the Vermont Agency of Natural Resources (VANR), the Rare, Threatened and Endangered (RTE) Plant Species study conducted in 2012 and provided to VANR for review addresses the concerns of this study request. That report will be filed with FERC by April 30, 2013.</p> <p>The intent of the VANR request for surveying the entire 100-year floodplain was, in our opinion, addressed in the 2012 study in that what species and communities were found were the ones that could be affected by Project operations. Further, in TransCanada's discussions with the resource agencies prior to the 2012 RTE study, the 100-year floodplain never came up in study consultation, and this request is not appropriate now since project affected areas were surveyed in 2012. We also surveyed species unlikely to be affected by project operations (category 2 species in the 2012 RTE study).</p>
29	Wilder, Bellows Falls, Vernon	Survey the number, species and behavior of adult dragonflies and emerging nymphs within the project areas	Addressed in Study Plan No. 25
30	Wilder, Bellows Falls, Vernon	Survey for new and existing populations of adult Cobblestone and Puritan tiger beetle populations within the project areas	Addressed in Study Plan No. 26

<b>Study Request No.</b>	<b>Project</b>	<b>VANR Study Request</b>	<b>Response</b>
31	Wilder, Bellows Falls, Vernon	Survey the distribution, population size and habitat conditions of Fowler's Toad ( <i>Bufo fowleri</i> ) within the project areas	Addressed in Study Plan No. 28
32	Wilder, Bellows Falls, Vernon	Recreational survey and enhancement study	Addressed in Study Plan No. 30
33	Wilder, Bellows Falls, Vernon	Assess the amount of development within the floodplain of the lower Connecticut River	<p>TransCanada did not develop a study plan for this request.</p> <p>The purpose of this request is to determine if river profile operations could be modified in locations to allow over-land flow in floodplains where waters would not cause damage or endanger public safety and community investments.</p> <p>Therefore, this is a mitigation request and there is no nexus to the projects as licensed, and the request does not meet FERC study criteria 5. Further, since this study request would not inform measures that could be considered for a new license it does not meet FERC study criteria 6.</p> <p>However, an assessment of current project effects on floodplain forests is included in Study Plan No. 27.</p>
34	Bellows Falls	Bellows Falls aesthetic flow study	Addressed in Study Plan No. 32

**Vermont Division for Historic Preservation, State Historic Preservation Office**

Date of Letter: 3/1/2013

<b>Study Request No.</b>	<b>Project</b>	<b>VT SHPO Study Request</b>	<b>Response</b>
1	Wilder, Bellows Falls	Phase IB within archeologically sensitive areas and potential site locations that are actively eroding	Addressed in Study Plan No. 33
2	Wilder, Bellows Falls	Phase II of currently recorded archeological sites in the Project APE	Addressed in Study Plan No. 33
3	Wilder, Bellows Falls	Phase II of any other archeological site identified by Phase IB	Addressed in Study Plan No. 33
4	Wilder	National Register Evaluation Report	Addressed in Study Plan No. 33
5	Vernon	Phase IB within archeologically sensitive areas and potential site locations that are actively eroding based on 2013 Monitoring Report	Addressed in Study Plan No. 33
6	Vernon	Phase II of known archeological sites in the Project APE	Addressed in Study Plan No. 33