

STATE OF VERMONT
PUBLIC SERVICE BOARD

Petition of Champlain VT, LLC d/b/a TDI New England)
for a Certificate of Public Good, pursuant to 30 V.S.A. §248,)
authorizing the installation and operation of a high voltage)
direct current (HVDC) underwater and underground electric)
transmission line with a capacity of 1,000 MW, a converter)
station, and other associated facilities, to be located in Lake)
Champlain and in the Counties of Grand Isle, Chittenden,)
Addison, Rutland, and Windsor, Vermont, and to be known)
as the New England Clean Power Link Project ("NECPL"))

Docket No. 8400

PREFIELD TESTIMONY OF
EDWARD MCNAMARA

ON BEHALF OF THE
VERMONT DEPARTMENT OF PUBLIC SERVICE

June 12, 2015

Summary: The purpose of Mr. McNamara's testimony is to present the Department of Public Service's review of the Project in relation to certain statutory criteria that must be met for approval for the project.

Direct Testimony
of
EDWARD MCNAMARA

1 Q1. Please state your name and title.

2 A1. My name is Edward McNamara. I am the Regional Policy Director for the
3 Vermont Department of Public Service (“Department”). My business address is 112
4 State Street, Montpelier, Vermont.

5 Q2. Please describe your professional background and experience.

6 A2. I have worked for the Department since 2012. My primary responsibility at the
7 Department is advocating Vermont's position on energy issues before the Federal Energy
8 Regulatory Commission and at the NEPOOL stakeholder process. Prior to working at the
9 Department, I was a staff attorney and hearing officer for the Public Service Board from
10 2003 until 2012.

11 Q3. Have you ever testified before the Vermont Public Service Board (Board) before?

12 A3. No.

13

14 **SUMMARY**

15 Q4. Please describe the purpose and the structure of your testimony.

16 A4. The purpose of my testimony is to present the analysis of the Department relating
17 to the request of Champlain VT, LLC d/b/a TDI New England (TDI-NE) for a Certificate
18 of Public Good (“certificate”) authorizing the construction of a high voltage direct current
19 electric transmission line and associated converter station (the so-called “New England

1 Clean Power Link,” “NECPL” or “Project”). I address aspects of 30 V.S.A § 248(b)(2),
2 § 248(b)(4), § 248(b)(5), and § 248(b)(6).

3 Q5. Please describe the requirements of 30 V.S.A. § 248 as they pertain to the Project.

4 A5. 30 V.S.A. § 248(a) requires that the Board find that the Project will promote the
5 general good of the state in order to issue a certificate for TDI-NE to construct the
6 Project. Before issuing a certificate, the Board must make certain findings as required
7 under 30 V.S.A. § 248(b). In addition, the Board should consider positive and negative
8 attributes of a proposal that do not clearly fit within the specified § 248(b) criteria.

9
10 **30 V.S.A § 248(B)(2) – NEED FOR PRESENT AND FUTURE DEMAND FOR SERVICE**

11 Q6. Please explain how the Department evaluated the Project under the Need criterion.

12 A6. The NECPL is a merchant transmission project, in other words it is being
13 proposed to provide power from Canada to the New England region rather than to ensure
14 system stability and reliability. Essentially, the Project is more similar to a merchant
15 generation resource than a transmission line. Accordingly, the Department’s evaluation
16 of the Project is considerably different than if this was a transmission line being proposed
17 for reliability purposes.

18 A merchant generator, or a merchant transmission line proposed to provide
19 generation into New England, provides three potential products for New England and
20 Vermont: (1) energy, (2) capacity; and (3) renewable characteristics of the energy
21 produced. The evaluation below examines whether the Project provides a need under
22 each of these three categories, and also discusses the difference between regional and
23 Vermont need. While Vermont is part of the New England region and the Vermont
24 utilities participate in the wholesale energy and capacity markets, the need for particular
25 products in Vermont is often different than the need in the rest of the region.

1 Q7. Is there additional information that the Department believes is necessary to evaluate
2 whether the Project meets the need for present and future demand for service?

3 A7. Yes. Whether the NECPL meets a need for present and future demand for service
4 depends on whether the Project will transport renewable power. Unlike a generation unit,
5 there is no guarantee of the type of resources that are transported over a transmission line.
6 TDI-NE has represented that its business plan is to transport renewable power over the
7 NECPL; additionally, the interconnection point within Quebec, which relies primarily on
8 hydroelectric resources, strongly suggests that the energy transported across the line will
9 be renewable. However, given the ability of generators to wheel power from neighboring
10 control areas through Quebec to New England via the Project, and the Federal Energy
11 Regulatory Commission's policies supporting open access principles with respect to
12 transmission, there is no guarantee that the Project will transport renewable power.

13

14 Q8. Please explain the Department's concerns with respect to the delivery of renewable
15 resources over the NECPL.

16 A8. The Federal Energy Regulatory Commission (FERC) has granted TDI-NE the
17 authority to sell transmission rights on the Project at negotiated rates, subject to FERC's
18 approval of a subsequent filing under Section 205 of the Federal Power Act. (*See,*
19 *Champlain VT, LLC*, 146 FERC ¶ 61,167 (March 10, 2014)). Under the concept of
20 negotiated rate authority, TDI-NE can enter into specific contracts with suppliers and/or
21 purchasing utilities; such contracts could specify a certain number of MWhs transported
22 over the line and the type of power to be delivered. Consequently, there do not appear to
23 be any legal or regulatory barriers that would prevent TDI-NE from meeting its business
24 model. However, there are three issues that should be considered in reviewing whether
25 or not the NECPL will transport renewable power: (1) the percentage of renewable
26 power transported, (2) the length of time that there would be contractual commitments to
27 transport renewable power, and (3) the ability of the PSB to require that the NECPL
28 transport renewable power.

1 TDI-NE has represented that it intends to enter into contracts to ship hydroelectric
2 and wind resources from Canada into New England. In order to obtain sufficient
3 financing to construct the Project, TDI-NE would likely need a guaranteed source of
4 revenue over some time horizon; however, it is unclear whether 100% of the capacity of
5 the line would need to be covered by contracts for renewable power in order to be built.
6 If, for example, TDI-NE entered into contracts with New England utilities and
7 HydroQuebec to ship 500 MW of power across the line, such a commitment may be
8 sufficient to provide a sufficient amount of stable revenue to obtain the necessary
9 financing to construct the line. Open access principles would require TDI-NE to make
10 any available capacity of the line available to producers that want to sell into the ISO
11 New England (ISO-NE) energy market. Since generators do not need contracts to sell
12 power into ISO-NE, the remaining 500 MW of capacity on the line could be used to
13 wheel non-renewable power through Quebec from New York or Ontario.

14 Further, it is highly unusual for utilities to enter into power purchase agreements
15 with a term greater than 20 year. Even if TDI-NE could demonstrate that it had entered
16 into contracts for the transportation of renewable energy over the full capacity of the
17 NECPL there would be no guarantee that this would be the case over the expected 40-
18 year life of the Project.

19 Finally, it is unclear whether the PSB has legal authority to require that the
20 Project transport only renewable power, given the dormant commerce clause of the U.S.
21 Constitution and the possibility of FERC preemption with respect to open access
22 transmission principles.

23
24 Q9. What further steps should be undertaken to address the delivery of renewable power
25 across the NECPL?

26 A9. The Department believes that TDI-NE should provide additional evidence that,
27 because of the location of the Quebec interconnection point and the economics of
28 wheeling non-renewable power from adjacent control areas through Quebec, a substantial

1 amount of power shipped across the line will be renewable. Such additional information
2 should also attempt to quantify what would constitute a “substantial” amount of power
3 shipped over the line.

4
5 Q10. Does the Project meet a need for energy?

6 A10. To the extent that the power transported over the NECPL is renewable it will help
7 meet the regional need for energy. The PSB has previously suggested that the need for
8 energy could be met by providing:

9 evidence on which we can rely to find, for example, that the
10 Project would produce energy at a cost that would ensure its
11 dispatch into the regional market, resulting in the displacement of
12 higher-cost generating units, or how the cost of power from the
13 Project might influence regional wholesale prices in a way that
14 would benefit Vermont.¹
15

16 Q11. To what extent would the energy transported by the Project be dispatched into the
17 wholesale market, and result in displacing higher-cost generating units?

18 A11. To the extent that the power transported over the NECPL is renewable, it would
19 have zero fuel costs, and therefore be likely (assuming transportation costs are fairly
20 small) to clear in the energy market and displace higher-cost generating units. This
21 would provide a benefit to the region.

22
23

¹ Docket 7833, Order of xx at 139.

1 Q12. Mr. Parker's prefiled testimony states that the NECPL would reduce wholesale energy
2 prices in Vermont over the life of the Project. Further, Mr. Parker states that roughly
3 25% of Vermont's load is hedged and therefore insulated from wholesale energy price
4 reductions. Do you agree with Mr. Parker's analysis?

5 A12. While I do not disagree with the methodology used by Mr. Parker, I believe that
6 the estimate regarding the amount of Vermont load hedged against market fluctuations is
7 overly low and therefore Mr. Parker's testimony overstates the benefits of the Project for
8 Vermont ratepayers.

9 To the extent that the Project does reduce wholesale electric prices for the region
10 the benefit to Vermont ratepayers will vary according to the amount that each distribution
11 utility owns generation or has entered into long-term contracts that are not tied to the
12 wholesale market. Under fixed price contracts, the utilities pay a set price for each MWh
13 produced from these resources regardless of the wholesale energy price at the time that
14 MWh is delivered (although the price under the contract may vary from year by year
15 based on a fixed escalator or an adjustment corresponding to a consumer price index).
16 Overall, most ratepayers are significantly hedged against market price fluctuations, in
17 accordance with state policy. *See*, 30 V.S.A. § 8001(a)(3):

18 The General Assembly finds it in the interest of the people of the
19 State to promote the State energy policy established in section
20 202a of this title by: . . . Providing an incentive for the State's
21 retail electricity providers to enter into affordable, long-term,
22 stably priced renewable energy contracts that mitigate market price
23 fluctuation for Vermonters.
24

25 Some Vermont utilities are fully hedged against market prices through the next
26 several years, and may even have commitments that exceed load requirements. If these
27 utilities continue to be long in power at the time that the Project is commissioned, and the
28 NECPL results in a decrease in regional energy prices, the likely result is some reduction
29 of revenue that these utilities would be receiving from the resale of excess power.

1 Other Vermont utilities have varying levels of long-term contracts. Generally, the
2 Vermont utilities are more than 50% hedged against wholesale market prices over the
3 next 10 years, with closer to 56% hedged in 2019, the earliest year that the NECPL would
4 likely be commissioned. Additionally, Green Mountain Power Corporation and other
5 utilities often use a layering approach to hedging, where they enter into contracts of one
6 to five years in duration to fully hedge energy prices over a relatively short time horizon.
7 Considering that the Project would not be constructed for several years, these type of
8 contracts were not factored into the analysis of the percentage of Vermont's load that is
9 hedged.

10

11 Q13. How did the Department derive its estimate of the percentage of Vermont load hedged
12 from wholesale market prices?

13 A13. The Vermont distribution utilities provide estimates to the Department of the
14 output of resources owned or under contract to the utilities, along with the utilities'
15 estimated load. The Department identified those resources that are owned by a Vermont
16 distribution utility, and also identified whether the contracts with other resources were
17 fixed price or indexed to the market. The total estimated output of those fixed price and
18 owned resources was then compared to the forecasted state load.

19

20 Q14. What is the more appropriate number for expected wholesale energy price reductions for
21 Vermont ratepayers?

22 A14. In response to a discovery request by the Department, Mr. Parker indicated that he
23 used the Regional System Plan Vermont sub-area load, rather than the Vermont state load
24 zone, to calculate the energy price reduction that Vermont ratepayers would receive.
25 (See TDI-NE's response to DPS's Discovery Requests (Second Round) at 10.c., included
26 as Exhibit DPS-EM-1.) Using this corrected value reduces the projected unhedged
27 wholesale energy price reductions from \$201 million to \$178.5 million. After applying a

1 hedge factor of 56% , the energy price reductions that Vermonters would see would be
2 44% of \$178.5 million, or \$78.5 million.

3 Assuming that the Project transports renewable power that would clear in the
4 energy market and displace higher cost generation, it would result in lowered energy
5 prices, although at a significantly lower dollar value than that estimated by Mr. Parker.
6

7 Q15. Please summarize the need for capacity in New England and Vermont.

8 A15. Projected load growth in New England is overall relatively flat, with load
9 projections in Vermont somewhat flatter than New England as a whole. The reason for
10 the relatively small load growth, as explained in Mr. Woodward's testimony, is the
11 amount of energy efficiency and behind-the-meter distributed generation being pursued
12 in Vermont and the rest of New England. However, much of the existing generation
13 capacity in New England consists of fairly old units that are at risk of retirement.
14 Accordingly, there is the potential need for additional sources of capacity.

15 ISO-NE operates a Forward Capacity Auction every year that procures capacity
16 three years in advance of the delivery requirement (e.g., the FCA in February 2016 will
17 require that resources are available in 2019). Vermont utilities are assigned costs
18 associated with Vermont's share of peak load. On a regional basis, to the extent that
19 there is a shortage of capacity, prices will be higher, and the inverse is true to the extent
20 that there is excess capacity.
21

22 Q16. Does the NECPL meet a need for additional capacity?

23 A16. As described more fully below, while a new resource could theoretically meet a
24 need for capacity in the region and decrease capacity prices, it is unclear whether the
25 NECPL will meet the requirements to do so. Further, it is possible that the NECPL could
26 cause increased capacity prices for Vermont ratepayers depending on how capacity zones

1 are configured. For these reasons, the Department believes there is too much certainty to
2 make a positive finding that the NECPL meets a need for present and future capacity for
3 the region and for Vermont.

4 Q17. Are there any barriers to the Project becoming qualified as a capacity resource?

5 A17. Yes. The NECPL is considered under the ISO-NE market rules to be an Elective
6 Transmission Upgrade (ETU). In order for an ETU to qualify for the Forward Capacity
7 Auction, it must meet interconnection requirements spelled out in the ISO-NE tariff; the
8 requirements for ETUs to qualify capacity are spelled out in the ISO-NE transmission
9 tariff. To the extent that the NECPL meets the interconnection requirements it would be
10 allowed to participate in the Forward Capacity Auction. However, the NECPL would
11 still have to clear in the market.

12
13 Q18. Is there any reason that the NECPL would not clear in the Forward Capacity Auction?

14 A18. In order to prevent manipulation of the market, the ISO-NE Internal Market
15 Monitor reviews the prices that capacity resources submit in the FCA under the
16 Minimum Offer Price Rule. This rule attempts to prevent subsidized entry into the
17 market by allowing the Internal Market Monitor to review the bid submitted by a capacity
18 resource and, to the extent that the resource has incorporated an out-of-market subsidy
19 into its bid, adjusting (or mitigating) the bid to remove the subsidy. For example, if the
20 Internal Market Monitor determined that the contract between the shipper and TDI-NE or
21 the total construction cost of the Project is an out-of-market subsidy, the Internal Market
22 Monitor would adjust upward TDI-NE's bid into the Forward Capacity Auction. Given
23 that the Internal Market Monitor has not yet reviewed a merchant transmission project
24 under the Minimum Offer Price Rule, it is unclear at this point whether a project such as
25 the NECPL would clear in the Forward Capacity Auction.

26

27

1 Q19. To the extent that TDI-NE is qualified as a capacity resource and does clear in the
2 Forward Capacity Auction, does the Department agree with TDI-NE's estimates of the
3 capacity price reductions that Vermont ratepayers would see if the NECPL is
4 constructed?

5 A19. No. The Department is concerned with the possibility that construction of the
6 Project could impact capacity zone formation, resulting in the creation of a Vermont-
7 specific import-constrained zone. If this were to occur, it could result in upward pressure
8 on capacity prices within Vermont.

9

10 Q20. Please explain the concept of a capacity zone.

11 A20. As explained above, ISO-NE operates a Forward Capacity Auction every year;
12 given that power flows are limited by the configuration of the transmission system,
13 resources in some locations are more valuable than others. For example, if there is a
14 large amount of resources in Northern New England, but only limited transmission ties to
15 bring the power to where load is concentrated, resources in Northern New England do not
16 provide as much value as resources located within Boston. For this reason, the Forward
17 Capacity Auction has a locational component through the creation of import-constrained
18 and export-constrained zones. Since the creation of the Forward Capacity Market,
19 Vermont has been considered "rest-of-pool," that is, Vermont is neither import- nor
20 export-constrained. In the next FCA, however, Vermont will participate as part of a
21 Northern New England export-constrained capacity zone, which also includes New
22 Hampshire and Maine.

23

24 Q21. What is the impact of capacity zones on capacity prices?

25 A21. In theory, an import-constrained capacity zone would clear at a higher price than
26 rest-of-pool or an export-constrained zone. This has happened in the Southeastern
27 Massachusetts/Rhode Island import-constrained capacity zone and the Northeastern

1 Massachusetts/Boston import-constrained capacity zone. Connecticut, however, has
2 consistently cleared at the same price as rest-of-pool. By contrast, an export-constrained
3 capacity zone should clear at a lower price than rest-of-pool or an import-constrained
4 capacity zone. This is not to say that a zone's classification as import- or export-
5 constrained will determine the outcome, but only that it increases the likelihood that a
6 zone will clear at a higher or lower price than the rest of New England.

7
8 Q22. Does Mr. Parker's testimony take into account the impact of capacity zones on the
9 capacity price that Vermont consumers would pay?

10 A22. Mr. Parker's testimony notes that the "Vermont zone cleared with the Rest-of-
11 Pool in every FCA." Parker pf. at 34. Mr. Parker's testimony predates the FERC order
12 approving ISO-NE's proposal to create a Northern New England export-constrained
13 capacity zone.

14
15 Q23. What is the potential impact of the Project on whether Vermont will be considered
16 export- or import-constrained?

17 A23. In the next FCA, Vermont will be located within an export-constrained zone,
18 which in theory should reduce the capacity clearing price. However, based upon the
19 existing rules for capacity zone formation, it appears that the Project could cause
20 Vermont to become import-constrained. In 2014, FERC approved changes to the market
21 rules that set forth automatic rules for determining whether a capacity zone is import-
22 constrained. Essentially, a zone would be considered to be import constrained if there is
23 less capacity in the zone than the single largest dispatchable resource in the zone.
24 Currently, the single largest dispatchable resource within Vermont is the McNeil
25 generating station – which has a nameplate capacity of 50 MW. Under the trigger
26 mechanism described above, Vermont would only need 50 MW of resources in order
27 prevent the capacity zone from being considered as import-constrained. To the extent

1 that the single largest capacity resource is the 1000 MW converter that is part of the
2 NECPL, there would need to be significantly greater amount of capacity resources within
3 Vermont in order to not have Vermont modeled as an import-constrained zone. To the
4 extent that Vermont becomes an import-constrained zone, it would likely have the impact
5 of increasing capacity prices for Vermont.

6
7 Q24. Does the overall Project meet a need for renewable characteristics?

8 A24. Yes. With the recent enactment of a Vermont Renewable Energy Standard
9 (RES), Vermont is more closely tied to the rest of the region with respect to the need for
10 renewable power. The previous Sustainably Priced Energy Enterprise Development
11 (SPEED) program required that utilities enter into a contract with a particular resource
12 for that resource to count toward the SPEED goals. Conversely, compliance with the
13 RES is through demonstration of renewable attributes (such as Renewable Energy Credits
14 (RECs)) which are fungible across New England. To the extent that there is a greater
15 number of renewable attributes being traded, the price should be reduced, thereby
16 decreasing the cost of compliance. Accordingly, a new renewable resource located in
17 Vermont would not need to enter into a contract to help meet Vermont's renewable goals.

18 A significant caveat is that the Generator Information System, which tracks RECs
19 created within New England, does not currently track characteristics of Canadian power.
20 New England states are working with NEPOOL to determine whether to modify the
21 Generator Information System to allow for the creation and tracking of Canadian RECs.

22 To the extent that TDI-NE can demonstrate that the NECPL will transport
23 renewable power with characteristics that lower REC prices, it will help meet the need
24 for Vermont utilities to comply with the RES.

25 With respect to a regional need for renewable characteristics, TDI-NE's ability to
26 meet that need will depend on what type of resources it is transporting across the Project
27 and also the specific policies in place in other states. Currently, Vermont is the only state

1 that allows large hydroelectric resources to qualify for a renewable portfolio standard.
2 Connecticut has a statute that requires the Connecticut Department of Energy and
3 Environmental Protection to issue a request for proposals to enter into long-term
4 contracts with renewable resources, and allows large hydroelectric resources to compete
5 in this RFP. However, at this time, no other state has a mandate to contract with, or buy
6 renewable characteristics from, large hydroelectric resources. Accordingly, depending on
7 the characteristics of the resources being transported over the NECPL, there is a fairly
8 limited regional need that the Project could meet.

9

10 Q25. Are there other factors that the Department believes are relevant to whether the NECPL
11 meets a present or future demand for service?

12 A25. Vermont relies on the New England grid to ensure adequate power supply and the
13 existing system is becoming increasingly reliant on two energy sources – natural gas-
14 fired generation and wind generation. Without an increase in fuel diversity, the system
15 will become increasingly prone to price volatility and reliability concerns. To the extent
16 that the Project transports baseload renewable energy, it would provide a significant
17 amount of new supply into the region and increase fuel diversity.

18

19 Q26. 30 V.S.A. § 248(b)(2) also requires that the Board assess economic and environmental
20 costs in the manner set out in 30 V.S.A. § 218c(a)(1), which governs least cost integrated
21 plans and requires, among other things, due regard to the State's 30 V.S.A. §8001
22 renewable energy goals and its progress in meeting greenhouse gas reduction goals (10
23 V.S.A. § 578). Is the Project consistent with those goals?

24 A26. The Project would be consistent with the renewable energy and greenhouse gas
25 reduction goals to the extent that a substantial portion of the power transported across the
26 NECPL is generated from renewable resources.

27

1 **30 V.S.A. § 248(B)(4) – ECONOMIC BENEFIT TO THE STATE AND ITS RESIDENTS**

2 Q27. Does the NECPL provide an economic benefit to Vermont?

3 A27. To the extent that the NECPL is constructed as a merchant transmission project it
4 will provide an economic benefit to Vermont.

5

6 **Allocation of Project Costs**

7 Q28. To what extent does the allocation of Project costs factor into the Department's analysis
8 of whether the Project provides an economic benefit to the state and its residents?

9 A28. The fact that Vermont ratepayers will not be paying for the Project is a significant
10 reason why the Project provides an economic benefit to the state and its residents. Unlike
11 most transmission projects that are reviewed under Section 248, the NECPL is not needed
12 to maintain system stability and reliability; instead it is being undertaken as an Elective
13 Transmission Upgrade.

14 An Elective Transmission Upgrades is defined as: "a Transmission Upgrade that
15 is participant-funded (i.e., voluntarily funded by an entity or entities that have agreed to
16 pay for all of the costs of such Transmission Upgrade), and is not: (i) a Generator
17 Interconnection Related Upgrade; (ii) a Reliability Transmission Upgrade (including a
18 NEMA Upgrade, as appropriate); (iii) an Market Efficiency Transmission Upgrade
19 (including a NEMA Upgrade, as appropriate); or (iv) initially proposed in an Elective
20 Transmission Upgrade Application filed with the ISO in accordance with Section II.47.5
21 on a date after the addition or modification already has been otherwise identified in the
22 current Regional System Plan (other than as an Elective Transmission Upgrade) in
23 publication as of the date of that application." (ISO's Transmission, Markets and
24 Services Tariff at § I.2.2.)

25 A Reliability Transmission Upgrade is funded by all New England ratepayers,
26 with each state generally paying its portion of load share; Vermont's share has typically

1 been approximately 4% of the total cost of the project. With an Elective Transmission
2 Upgrade, the total project costs are paid for by the developer. With a merchant
3 transmission project such as the NECPL, the owner of the line recovers its costs through
4 a charge on each MWh transported across the line.

5 A third method of allocating costs is under FERC Order 1000. In 2011, the FERC
6 created a new category of transmission projects, those driven not by reliability need or
7 merchant proposals, but instead by public policy. Order 1000 requires ISO-NE to
8 identify public policies that may necessitate transmission infrastructure. States may
9 negotiate a cost allocation for a selected project; however, in the event that states cannot
10 reach an agreement on cost allocation, FERC has adopted a default cost allocation under
11 which 70% of the cost of the project is borne by all states based on each state's pro rata
12 share of load, and the remaining 30% of the cost of the project is borne by those states
13 that have policies that necessitate the construction of the transmission project.

14 Vermont energy policy is focused heavily on energy efficiency, distributed
15 generation, and transformation of the heating and transportation sectors; accordingly, the
16 Department does not expect that any Vermont policies would drive the need for new
17 transmission. Notwithstanding that fact, under the default cost allocation ordered by
18 FERC, Vermont would have to pay 2.8% of any projects constructed under Order 1000,
19 absent another agreement by states regarding cost allocation.

20
21 Q29. Is it possible that the Project would be built pursuant to FERC Order 1000?

22 A29. TDI-NE has represented that it intends to construct the Project based upon power
23 purchase agreements with New England utilities, in which case it would be funded by
24 TDI-NE and be paid for through transport charges. However, TDI-NE has indicated that
25 it would consider participating in an Order 1000 selection process to fund and construct
26 the Project. [TDI-NE Response to VELCO Discovery Requests (Second Round) at page
27 5].

1

2 Q30. Would the Department's view as to whether the Project provides an economic benefit to
3 the state and its residents change if the NECPL was built under FERC Order 1000?

4 A30. Yes. The Department does not believe that the Project would satisfy the
5 economic benefit criterion if the Project was built under FERC Order 1000. Although it
6 is possible to do a specific cost/benefit calculation using 2.8% of the estimated cost of the
7 Project, the lack of any cost containment features in the FERC Order 1000 process would
8 mean that the final project costs could be significantly higher than the estimate provided
9 when the project is selected. Accordingly, it is difficult to do a cost/benefit calculation
10 with any degree of precision. Given that the construction-related economic benefits
11 occur within a relatively short time frame and Vermonters do not see significant benefits
12 from any wholesale energy market reductions, it would be difficult to find that any
13 project constructed under FERC Order 1000, and paid for in part by Vermont ratepayers,
14 would provide sufficient economic benefit to the state to satisfy the statutory criteria,
15 absent some other economic benefit.

16

17 Q31. Please describe the public benefit funds.

18 A31. TDI-NE has proposed four categories of public benefit funds:

- 19 • Vermont Electric Ratepayer Benefit
- 20 • Vermont Renewables Program
- 21 • Lake Champlain Phosphorus Cleanup
- 22 • Lake Champlain Trust Fund

23 The Vermont Ratepayer Benefit Fund recognizes that the Project, while meeting
24 the substantive criteria of Section 248(b), does not provide significant overall benefits to
25 the general good of the state. Given how heavily hedged Vermont utilities are, the
26 wholesale market reductions for Vermont ratepayers are relatively limited. Further,
27 without more information regarding TDI-NE's assertion that the power being shipped

1 across the line will be renewable, the projected reductions are speculative. The
2 construction benefits are significant; however, they are of relatively short duration. The
3 Vermont Ratepayer Benefit Fund provides a nexus between the impacts of the Project
4 and an economic benefit to the state.

5 The Vermont Renewables Programs Funds recognizes that the Project may have
6 an adverse impact on small, in-state renewables and provides funding to help develop
7 these programs (likely through the Clean Energy Development Fund). Because the
8 Project will cause downward pressure on regional wholesale energy prices, it reduces the
9 cost-competitiveness of small-scale, in-state renewable generation. The Vermont
10 Renewables Programs Funds provides a nexus between the Project and the achievement
11 of Vermont's policy goals supporting in-state distributed generation.

12
13 **30 V.S.A § 248(B)(6) – INTEGRATED RESOURCE PLAN CONSISTENCY**

14 Q32. IS TDI-NE required to have an approved least cost integrated plan?

15 A32. No. As a merchant transmission developer, TDI-NE is not required to prepare a
16 least cost integrated plan.

17
18 **SECTION 248(a): GENERAL GOOD OF THE STATE**

19 Q33. Will the Project promote the general good of the State of Vermont pursuant to Section
20 248(a)?

21 A33. In addition to meeting all of the individual criteria of Section 248(b), the PSB
22 must also find that the Project promotes the general good of the state. While the
23 individual, substantive criteria of Section 248(b) have been met, the Project will likely
24 require some upgrades to transmission and sub-transmission facilities in order to allow
25 the Project to reliably interconnect into the Vermont transmission system. These
26 individual projects would likely require approval under Section 248, and the NECPL

1 could only be built if these ancillary upgrades are approved. However, there is a circular
2 quality to the review process – the individual upgrades are necessary only to meet the
3 reliability issues created by the introduction of the NECPL. Accordingly, the PSB should
4 take into account the fact that the true impact of the NECPL includes these ancillary
5 upgrades. The Department would expect that TDI-NE would pay for the costs of these
6 ancillary upgrades and appropriate permitting would also address any environmental,
7 aesthetic, and safety concerns (each ancillary upgrade would need to meet the substantive
8 criteria of Section 248(b) in order to be constructed). Regardless, even though these
9 individual projects might not have *undue adverse* impacts, each project would likely have
10 some type of impact. This cumulative impact should be considered by the PSB in
11 determining whether the NECPL promotes the general good of the state.

12 The Public Benefits Funds discussed above would be one factor in considering
13 whether the cumulative impacts of the Project would be outweighed by the benefits, and
14 thus whether the NECPL promotes the general good of the state.

15

16 Q34. Does this conclude your testimony?

17 A34. Yes.

10. With respect to Table 3 (page 29 of Mr. Parker's prefiled testimony)

- a. Please provide the spreadsheet calculations and any other workpapers that support the derivation of Table 3.**

Response: Mr. Parker provided his workpaper as Exhibit TDI-SGP-10 that specifies (i) the zonal loads, (ii) zonal wholesale energy prices without the NECPL (Base Case) and with the NECPL, and (iii) resulting zonal savings (\$/MWh, percent, and total dollars), all expressed in nominal dollars and in 2014 dollars. The zonal wholesale energy prices and savings, in 2014 dollars, were summarized in Table 2 of Mr. Parker's prefiled direct testimony. Table 3 multiplies the Savings (\$/MWh) in the second column by the sum of the zonal Loads (TWh) in the third column over the ten-year Study Period to calculate the total Savings (\$ millions) in the fourth column, all in 2014 dollars. This fourth column is equal to sum of the last column of Savings, expressed in 2014 dollars, for each year provided in TDI-SGP-10. There are no other workpapers or spreadsheets responsive to this request.

- b. Please explain where the values in the column "Load (TWh)" were derived from.**

Response: The load values in Mr. Parker's Table 3 are the sum of the Load (MWh) entries from Exhibit TDI-SGP-10 over the 10-year Study Period. As explained in Mr. Parker's Exhibit TDI-SGP-9 of his prefiled direct testimony, the basis for these values was the ISO-NE 50/50 load forecast in the 2013 Regional System Plan ("2013 RSP"). Mr. Parker's response to DPS-1-16 explains how AURORAxmp creates hourly zonal loads based on the 2013 RSP peak and average load forecasts.

- c. Does the Vermont Load Zone consist solely of load located within the State of Vermont?**

Response: As explained below, Mr. Parker has now determined that in his initial analysis, the Vermont Load Zone did not consist solely of load located within the State of Vermont. By way of background, Mr. Parker calculated the reduction in wholesale energy prices and the resulting ratepayer savings (with and without hedges) based on ISO-NE's load forecast for the Vermont RSP Sub-Area, which is greater than the ISO-NE's forecasted load for the State of Vermont. Data for these two definitions of Vermont's load, taken from ISO-NE's 2013 RSP, are shown in the table below:

Load	2013	2022
Vermont RSP Sub-Area	7,425 GWh	7,995 GWh
Vermont State	6,695 GWh	7,110 GWh

As a result of responding to this question, Mr. Parker now recognizes that while his calculation of the total wholesale energy price reduction due to the NECPL correctly utilized the Vermont RSP Sub-Area load, he should have utilized the Vermont State load zone to calculate savings for Vermont consumers. Mr. Parker's calculations of energy and capacity savings for Vermont consumers as reported in his prefiled direct testimony and with this correction (all in 2014 \$) are provided below. TDI-NE will submit these corrected values as supplemental testimony at an appropriate juncture in the proceeding.

Load Data	Prefiled Direct Testimony		Corrected	
	Vermont RSP Sub-Area		Vermont State	
	w/o Hedge	w/ Hedge	w/o Hedge	w/ Hedge
Vermont Consumer Savings				
Energy Savings	\$201.0 M	\$150.8 M	\$178.5 M	\$133.9 M
Capacity Savings	\$121.1 M	\$ 90.8 M	\$ 101.2 M	\$ 75.9 M
Total Savings	\$322.1 M	\$241.6 M	\$279.7 M	\$209.8 M

- d. Please explain what the “total savings” by ISO-NE load zone represents. Does this estimate represent the savings in energy purchase expenses that all wholesale load in each zone would experience if such load simply paid the zonal LMP for energy in each hour and controlled no generation sources? If Mr. Parker’s estimate represents something different, please explain.*

Response: The Total Savings of \$1,590.7 million is the sum of the differences between zonal wholesale energy prices across all of ISO-NE with and without the NECPL, multiplied by the wholesale load for the ten-year Study Period, all expressed in constant 2014 dollars.

Person Responsible for Response to all subquestions: Donald Jessome in consultation with outside consultant and 248 witness Seth Parker.

- 11. Please explain how the interchanges between control areas (e.g., ISO-NE, NYISO, Quebec) were factored into Mr. Parker’s analysis of energy market savings, and how (if at all) such interchanges affect the formation of energy market prices in the analysis.*

Response: As summarized on page 28 lines 13-19 of Mr. Parker’s prefiled direct testimony and explained in more detail in Exhibit TDI-SGP-9, ISO-NE, IESO, NYISO, PJM, and New Brunswick were included in the AURORA_{xmp} transmission topology. Energy flows across these interchanges were modeled as economic flows in the AURORA_{xmp} chronological dispatch simulation. Energy flows across the interchanges between Quebec and both ISO-NE and NYISO were modeled as scheduled imports.

Energy exports from ISO-NE into other control areas would tend to increase wholesale