Date Filed: November 16, 2026

Witness: **Juan-Pablo Velez**
Request from: **Connecticut Industrial Energy Consumers**

Question CIEC-8:

Please refer to Velez Direct Testimony at page 83, lines 3-16, and page 84, lines 1-12 and footnote 76.

a. Please explain Mr. Velez's understanding of the basis for the difference between the Rate 5 and Rate 1 Transmission Service Rates, and state whether he contends that difference reflects marginal transmission cost.

b. Please explain Mr. Velez's understanding of whether the winter transmission charges in the Massachusetts heat pump rates he describes were designed to recover a winter transmission revenue requirement or were instead set at an estimate of marginal transmission cost.

c. Please identify any jurisdiction of which Mr. Velez is aware that has set the retail transmission charges for a heat pump rate at an estimate of marginal transmission cost, and provide a copy of the relevant decision or tariff.

d. For each Massachusetts heat pump rate Mr. Velez describes, please explain his understanding of how any reduction in distribution or transmission revenue resulting from the rate is recovered, including whether any portion is recovered from non-residential customers.

Response:

a. The difference between the Rate 5 and Rate 1 Transmission Service Rates comes from the method the Company uses to divide its transmission costs among its rate class groups. It does not reflect marginal transmission cost, and I do not contend that it does. The Company has not computed a marginal cost of transmission.[1]

The Company allocates transmission costs by "rate class group." A rate class group is either a single rate class, such as Rate 5, or several rate classes combined.[2] Rate 5 (Residential Electric Heating Service) serves homes that use electricity as their primary source of space heat and has been closed to new

[1] CL&P Response to CLF-SC-026, at 1 ("The Marginal cost of transmission was not computed for this rate design.").

[2] Docket No. 26-01-03, *PURA Annual Review of the Rate Adjustment Mechanisms of The Connecticut Light and Power Company*, CL&P Rates Filing, Attachment 1, Exhibit 4 ("RAM Exhibit 4"), at 4:11–20 (Feb. 17, 2026) (column headed "12 CP kW Demands by Rate Class," listing Rate 1, Rate 7 and Rate 5 separately); Joint Direct Testimony of Edward Davis and Kimberly R. Parsons on behalf of The Connecticut Light and Power Company d/b/a Eversource Energy ("Davis-Parsons Direct"), Exhibit CLP-RATES-3, at 429 (July 14, 2026) (table of allocators by "Rate Class Group," including "Rate 1 & Rate 7" and "Rate 5").

applicants since December 21, 2006.[3] For transmission, Rate 5 is a rate class group of its own, and Rates 1 and 7 are combined into another.[4]

The Company sets each rate class group's Transmission Service Rate in two steps, in its annual Reconciling Adjustment Mechanism filing:[5]

1. **A share of the Company's transmission costs.** The Company divides its total transmission revenue requirement among its rate class groups in proportion to each group's average demand at the Company's twelve monthly system peaks. This follows the way ISO New England bills the Company for regional transmission, based on its load at the peak hour of each month (CIEC-7(b)).
2. **A rate per kWh.** Each rate class group's share is divided by the group's annual sales, taken from a fixed past rate year (CIEC-7(d)), and grossed up for the gross earnings tax.

The Rate 5 and Rate 1 rates differ because the two groups' demand at the monthly peaks differs relative to their sales.[6]

Rate HP would not be a separate rate class group with its own share of transmission costs, as Rate 5 is. It would sit within the Rate 1 and Rate 7 rate class group, and would change how that group's share is divided among the customers in it (see CIEC-2(c)), not the size of the share relative to other rate class groups, including non-residential customer groups. Existing heat pump customers take service under Rate 1 today, so their demand at the monthly peaks is already counted in the group's share; moving them to Rate HP would leave that demand in the share. New heat pump customers' added demand would count toward the group's share in the same way, whether they took service under Rate 1 or Rate HP.

Moreover, rate classes within the same *group* can already have different Transmission Service Rates. Rate 7 is in the same group as Rate 1, but instead of Rate 1's 5.050¢/kWh in every hour, Rate 7 customers pay 11.741¢/kWh on-peak and 2.525¢/kWh off-peak.[7]

b. My testimony cites Massachusetts as precedent for a commission directing winter transmission reductions in heat pump rates.[8] The Massachusetts winter transmission charges were designed to recover a winter transmission revenue requirement. They were not set at an estimate of marginal transmission cost.[9]

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[3] Davis-Parsons Direct, Exhibit CLP-RATES-3 at 246 ("This rate is not available to new applicants after December 21, 2006"; available "only to customers who use electric energy as the primary space heating source").

[4] CL&P Response to CLF-SC-035, at 1 ("Rate 7 is included in the cost allocation and overall revenue requirement along with Rate 1"); RAM Exhibit 4 at 4:16–20 (Rates 1 and 7 combined, Rate 5 on its own).

[5] RAM Exhibit 4 at 4:11–20, 60 (each rate class group's share of the "Transmission & TAC Revenue Target" is its share of "12 CP kW Demands by Rate Class," defined as "Average rate class KW demands coincident to the Company's 12 monthly system peaks," and the rate is that share divided by "RY 2020 Billed Sales," plus gross earnings tax).

[6] RAM Exhibit 4 at 4:18, 20 (Rates 1 and 7 combined: 1,652,552.5 kW, $372,620 thousand, 7,916,705 MWh, 5.050¢/kWh with gross earnings tax; Rate 5: 338,287.6 kW, $76,278 thousand, 1,669,921 MWh, 4.901¢/kWh).

[7] Davis-Parsons Direct, Exhibit CLP-RATES-3 at 256; RAM Exhibit 4 at 2:17, 34 (Rate 7's "Transmission Target" of 5.050¢/kWh, divided into off-peak and on-peak rates using on-peak and off-peak shares of sales that are "set at Rate 1 percentages": 27.4% × 11.741¢ + 72.6% × 2.525¢ = 5.050¢).

[8] Direct Testimony of Juan-Pablo Velez on behalf of Conservation Law Foundation and Sierra Club ("Velez Direct"), at 84:3–12 (Oct. 21, 2026).

[9] D.P.U. 25-08-A, *Inquiry by the Department of Public Utilities on its own Motion into a Seasonal Heat Pump Rate*, Order on Seasonal Heat Pump Rates ("D.P.U. 25-08-A Order"), at 19 n.4 ("'cost-based' means that the winter transmission charges were structured to be revenue neutral, recovering the capital costs embedded in the transmission service revenue requirement through

The way they recover that revenue requirement, however, rests on the same premise as Rate HP: that the added winter electricity a heat pump uses adds little or no transmission cost. NSTAR Electric's method, which the DPU later directed National Grid and Unitil to follow, has four steps:[10]

1. Hold the residential class's transmission revenue target constant.
2. Estimate how much electricity the class would use if every residential customer heated with a heat pump. For NSTAR Electric, this nearly tripled winter usage, to 2.86 times its actual level, and slightly reduced summer usage, because heat pumps cool more efficiently than central air conditioners.
3. Set the summer rate so that summer still collects the same revenue as before. Because estimated summer usage is slightly lower, the summer rate rises slightly, from 4.545¢ to 4.890¢/kWh.
4. Divide the revenue that winter collected before by the much larger estimated winter usage.

In other words, the same winter dollars are spread over nearly three times as many kilowatt-hours, so the winter rate falls to about a third of the standard rate. NSTAR Electric's figures show this. Its standard transmission rate was 4.545¢/kWh, and its winter heat pump rate was 1.590¢/kWh, almost exactly 4.545¢ divided by 2.86.[11] Consider a gas-heated home that uses 1,000 kWh in the winter months and pays $45.45 in transmission charges on the standard rate. If it installs a heat pump and its winter usage rises to 2,860 kWh, it pays $45.47 on the heat pump rate: almost exactly the same transmission bill as before, despite nearly three times the usage.

For a typical heat pump household, then, the Massachusetts design adds nothing to the transmission bill for its added winter usage. Rate HP is more conservative: it charges a typical heat pump household the marginal cost of its incremental heat pump load.

The reason for charging heat pump customers less for transmission in winter is also the same as mine: transmission costs are driven by the summer peak. NSTAR Electric explained that transmission costs "are generally set in relation to system peak demand which typically happens in the summer." The DPU agreed that transmission costs are "well-suited to seasonal heat pump rate designs that reflect the timing and manner in which demand-related costs are incurred in a system that is currently summer peaking." It concluded that lowering winter transmission charges in National Grid's and Unitil's heat pump rates "is appropriate based on cost-causation principles and the need to advance the Commonwealth's climate and equity objectives."[12]

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adjusted winter sales"), 21 (directing National Grid and Unitil to "recover the winter transmission revenue requirement over the adjusted winter sales") (June 1, 2026); *see also* Velez Direct at 84 n.76 (quoting the same directive).

[10] D.P.U. 25-55, Direct Testimony of Richard D. Chin on behalf of NSTAR Electric Company d/b/a Eversource Energy ("Chin Direct"), Exhibit ES-HP-1, at 13:1–12 (winter sales adjusted by "2.86 times the original load," summer by "a nominal adjustment reflecting some efficiency gains over central air conditioning usage"; "The revenue target for Rate R-1/R-2 is held constant to produce revenue neutral seasonal rates"; the current rate "is multiplied against test year sales for the summer period and then divided by the adjusted summer period sales to arrive at a new summer period base distribution rate"), 13:15–19 (transmission rates "calculated in similar fashion to base distribution rates"; the winter transmission price "is then calculated to collect the remaining revenue requirement over the adjusted winter period sales") (Apr. 17, 2025); D.P.U. 25-55, *Petition of NSTAR Electric Company, d/b/a Eversource Energy for Approval of Residential Seasonal Heat Pump Rates*, Order, at 8 (July 29, 2025); D.P.U. 25-08-A Order at 21 (directing National Grid and Unitil to design winter transmission charges "consistent with the design of winter transmission charges approved for NSTAR Electric's heat pump rates").

[11] Chin Direct, Exhibit ES-HP-1 at 10:8 (Table 2). 4.545¢ ÷ 2.86 = 1.589¢; 1,000 kWh × 4.545¢ = $45.45; 2,860 kWh × 1.590¢ = $45.47.

[12] Chin Direct, Exhibit ES-HP-1 at 14:12–13; D.P.U. 25-08-A Order at 19, 20; *compare* Velez Direct at 16:4–5 (distribution and transmission marginal costs "are concentrated entirely in the summer").

The results are similar too. NSTAR Electric's winter transmission rate was 1.590¢/kWh when proposed, 65% below its annual rate of 4.545¢/kWh. Rate HP's winter transmission rate would be 1.258¢/kWh, 75% below Rate 1's 5.050¢/kWh.[13]

c. I am not aware of any jurisdiction that has set a heat pump rate's retail transmission charge at an estimate of marginal transmission cost. Nor do I propose that Rate HP do so.

Rate HP's winter Transmission Service Rate is not set at marginal cost. It is set so that a customer who switches from fossil fuel heating to a heat pump keeps paying the transmission bill they paid before (which continues to contribute to the embedded cost of the existing transmission system), plus the marginal cost of the load they add.[14] Only the added load is priced at marginal cost.

d. Each Massachusetts heat pump rate was designed as if every customer who enrolled were what I call in CIEC-1(a) a "new heat pump customer": a home that heats with fossil fuels, installs a heat pump, and enrolls at the same time. As described in part (b), each company estimated how much electricity its residential customers would use if every one of them switched from gas heating to a heat pump, and set its heat pump rates to collect the residential class's existing revenue target from that usage.[15] For a new heat pump customer, enrolling does not reduce revenue. Its winter usage rises by about the assumed amount, so it pays about what it paid before installing its heat pump (see the example in part (b)). This is essentially the same dynamic I describe for new heat pump customers under Rate HP in CIEC-1(a), except that under Rate HP they pay slightly more than before, because Rate HP also charges the marginal cost of their added load.

In practice, though, many of the customers who enrolled in Massachusetts were what I call "existing heat pump customers" (CIEC-1(a)): they already had heat pumps under the default rate. Before NSTAR Electric's rates launched, it automatically enrolled every customer who had received a Mass Save heat pump rebate since 2019.[16] National Grid likewise automatically enrolled customers who had previously received a Mass Save heat pump rebate.[17] NSTAR Electric's net enrollment was 71,490 customers in the rate's first month alone.[18] Unlike new heat pump customers, existing heat pump customers did not increase their usage when they enrolled, so they now pay less than they did on the standard residential rate. The Massachusetts companies did not raise their standard residential rates to make up that

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[13] Chin Direct, Exhibit ES-HP-1 at 10:8 (Table 2: Rate R-1/R-2 transmission of "$0.04545/kWh (Annual)"; heat pump rate transmission of "$0.01590/kWh (All other months)"); Velez Direct at 82 (Table 4).

[14] Velez Direct at 85:2–7.

[15] Chin Direct, Exhibit ES-HP-1 at 13:4–5; D.P.U. 23-150, *Petition of Massachusetts Electric Company and Nantucket Electric Company, each d/b/a National Grid, pursuant to G.L. c. 164, § 94 and 220 CMR 5.00, for Approval of a General Increase in Base Distribution Rates for Electric Service, a Performance-Based Ratemaking Plan, and a Capital Recovery Mechanism*, National Grid, Exhibit HP-1, Residential Heat-Pump Rate Implementation Plan ("National Grid Exhibit HP-1"), at 4 (Dec. 30, 2024).

[16] D.P.U. 25-08, NSTAR Electric Company Response to Information Request DPU-2-4 (Jan. 23, 2026) ("Before the launch of the rate on November 1, 2025, the Company automatically enrolled all customers who had received a heat pump from a Mass Save Sponsor after January 1, 2019.").

[17] National Grid Exhibit HP-1 at 8 ("all customers who previously received a Mass Save heat-pump incentive through the Company or Boston Gas (before the Heat-Pump Rate becomes effective) will be automatically enrolled into the Heat-Pump Rate").

[18] D.P.U. 26-143, NSTAR Electric Company d/b/a Eversource Energy, Revenue Decoupling Adjustment Factor Filing for Effect January 1, 2027 ("NSTAR 2026 RDAF Filing"), at 6 (Oct. 30, 2026; pending) (net enrollment of 71,490 in November 2025; "Customers who enrolled in a heat pump rate may have pre-existing heat pump installations in their homes.").

difference, as I propose doing with Rate 1's rates for Rate HP (CIEC-2(c) and CIEC-3(c)). Instead, the difference goes into decoupling. National Grid, for example, states that any shortfall "will be included in the Company's Revenue Decoupling Mechanism."[19]

How the difference is recovered. Like CL&P's Revenue Decoupling Mechanism and Transmission Adjustment Clause (CIEC-2(d)), the Massachusetts companies' reconciling mechanisms work at the level of the company as a whole, so a portion of the difference is recovered from non-residential customers:

- **Distribution.** All three companies' decoupling mechanisms compare actual base distribution revenue with the target for the company as a whole, then allocate the total over- or under-recovery to every rate class using fixed allocators set in the last rate case. Unitil computes the difference class by class, but then sums the differences "to develop a total Company shortfall or surplus" before allocating it. The allocators assign 39.4% of any shortfall to non-residential classes at National Grid, 49.2% at NSTAR Electric, and 38.8% at Unitil.[20]
- **Transmission.** National Grid and Unitil each track the transmission over- or under-recovery for the company as a whole, add it to the next year's cost forecast, and spread the total across all rate classes by their share of the system peak. National Grid's $44.4M under-recovery for October 2024 through September 2025 was allocated this way, with 46.4% going to non-residential classes. Unitil's 2027 transmission balances are spread the same way, with 54.9% going to non-residential classes. NSTAR Electric's tariff folds any over- or under-recovery into the next annual factor and does not limit it to the class that produced it. National Grid's new Heat Pump Transmission Service Charge changes how residential customers are billed, but nothing in its tariff keeps a shortfall in that charge with heat pump customers.[21]

What the DPU has done about it. The DPU anticipated that shortfalls could occur and that they would run through decoupling.[22] It now requires each company to report, in its annual decoupling filing, heat

[19] National Grid Exhibit HP-1 at 4.

[20] National Grid, Revenue Decoupling Mechanism Provision, M.D.P.U. No. 1635, at 1 (Distribution Revenue Allocator of "Rate R-1/R-2 60.6%"), 3 ("The amount of over- or under-recovery shall be allocated to the rate classes by applying the Distribution Revenue Allocator") (effective Oct. 1, 2026); NSTAR Electric, Revenue Decoupling Adjustment Mechanism, M.D.P.U. No. 60N, at 4 (the revenue requirement "shall be allocated to all rate class groups by applying the Base Distribution Revenue Allocator," Residential 50.795%) (effective Feb. 1, 2026); Fitchburg Gas and Electric Light Company d/b/a Unitil, Revenue Decoupling Adjustment Clause (Schedule RDAC), M.D.P.U. No. 500, at Sheet 4 ("The RDAF shall be calculated by comparing the difference between Annual Target Revenue to Actual Base Revenue for each rate class with the resulting differences summed to develop a total Company shortfall or surplus."), Sheet 6 (allocators approved in D.P.U. 26-39: RD-1/RD-2 61.18%, with HP-RES and HP-RES IE in the Residential group) (effective Nov. 1, 2026).

[21] National Grid, Exhibit PP-8, at 1 (single company-wide balance, ending Sept. 2025 under-recovery of $44.4M), and Exhibit PP-9, at 1, lines 2 (adding the under-recovery to the 2026 forecast), 5 and 6 (allocating the total by coincident-peak share, R-1/R-2 at 53.6%), both filed in D.P.U. 26-02; National Grid, Transmission Service Cost Adjustment Provision, M.D.P.U. No. 1640, at 1 ("The Company shall allocate the forecast of transmission costs and the balance of any over- or under-recoveries to its rate classes") (effective Nov. 1, 2026); Unitil, Schedule SED-3, at 3, lines 4, 10 and 12–18, and Schedule SED-4, at 3, lines 18, 22 and 28–34 (prior-year reconciliation added to costs, then allocated to class groups by 12-CP; RD-1/RD-2 at 45.15%) (D.P.U. 26-154, filed Nov. 2, 2026; pending); NSTAR Electric, Transmission Service Cost Adjustment, M.D.P.U. No. 48A, at 1 ("a full reconciliation and adjustment for any over- or under-recoveries occurring under the prior year's adjustment") (effective Jan. 1, 2025).

[22] D.P.U. 23-150, Order, at 512 n.230 (Sep. 30, 2024) ("the Department expects there to be a reduced chance of significant revenue shortfalls . . . through the revenue decoupling mechanism").

pump customers' billed revenue alongside what they would have been billed on the standard rate.[23] In NSTAR Electric's first report, its heat pump rate customers were billed $10.3 million in base distribution revenue from their enrollment through April 2026, compared with $33.2 million on the standard rate for the same usage.[24] That comparison overstates the revenue the company lost, however, because it mixes existing and new heat pump customers — both of which were and are auto-enrolled across the state — and only existing heat pump customers reduce revenue (CIEC-1(a)). New heat pump customers enrolled on the heat pump rate at the same time they increased their winter usage, so enrolling did not reduce the revenue they paid. In short, Massachusetts produces an estimate of the shortfall, and an overestimate at that, but recovers the shortfall entirely through its reconciling mechanisms, so part of it is paid by non-residential customers.

How Rate HP improves on this. Connecticut can learn from Massachusetts's experience in two ways. First, Rate HP plans for existing heat pump customers. When rates are set, the revenue they would no longer pay (for example, after a one-time mass auto-enrollment of Energize CT rebate recipients, as described in CIEC-1(a) and CIEC-1(b)) is built into Rate 1's rates, within the same rate class group (part (a) and CIEC-2(c)). The Massachusetts companies, by contrast, did not raise their standard residential rates to make up the revenue that the existing heat pump customers they auto-enrolled no longer pay. Second, for any shortfall that arises between rate cases, for example because enrollment differs from the forecast, I recommend that the Authority adopt Massachusetts's reporting requirement and go one step further: direct the Company to recover the shortfall from residential customers only (CIEC-2(d)). Together, these would keep Rate HP's effect within the residential class, a result the Massachusetts rates do not achieve.

[23] D.P.U. 25-08-A Order at 2, 41 (directing the companies to report "the billed revenues recorded from heat pump customers in their annual revenue decoupling filings and to compare those revenues to the amounts that would have been billed if those customers had not enrolled in the heat pump rates").

[24] NSTAR 2026 RDAF Filing at 6 (billed winter base distribution revenue from each customer's enrollment through April 2026 of $10,320,004 on the heat pump rate and $33,211,094 on the non-heat pump rate; "[t]he underlying usage used for the revenue comparison is the same").