Date Filed: November 16, 2026

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

**Question CIEC-1:**

Please refer to Velez Direct Testimony at page 6, lines 11-23; page 7, lines 1-12; and page 81, lines 10-16.

a. Please provide Mr. Velez's estimate of the total annual reduction in (i) distribution revenue and (ii) transmission revenue that the Company would collect under Rate HP, relative to Rate 1, for each of the first five years after Rate HP takes effect. Provide all workpapers in Excel format with formulas intact.

b. Please provide Mr. Velez's estimate of the number of existing heat pump customers who would be automatically enrolled in Rate HP, and identify the source of that estimate.

c. Please provide Mr. Velez's estimate of the number of customers who would be newly enrolled in Rate HP in each of the first five years after it takes effect, and identify all assumptions used.

d. If Mr. Velez has not prepared the estimates requested in parts (a) through (c), please explain why not.

**Response:**

a. The revenue reduction that would result from heat pump customers enrolling in Rate HP rather than Rate 1 depends largely on whether PURA decides to auto-enroll known customers who already have heat pumps ("existing heat pump customers") and are currently overpaying under Rate 1. Customers who currently heat with fossil fuels and choose to install heat pumps in the future ("new heat pump customers") and are automatically switched from Rate 1 to Rate HP at the time of installation would actually produce slightly more revenue for the Company upon enrolling in Rate HP, on average, not less.

1. **Existing heat pump customers**: When Massachusetts rolled out seasonal heat pump rates comparable to Rate HP, its investor-owned utilities auto-enrolled more than 100,000 customers who had received heat pump rebates through Mass Save in the first year.[1] If PURA decides to follow suit by asking the Company to auto-enroll every customer who has received a heat pump rebate through Energize CT, as I recommend in my testimony, I estimate that about 55,000 of the Company's existing heat pump customers would be switched from Rate 1 to Rate HP in a one-time mass auto-enrollment (see part (b) for details on that estimate). If that enrollment occurs in 2027, the Company would collect **$39.8 million** less in distribution and **$17.4 million** less in transmission that year, and approximately the same amount less every year thereafter.

   These customers who would be auto-enrolled in this scenario already have heat pumps and are presently enrolled in Rate 1. This means they are already overpaying for T&D under Rate 1, by an

[1] NEEP, *Getting the Price Signals Right: Aligning Rate Design With Heat Pump Usage*, at 27 (Nov. 2026) ("Any customer that received a heat pump rebate through Mass Save was automatically enrolled. In the first year, this led to more than 100,000 residents enrolling in the rate.").

average of $1,040 a year, on a T&D bill of $2,377. Under Rate HP, they would instead pay an average of $1,337 per year.[2] Because the Company is presently overcharging these customers every year, the average per-customer revenue reduction of $1,040 per year that would result from switching an existing heat pump customer from Rate 1 to Rate HP represents a revenue shortfall that would need to be recouped from other residential customers. Indeed, this is intentional: one goal of Rate HP is to unwind an unfair cross-subsidy that flows from residential customers who already have heat pumps to those who heat with fossil fuels.[3]

However, PURA could instead choose to make existing heat pump customers *eligible* for Rate HP, but without auto-enrolling Energize CT rebate recipients en masse. In that scenario, I would expect an order of magnitude fewer customers to enroll, because each would have to become aware of the rate and take steps to apply on their own. This added friction is why opt-in heat pump rates elsewhere have drawn very little participation: Central Maine Power's seasonal heat pump rate pilot peaked at 3,134 enrolled customers, well under the pilot's 5,000-customer cap, and Con Edison's Steady Use Rate — designed to save a typical heat pump customer roughly $500 a year — had enrolled only about 500 households as of December 2025, barely 1% of the more than 40,000 heat pump installations that have received rebates.[4]

2. **New heat pump customers**: If PURA decides to auto-enroll all customers who currently heat with fossil fuels but choose to install a heat pump in the future, I estimate that between 3,460 and 10,976 customers a year would be auto-enrolled (see part (c) for details on this estimate). Unlike switching an existing heat pump customer, switching a new heat pump customer from Rate 1 to Rate HP at the same time that they install their heat pump *increases* the revenue the Company collects from that customer, rather than decreasing it.

That is because customers who choose to install heat pumps in the future are not yet paying an additional $1,051 a year for T&D: they are currently on Rate 1, but they have yet to electrify their heating, so their winter kWh have not gone up yet. Switching them from Rate 1 to Rate HP at the same time that they install their heat pumps (and increase their winter kWh) does not decrease the amount of revenue the Company collects from them — revenue that would need to be collected from other residential customers.

On the contrary, auto-enrolling these customers onto Rate HP at install time would slightly *increase* the annual T&D revenue the Company collects from each of them ($1,337, on average) after heat pumps, compared with what they paid under Rate 1 ($1,326) before heat pumps. This is not an accident: Rate HP is purposefully designed so that, on average, customers with heat pumps pay their pre-heat-pump T&D

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[2] Direct Testimony of Juan-Pablo Velez on behalf of Conservation Law Foundation and Sierra Club ("Velez Direct"), at 23:9–10 (Oct. 21, 2026) (the average fossil-heated customer overpays by $1,040 a year), 23 n.19 (their post-heat-pump T&D bill is $2,377 under Rate 1). Their Rate HP bill is the Rate 1 bill less the overpayment, which Rate HP is designed to remove (*id.* at 85:2–7). These T&D bills include the customer charge.

[3] *Id.* at 27:11–13 (a cross-subsidy within a rate class arises when one identifiable group "systematically pays more than their cost of service, and that excess revenue allows the customers of another identifiable group to pay less"), 28:19–21 (heat pump customers' overpayment "contributes directly to a cross-subsidy to electric customers that heat with fossil fuels"), and 29:7–17 (that cross-subsidy "violates intra-class equity" and is "*systematic*, *substantial*, and will continue to *grow with electrification*").

[4] Me. P.U.C. Docket No. 2022-00152, Central Maine Power Company, *Final Report*, Attachment 1 at 2 (Dec. 5, 2025) (3,134 customers enrolled in the Seasonal Heat Pump rate in December 2024, net of disenrollments); Me. P.U.C. Docket No. 2021-00325, *Investigation into Transmission and Distribution Utility Rate Design to Promote State Policies*, *Order Approving Seasonal Rate*, at 2 (Oct. 26, 2022) (pilot rate "would be available to no more than 5,000 customers"); Mona Zhang, "How NY heat pump users got stuck with higher bills," *E&E News* (Mar. 3, 2026) (Con Edison: "only about 500 households — barely 1 percent" enrolled in the Steady Use Rate as of December, of "more than 40,000 heat pumps" installed; the rate can reduce winter heating bills "by an average of roughly $500 a year").

bill, plus an additional $10 to cover the incremental T&D costs their heat pump causes.[5] Auto-enrolling new heat pump customers would therefore not reduce the total revenue the Company collects from this population. It would increase it.

Tables 1 and 2 below put these revenue increases and decreases together to give the *net* change in the Company's distribution and transmission revenue that would result from Rate HP in each of the first five rate years, in millions of dollars, for my low and high estimates of new heat pump customers. Every figure appears on the revenue sheet of CIEC-1 Attachment 1 (Excel, formulas intact).[6]

**Table 1. Net revenue change from mass auto-enrollment of existing heat pump customers and ongoing auto-enrollment of new customers, low estimate of new customers (millions of dollars)**

| Rate year | Existing customers enrolled | New customers enrolled | Revenue reduced, dist | Revenue reduced, tx | Revenue increased, dist | Revenue increased, tx | Net change, dist | Net change, tx |
|---|---|---|---|---|---|---|---|---|
| 2027 | 55,000 | 3,460 | 39.799 | 17.420 | 0.008 | 0.028 | -39.791 | -17.392 |
| 2028 | 55,000 | 6,920 | 39.799 | 17.420 | 0.015 | 0.056 | -39.783 | -17.364 |
| 2029 | 55,000 | 10,380 | 39.799 | 17.420 | 0.023 | 0.084 | -39.776 | -17.336 |
| 2030 | 55,000 | 13,840 | 39.799 | 17.420 | 0.031 | 0.112 | -39.768 | -17.308 |
| 2031 | 55,000 | 17,300 | 39.799 | 17.420 | 0.038 | 0.140 | -39.760 | -17.280 |

**Table 2. Net revenue change from mass auto-enrollment of existing heat pump customers and ongoing auto-enrollment of new customers, high estimate of new customers (millions of dollars)**

| Rate year | Existing customers enrolled | New customers enrolled | Revenue reduced, dist | Revenue reduced, tx | Revenue increased, dist | Revenue increased, tx | Net change, dist | Net change, tx |
|---|---|---|---|---|---|---|---|---|
| 2027 | 55,000 | 6,272 | 39.799 | 17.420 | 0.014 | 0.051 | -39.785 | -17.369 |
| 2028 | 55,000 | 13,328 | 39.799 | 17.420 | 0.030 | 0.108 | -39.769 | -17.312 |
| 2029 | 55,000 | 21,168 | 39.799 | 17.420 | 0.047 | 0.171 | -39.752 | -17.249 |
| 2030 | 55,000 | 30,576 | 39.799 | 17.420 | 0.068 | 0.247 | -39.731 | -17.173 |
| 2031 | 55,000 | 41,552 | 39.799 | 17.420 | 0.092 | 0.336 | -39.706 | -17.084 |

**Notes on Tables 1 and 2**

- The initial mass auto-enrollment of Energize CT recipients is likely to miss some existing heat pump customers, who may voluntarily enroll in the first five years. The number of such customers is likely to be an order of magnitude lower than the number auto-enrolled, but I have no basis for estimating it, so I have left it out. By the same token, if PURA declines to auto-enroll existing heat pump customers, I would expect an order of magnitude fewer of them to voluntarily opt in. In that

[5] Velez Direct at 23:2–5 (average fossil-fuel heated customer's post-heat pump T&D charges rise $1,051 a year under Rate 1), 20:7–8 (incremental marginal T&D cost of $10 a year), 85:2–7 (Rate HP sets the post-heat-pump T&D bill equal to the pre-heat-pump bill plus that incremental cost).

[6] CIEC-1 Attachment 1, CIEC-1a_rate_hp_revenue_reduction.xlsx, sheet revenue: the per-customer decrease and increase in rows 4–5, and the low and high estimates year by year below them. The README sheet explains each input.

scenario, the revenue reduction from existing heat pump customers would likely shrink by an order of magnitude or more.

- Assumptions: Both tables assume every customer who has already received a heat pump rebate through Energize CT is auto-enrolled, that every new heat pump customer receives an Energize CT rebate and is likewise auto-enrolled, and that no auto-enrolled customer opts out. Loads and rates are held constant.
- Rate HP would take effect at the start of the Rate Year, July 1, 2027. I number each rate year by the calendar year in which it begins, from 2027 (July 2027 through June 2028) to 2031.
- The customer archetype use to represent both existing and new heat pump custoemrs is the average fossil fuel-heated electricity customer in the Company's territory, the same customer my direct testimony uses to set Rate HP.[7]
- As in my testimony, switching an existing heat pump customer from Rate 1 to Rate HP reduces the revenue collected from them by **$1,040.34** a year: **$723.61** in distribution and **$316.73** in transmission, because Rate HP lowers both charges from November through March.[8]
- Enrolling a new heat pump customer in Rate HP at the time of installation increases revenue by **$10.30** a year: **$2.22** in distribution and **$8.08** in transmission — the incremental marginal T&D cost the heat pump imposes, which Rate HP is designed to recover. The customer archetype for both figures is the average fossil fuel-heated electricity customer in the Company's territory, the same customer my direct testimony uses to set Rate HP.

b. My direct testimony recommends that the Company auto-enroll every residential customer who received a heat pump incentive through Energize CT or another state or utility program.[9] (Customers who installed a heat pump outside those programs would be able to voluntarily enroll in Rate HP by attestation.[10])

How many Eversource customers have received a heat pump incentive through the Company's Conservation and Load Management programs, branded Energize CT, and would therefore be auto-enrolled in the first rate year? About **55,000**, or 4.5% of the residential customers the Company filed for the Rate Year.[11]

This figure is an estimate, because the Company publishes the number of heat pump systems that were installed, not the number of customers who installed them, and these numbers are not the same[12] The

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[7] Ex. JPV-2, Section 2 (representative home profiles); *see also* CIEC-1 Attachment 1, sheet revenue, rows 4–5 (the revenue decrease and increase per customer of this archetype).

[8] Rate HP lowers the distribution energy charge from 12.196¢ to 3.533¢ per kWh and the transmission charge from 5.050¢ to 1.258¢ per kWh in November through March. Summer rates, other riders, generation rates, and the customer charge are those of Rate 1. *See* Velez Direct at 82:10–83:2.

[9] *Id.* at 93:7–12 ("the Company should auto-enroll all known electric customers who have previously installed heat pumps. . . . a portion of these customers are readily identifiable by the Company, those that previously received a heat pump incentive through EnergizeCT or any other relevant state or utility program").

[10] *Id.* at 96:9–11 ("For customers who installed heat pumps outside of incentive programs, an attestation process — as Massachusetts uses — can identify them.").

[11] CIEC-1 Attachment 1, CIEC-1a_rate_hp_revenue_reduction.xlsx, sheet enrollment, table "Existing customers" (installations by heat pump type, systems per home, and homes, with the total rounded to the nearest thousand).

[12] CLF and Sierra Club asked the Company for this count. It gave about 4,400 customers, counting only full-displacement rebates from a program that began in 2023. This number is note accurate: Energize CT's dashboard shows 33,852 installations since

Company's Energize CT dashboard tallies heat pump installations that received a program incentive. For residential customers, it shows 67,306 space-heating heat pump installations from 2017 through 2026 to date, across mini-split, ducted air-source, ground-source, packaged terminal, and variable refrigerant flow heat pumps. The count includes every rebated installation, including both full and partial displacement of the prior system, regardless of whether the prior system used fossil fuels or electricity.[13]

An installation is not a customer, and counting installations overcounts customers in three ways. First, a mini-split installation is one outdoor unit, and many homes have more than one. Second, a home can install more than one kind of heat pump, such as a ducted system and a mini-split. Third, a home can receive incentives in more than one year. Correcting for the first problem brings the count to about 55,000 customers.[14] The other two problems cannot be corrected from the published data, so **55,000** customers is an upper estimate.

Although the Company only publishes statistics about *installations*, it knows which *customers* received these rebates because the rebate application requires the customer's electric account number.[15]

c. I estimate that between **3,460** and **10,976** customers a year would install heat pumps and be enrolled into Rate HP, or a total of 17,300 to 41,552 between 2027 and 2031. The low end of that range comes from the Company's own forecast of heat pump installations, and the high end from ISO New England's equivalent forecast. I discuss each in turn.[16]

The low estimate is the Company's forecast of residential customers who will install a heat pump through Energize CT: 3,528 in 2026 and 3,460 in 2027. The forecast ends in 2027, so I hold the 2027 figure flat for each year from 2028 through 2031.[17] It excludes heat pumps installed outside the programs, which is why I treat this forecast as a floor.[18]

The ceiling is ISO New England's forecast of homes in the Company's territory adding a heat pump for space heating: 6,272, 7,056, 7,840, 9,408 and 10,976 customers in 2027 through 2031.[19] ISO New

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2023 alone. CL&P Response to CLF-SC-003(a), at 1 ("rebate program which began in 2023 . . . approximately 4,400 customers who have received heat pump rebates that indicate full displacement of other heat sources").

[13] Eversource Connecticut, *Energize CT Heat Pump Installations, 2017 through November 2026*, at sheets Detail and Export (downloaded Nov. 10, 2026).

[14] Mini-split installations divided by 1.37, the outdoor units per home among 90 surveyed ductless heat pump (mini-split) rebate participants, from a 2019 evaluation of 2015–2016 installations; every other installation counts as one home. DNV GL, *R1617 Connecticut Residential Ductless Heat Pumps Market Characterization Study*, at 4-2 (June 20, 2019) ("The 90 participants surveyed installed 123 DHP outdoor compressor units with a total of 210 indoor heads.").

[15] The application requires the customer's "Electric Account Number (as stated on bill)," even when the rebate check is made payable to the installing contractor. Eversource and UI, *2023 Residential Air Source Heat Pump Energy Optimization Rebate Form*, at 1–2.

[16] CIEC-1 Attachment 1, CIEC-1a_rate_hp_revenue_reduction.xlsx, sheet enrollment, tables "New customers enrolling each year" and "Cumulative customers enrolled in Rate HP".

[17] The forecast ends in 2027 because it is built from the program budgets of the 2025–2027 Energy Efficiency Plan. CL&P Response to CLF-SC-002(c), at 1 ("The Electrification forecast through the C&LM program are based on projected Program budgets through 2025-2027. . . . the C&LM forecast does not project Electrification outside our programs.").

[18] CL&P Response to CLF-SC-001, Attach. 1, sheet Heat Pump Analysis, cells C23–C24 (Sep. 18, 2026) ("Planned Residential Customer installing Heat pump in 2026 and 2027 through C&LM program": 3,528 for 2026 and 3,460 for 2027); CL&P Response to CLF-SC-001, at 1 ("these are customers that will be using C&LM incentives. Other heat pumps not installed though the C&LM program are not captured in the attachment.").

[19] ISO New England forecasts Connecticut as a whole: 8,000, 9,000, 10,000, 12,000 and 14,000 homes in 2027 through 2031. I scale each year to the Company's territory by multiplying it by the Company's share of the households served by Connecticut's

England's forecast is a less direct guide to enrollment than the Company's: it is a regional planning forecast, based on each county's building stock, state policy, and economic factors, rather than on utility program budgets.[20] It also counts every home that adds a heat pump, whether or not it receives an incentive. For both of these reasons, I treat it as the ceiling.

Every customer who installs a heat pump is assumed to enroll and stay enrolled, joining in the rate year that begins in July of the year they install. These are *new* customers: as part (a) explains, they pay their bill from before the heat pump plus the incremental marginal T&D cost the heat pump causes, so they produce more revenue under Rate HP than under Rate 1.

d. The estimates are provided in parts (a) through (c).

two investor-owned electric utilities. ISO New England, *Final 2026 Heat Pump Forecast*, at 8 (May 1, 2026) (Annual Incremental Increase in HP Stock (1,000 Housing Units), residential space heating, CT: 8, 9, 10, 12, and 14 for 2027 through 2031). Each year's additions are multiplied by 78.4%, Eversource's share of the households served by Eversource and United Illuminating: the survey's population frame counts 586,270 Eversource households and 477,106 Eversource households in environmental justice communities, out of 1,356,355 Eversource and United Illuminating households in total ((586,270 + 477,106) ÷ 1,356,355 = 78.4%). NMR Group, *R2202 Residential Appliance Saturation Survey (RASS) Report*, at 17 (Sep. 17, 2025) (Table 6, Sample Size and Achieved Completes).

[20] ISO New England forecasts adoption "at the county level considering building stock characteristics, state policy, and economic factors," then applies "Market Segmentation Parameters" to reach a forecast by sector, pathway, building type and county. ISO New England, *Final 2026 Heat Pump Forecast*, at 4, 6. For 2026 it cut its adoption forecast by 5% across all sectors and heating types. *Id.* at 5.