To: Rhode Island Energy Efficiency Council (EEC)
From: Kevin O'Neill, RI chapter of Citizens Climate Lobby (CCL)
Re: 2027–2029 System Reliability Procurement Plan — ConnectedSolutions
Date: October 14, 2026

Rhode Island can reduce electricity costs for all customers by improving the utilization of its existing electric distribution infrastructure. The Energy Efficiency Council should recommend that Rhode Island Energy establish a per-kWh credit for electricity used by qualifying heat pumps and electric vehicle chargers, conditioned on enrollment in ConnectedSolutions and participation in demand management.

Background

In PUC Docket 25-45-GE, Conservation Law Foundation (CLF) argued that customers using heat pumps have been consistently overcharged and that this defect in rate design should be corrected through a new "heat pump rate". Rhode Island Energy (RIE) agreed to study the issue and submit a proposal for PUC consideration.

There is an alternative remedy for the rate defect that CLF identified, a remedy that we believe is better framed around the indisputable fact that all ratepayers would benefit if the distribution system's capacity utilization factor could be increased.

Numerous studies have shown that the widespread adoption of heat pumps will significantly increase total kWh consumption during the heating season, and that could raise the average annual capacity factor. Widespread adoption of EVs could do the same. However, the capacity utilization factor will only increase to the extent total kWh consumption grows faster than peak demand. To maximize the increase in the capacity utilization factor, new heat pump and EV loads need to be actively managed to avoid increasing peak demand. Unfortunately, RIE does not seem to be on track to manage that.

Less than 5% of the EVs registered in Rhode Island are currently enrolled in ConnectedSolutions. Probably an even smaller percentage of existing heat pumps are enrolled. Both percentages will need to be greatly increased to avoid a near-term increase in peak summertime demand and to minimize even greater investments that will otherwise be needed to cope with the occasional mismatches between electricity supply and demand that ISO-NE has reported could arise in winter by the mid-2030s.

PUC Order 24942 (Docket 23-07-EE), squarely addressed this possibility of lowering average cost by managing demand growth in ways that avoid the need for incremental system investment. It explicitly clarified "the Commission's intention that investments that grow demand for electric supply (e.g. fuel-switching to heat pumps) are not energy efficiency but could be proposed as DSM." We suggest that now is the time for the EEC to push RIE to do that.

Suggested elements of a DSM proposal to reduce the average cost per kWh through beneficial electrification of heating and transportation

1. A commitment to accelerate the adoption of heat pumps and EVs through a reduction in the price of each kWh used by those machines, and to manage the coincident kW demand of those machines for the benefit of all ratepayers.
2. Actualizing that price reduction through monthly ConnectedSolutions credits rather than through a new EV or heat pump rate.
3. Awarding credits based on measurements of the electricity consumed by qualifying air-source and ground-source heat pumps, heat-pump water heaters, and EV charging equipment.
4. Mandatory ConnectedSolutions enrollment to qualify for these credits.
5. Exclusion of designated peak-period consumption from credits, creating an additional incentive to avoid using electricity when the system is most constrained.
6. An evolving approach to the challenges of both kWh measurement and demand management.
7. Annual evaluation of program performance, including the calculation and reporting of such metrics as:
    - The number and estimated percentage of EVs and heat pumps enrolled in ConnectedSolutions
    - Total annual kWh usage, total kW rating, and coincident peak demand of those machines in summer and winter
    - Impact of EV and heat pump usage on system-wide peak demand, annual capacity utilization factor (both system-wide and location-specific)
    - Program expenses
    - Effects of EV and heat pump electricity demand on average delivery costs and customer bills (not just on average, but also comparing the effects for those who receive the credits vs. those who do not).

Additional guidance or justification for those elements

(1) Since so many other factors will influence ratepayers' decisions to buy and operate heat pumps and EVs, it will be hard to discern how much this program accelerates their adoption. But we know that the potential for cost savings is one driver of consumer decisions and we expect that the proposed credits could magnify potential cost savings by several hundred dollars per year. As for managing the peak demand arising from EVs, RIE's existing EV demand response

program offers a very small ($50) incentive for enrollment and an even smaller ($20/yr) incentive to stay enrolled. This new program would be substantially more valuable to EV owners than the current program and would therefore induce a higher fraction to enroll. Incentives for heat pump enrollment in ConnectedSolutions are similarly puny today. The proposed credits would, in contrast, be worth many hundreds of dollars per year.

(2) RIE already issues annual credits to owners of enrolled batteries based on measurements of average kW delivered to the grid during demand response incidents. From RIE's perspective, the algorithm required by this new program would be similar to the one used for the battery program, except for collecting kWh data rather than kW data and scaling up the software platform's capacity to handle a substantially larger number of devices and analyze more data per device per year.

(3) Ideally RIE's new meters, with the Sense software installed, would be reporting EV and heat pump energy usage already. Unfortunately, we have heard that Sense is not very reliable when tasked with measuring energy usage by variable speed heat pumps, i.e. the kinds of heat pumps being installed now. Fortunately, other measurement methods are available today and even better methods should be available in the future.

Other utilities offer discounted EV charging rates based on usage reported by the telemetry built into EVs and EV chargers; and telematics might be best solution for most EVs and for new EV chargers. We have seen similar telematics built into heat pump water heaters, and we expect that similar telematics will ultimately be available in all mini-splits and other heat pumps at some point in the future. However, at present, we think that many ratepayers with heat pumps already installed would need to have inexpensive energy monitors installed inside their main electric panel at their own expense. Having installed a number of these ourselves, we estimate the installed cost would be less than $200 for residential customers if the energy monitor is installed simultaneously with new heat pumps. That is cheap compared to what the customer would save by enrolling in the credit program. Assuming a credit value on par with the delivery charge discounts offered by heat pump rates in other states, a customer receiving heat pump energy use credits would recover the installed cost of an energy monitor in less than one heating season.

Basing credits on actual measurements of EV and heat pump energy consumption will yield additional benefits to the company and to the owners of those machines. By collecting actual usage data, it will be much easier for RIE to know how well the enrolled heat pumps and EVs responded to demand control signals and to test different approaches to demand side management. That same usage data will make it clearer to owners of heat pumps and EVs how those machines are affecting their energy bills. And the details that can be discerned through

direct measurement will open up new opportunities for predictive heat pump maintenance and for optimizing daily heating efficiency.

In contrast, basing a heat pump rate or heat pump energy use credits on the heating capacity of the installed heat pumps could induce the sellers of heat pumps to oversize equipment in their quotes. (Oversizing can reduce annual efficiency and lead to poor humidity control in summer.) Basing incentives on the total building energy use rather than technology-specific energy use could lead to inequitable distribution of those incentives and might actually retard some replacements of inefficient electric resistance heating.

(4) Most heat pumps installed prior to 2027 probably do not include the components necessary for them to be controlled by ConnectedSolutions today. But we are at least a few years away from the time when RIE will need rigorous control of heat pumps to manage peak demand. In the meantime, if heat pumps are enrolled, there are other, softer ways to control them. (For example, knowing that specific home owners consistently turn on their heat pumps for cooling in late afternoon rather than run them steadily to precool while electricity is cheap, RIE could send very targeted reminders to run those heat pumps as experts recommend.) To head off bigger problems in the mid-2030s, the important thing is to enroll heat pumps in ConnectedSolutions when they are installed, thus sending clear signals to heat pump manufacturers and DSM software providers that they should be building adequate telematics into those appliances, and avoiding the need to recruit heat pumps owners later into ConnectedSolutions. When the time comes that they must be controlled, it is important that they can be controlled.

(5) The inexpensive energy monitors we have used report usage for in 15-minute time buckets coincident with the 15-minute reports currently available from RIE's advanced meters. They are typically accurate to ±1%, and they also report usage in 1-minute and 1-second intervals. This should make it possible to apply filters to the energy use data, thus not issuing credits for energy used at times when the company asked that demand be reduced.

(6) It is appropriate that the company plan on an evolving approach to heat pump energy usage measurement and demand management because official standards for those functions have only recently been established, are still in flux, and have not been implemented by all manufacturers on all models.

(7) Given the nascent status of heat pump demand management, we expect that program expenses would likely include some software development expense at the beginning to enable reliable connections between the ConnectedSolutions software platform, the energy monitors and other devices that will be reporting energy usage, and the heat pumps to be managed.