LD 2140 Resolve, to Pilot a Behavioral Demand Response Program to Lower Electric Bills and Improve Grid Reliability

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Testimony of Carl Wilcox, P.E.
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Minot
Testifying as a resident user of CMP electricity

Honorable Senator Lawrence and Representative Sachs and Energy, Utilities, and Technology Committee Members,

I'm against LD 2140 because the Tine of Use (TOU) tariff rate is largely a scam by CMP. The TOU tariff benefits a very small portion of households. CMPs failure to provide power user analysis tools effectively obfuscates a user's power consumption. If the TOU tariff is promoted, it will result in people paying more than staying with the Residential A tariff. Promotion of home battery systems would be much more impactful in reducing peak demand than behavior modification.

Following is the current CMP TOU and Residential Rate A tariff rates published on CMP's website.

Effective **January 1, 2026**, the TOU on- and off-peak hours and rates are as follows:

Hours

- **On-Peak Hours:** 5:00 p.m. to 9:00 p.m. (Monday through Friday, excluding holidays)
- **Off-Peak Hours:** All other hours

Rates

	Rate TOU	Rate A
Service Charge	$26.71	$30.21*
Rate per kWh On Peak	$0.503144	All hours rate: $0.136474
Rate per kWh Off Peak	$0.067452	N/A

** Includes the first 50kWh of usage.*

First, I challenge you to analyze your power use data to determine if it makes economic sense for your household to change to the TOU tariff. Only then will you be able to fully appreciate CMP's obfuscation. CMP finished installing smart meters 15 years ago. Why haven't they been able to implement and coordinate with existing application providers, available to consumers of other electrical utilities, to analyze a customer's data. Unless there is an app out there that I'm not aware of designed to interface with CMP's data, a customer must download a XML or CSV file, and manipulate the data and save it into a XLS spreadsheet and then analyze it to determine if TOU makes economic sense for your household. The hurdles of entry are too high, and I contend TOU is a bad deal for all but a small portion of the population.

I'm a single semi-retired man who lives alone. I work at home, and have no high electrical energy consuming hobbies, no hot tub or electric sauna. I generally eat at home cooking my own meals. My 2006 manufactured house which is fairly well insulated is heated using heat pumps installed in 2023. I have an oil furnace that prior to installation of the heat pumps heated the home through hydronic baseboard and heated the domestic hot water. In May 2025 I installed an electric heat pump hot water heater. My oil furnace has been turned off since May 2025.

First, I analyzed the breakeven point for the maximum percentage of household electricity to be used during the TOU peak period (5:00 pm through 9:00 pm) that would result in a savings over the Residential Rate A.

- The 4-hour TOU peak power period during the week excluding holidays is 11% of the hours per year.
- If one's power use was constant non-varying throughout 24 hours, one's household would use 11% of its power during the TOU peak period.
- Of course, a household uses more power when people are awake and at home. And of course, when they are preparing meals and doing household cleaning power use is greater. It is obvious why peak power consumption occurs from 5:00 pm to 9:00 pm.
- By the math, if a household uses more than 14.5% of its power during the TOU peak it will pay more than if they remained on the Rate A rate.
- 14.5% is very close to 11%. That is why the CMP TOU rate is a scam.

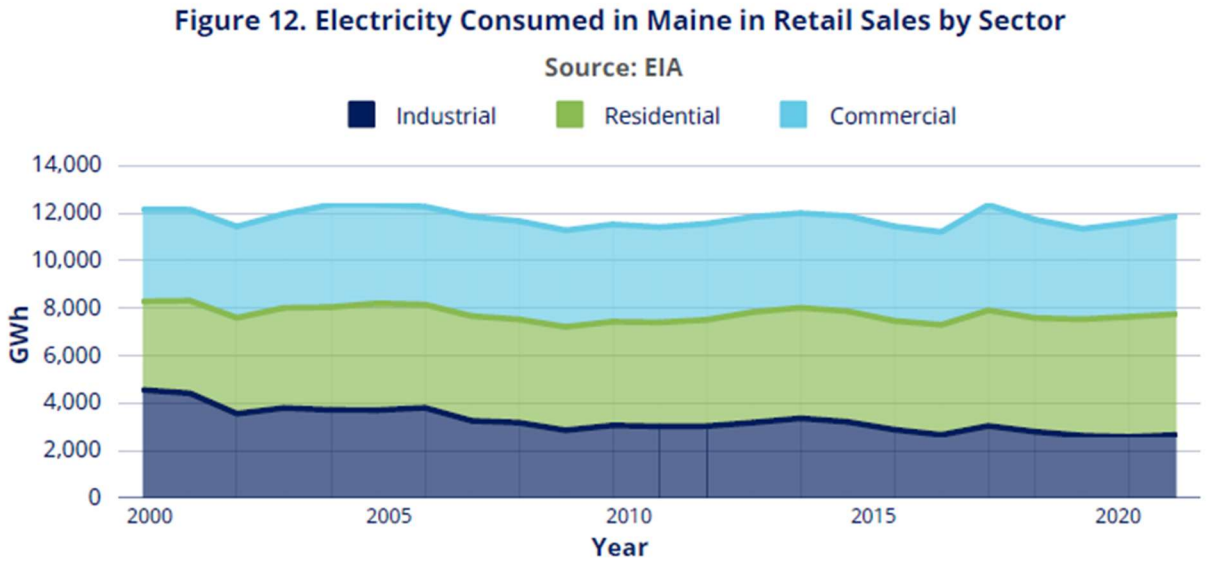
- I contend that unless everyone in the household is either not home during the TOU on-peak period or they are asleep, they will have a higher power bill than if they remained with the residential Rate A tariff.
- Basically, the TOU tariff is effective for only people who work second or third shifts.
- Since I heat my home solely with heat pumps, I should have a greater power consumption at night, during the off-peak period, than a home heated with fossil fuels. If you are not aware, heat pumps put out a relatively small amount of heat. My downstairs heat pump produces 18,000 Btu/hr at its rated temperature which I think is -5°F. For comparison, my oil furnace puts out 110,000 Btu/hr. To heat with a heat pump you set the temperature and forget it for the entire heating season. If you turn down the temperature at night, a heat pump will struggle and take hours to warm the house up in the morning. So, my home is proportionally using more heat at night than a non-heat pump heated house. And thus, with everything else being equal, the percentage of power used during the peak TOU period will be less than a fossil fuel heated home.
- I download my 2025 hourly electricity use. My home over the entire year used 17.2% of its electricity during the 4-hour peak TOU period. My average daily electricity use was 16.3 kWhr/day which equals 489 kWhr/month. I have read that on average a Maine household uses 550 kWhr/month. I believe the average Maine household size is 2.3. Therefore, my household of one that heats with a heat pumps falls into the typical electric use range. I don't run the heat pumps in air conditioning mode.
- I suspect for people who work out of the home, in summer many come home to a warm house and turn on the AC adding to the TOU on-peak load.

- In conclusion, at CMP's current pricing, the TOU rate is a bad deal for most Maine households and should not be promoted.

What should be promoted and legislated is battery installation and allowing net metering by default. Establish appropriate legislation to allow and promote aggregation of household battery use with net metering.

CMP after its $1.5 billion plan to harden the distribution system to storms instead of more aggressive tree trimming was denied, rolled out Plan B to increase its rate base. That being a $547 million first phase of upgrades to the Greater Portland distribution network. It was not reported how many subsequent phases CMP plans. These expenditures are needed to maintain CMPs rate base to maintain its stockholder dividend. As previously presented, Maine's electric power use has not increased and thus greater sales have not been available to maintain to increase its dividend.

The following figure is from the Maine Energy Plan (pg. 12, Maine Governor's Energy Office, January 2025).



From the ISO-New England website, I downloaded the hourly locational marginal price (LMP) for the first six weeks of 2026 for location 4548 LD.Portland23. This time period was selected because the data was readily available. A full year of data would be better. I don't know where this LMP node is located but presumably by its name it is in greater Portland. This node is a location that ISO-New England sets the wholesale price of power which includes the price of the power and transmission congestion costs to that point. The standard offer, provided by others, is the retail price which includes the price risk, overhead and profit. The current CMP service area standard offer is $127.21 per MWhr.

- The average LMP price for 5:00 to 9:00 pm daily was $165/MWhr.

- The minimum 8-hour average period price in the previous 24-hour period averaged $101/MWhr. The 8-hour period is arbitrary. The period could be shorter resulting in a lower cost. An eight hour period was arbitrarily selected to avoid stressing the grid.
- The wholesale cost savings by buying at the low over an 8-hour period is $0.063/kWhr lower than the 4-hour on-peak average.

If the Maine Legislature wants to address high electricity prices, battery storage with net metering needs to be promoted.

A Tesla Powerwall 3 battery costs about $15,000 installed. It stores 13.5 kWhr of electricity and can discharge up to 11 kW. The average Maine household consumes 18.3 kWhr/day. If you lose power, presumably one will take actions to reduce power consumption, resulting in the battery providing power for more than a day. Thus, a battery to some extent replaces the need for a generator. From personal experience a whole home generator is not a good deal. My house came with a whole house 13.5 kW Generac generator. It runs on propane. My broker said it was a $10,000 value. The first winter I lived here I lost power for one and half days. At the time I thought it was great that I had power until I went to refill my propane tanks. My propane bill was $460 for a day and half of power. Now I maintain my generator for home resale value but when I lose power, I go turn it off. I can't afford to run that thing unless my pipes are going to freeze.

A Tesla Powerwall is designed to cycle over 10,000 times. If it is cycled daily it will last at least 27 years.

Based on my 17% of the daily average power consumption occurring between 5:00 and 9:00 pm, the average Maine household will consume 3.11 kWhr of energy over the TOU on peak period. So, with a battery, the home can go off grid during the on peak period and utilize the CMP TOU rate. That will save the average homeowner **$461 per year**.

If the PUC allowed/promoted an off-peak standard offer, it should be less than the current standard offer of $0.12721/kWhr. A homeowner could subscribe to a service provided by a Maine company such as Revision Energy, or CN Brown, or some out of state entity such as Sunrun. The homeowner could own the battery or as in the case of Sunrun they own the battery.

That entity would on behalf of the homeowner control the battery to purchase power during the other 20 hours per day when the cost is less than the peak period. The previous LMP analysis suggests the 3.11 kWhr of power could be purchased for $0.063 kWhr less than during the on-peak period. Assuming the subscription service will charge 10% of the savings, the net savings to the homeowner would be $0.18 per day or **$64 per year.**

The real savings comes into using the full battery energy to act as a virtual power plant as Sunrun is doing in other states. The average household will use about 3.1 kWhr of energy over the 4-hour on-peak TOU period. That would provide at least 8 kWhr of energy in the battery for use by a virtual power plant. That 8 kWhr to the battery would be delivered off-peak and sent to the grid on-peak. The LMP difference between the average TOU on-peak period and the low 8-hour average period for the previous 20-hours is $0.063/kWhr in my limited study. Assuming the subscription service charges a 10% commission, and the standard offer provider will want a

10% discount on the energy, the net value to the homeowner to send 8 kWhr/day to the grid is $0.051/kWhr resulting in a $1.06 per day or **$148 per year income** to the battery owner.

The next savings is from avoidance of transmission and distribution at the on-peak periods. The power to the homeowner's battery was delivered off-peak. CMP's off-peak TOU rate is $0.067452/ kWhr. That power to the homeowner's battery was delivered from Kibby Ridge along the Quebec border or from the Harris Dam on the upper Kennebec River, or now from Lewiston and the Hydro-Quebec connect, or some other distant locale. That battery power is now where it is needed to meet the on-peak demand. The battery owner should be rewarded for that service of energizing its neighborhood at on-peak avoiding the necessity to have the grid from source to place of use constructed to handle the on-peak load. The battery owner should be rewarded at CMP's residential Rate A of $0.13647 per kWhr. The battery owner would receive the difference between CMP's TOU off-peak rate and the residential Rate A which with the difference being $0.0690 per kWhr. The 8 kWhr per day delivered to the neighborhood would result in **$202 income per year** to the battery owner .

In this draft economic example, the homeowner would receive **$875 per year in net income.** That results in a 17-year simple payback or 5.8% rate or return. Not great; but with the rate of increase in electricity the rate of return would probably be substantially higher. Plus, the home owner has the benefit of backup power.

The promotion of batteries with net metering located in areas where CMP or Versant identify that infrastructure upgrades are needed can avoid costly grid upgrades. The first phase of CMP's greater Portland upgrades is at a claimed $547 million. 2,000 Tesla Powerwall 3 battery systems, or equivalent, installed will cost about $30 million and provide 16 MWhr or more of energy right where it is needed. CMPs greater Portland phase 1 $547 million upgrade project will cost every CMP service customer about $854. To reduce peak power demand, I prefer

batteries over behavior modification. What is the expectation? To have Mainer's come home from work and eat cold sandwiches and keep the heat low?