

August 17, 2021

Maine Public Utilities Commission
18 State House Station
Augusta, Maine 04333-0018
VIA Web site: <https://www.maine.gov/mpuc/index.shtml>

RE: *Inquiry into Rate Design Issues Associated with 2021 Legislation – Docket No. 2021-00198*

Acadia Center respectfully submits the attached comments on the [Maine Public Utilities Commission Inquiry into Rate Design Issues Associated with 2021 Legislation – Docket No. 2021-00198 \(Rate Design NOI\)](#).

[Acadia Center](#) is a non-profit, research and advocacy organization incorporated in Maine and committed to advancing the clean energy future by offering real-world solutions to the climate crisis. Acadia Center tackles complex problems, identifies clear recommendations for reforms, and advocates to create significant change that supports a low-carbon economy across the Northeast which can then be a model for application elsewhere. Acadia Center identifies regional, state, and local improvements that will dramatically reduce carbon pollution and improve quality of life throughout the Northeastern United States.

Sound rate design policy is a critical component to reach Maine's clean energy, climate, energy efficiency, renewable energy, and transportation targets and goals.

Acadia Center looks forward to working with the Commission to advance rate design strategies to increase energy efficiency and clean energy adoption, accelerate decarbonization across the electricity grid, and implement beneficial electrification policies and programs in the buildings and transportation sectors to the benefit of all Mainers.

Respectfully Submitted,

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Inquiry into Rate Design Issues Associated with 2021 Legislation – Docket No. 2021-00198

Response by Acadia Center

To Maine Public Utilities Commission, August 17, 2021

Acadia Center appreciates this opportunity to provide written comments in response to the [Maine Public Utilities Commission](#) (Commission) request for comments on its [Inquiry into Rate Design Issues Associated with 2021 Legislation – Docket No. 2021-00198 \(Rate Design NOI\)](#).

The Rate Design NOI is based upon two recently-passed bills in the 130th Legislature, including [LD 528 - An Act To Advance Energy Storage in Maine \(Chapter 298\)](#), which Acadia Center supported. These bills, among other requirements, required the Commission to open a docket exploring time-of-use rates or time-differentiated rates that would send price signals and provide incentives for consumers to decrease demand during peak periods.

[Docket 2021-00198](#) requests comments on the following questions:

- To what extent should rate design be based upon the cost of service to the customer(s) or used to advance policy initiatives that may not reflect the cost of service to the customer(s)?
- If the answer to question 1 is policy initiatives, what are those policies and how would rate design promote them? Please provide specific rate design proposals and consider whether policy driven rates should be mandatory or optional for customers.
- What are the relevant and possibly competing impacts upon ratepayers?
- Are there other issues of equity, rate impacts or other matters that the Commission should consider?

To what extent should rate design be based upon the cost of service to the customer(s) or used to advance policy initiatives that may not reflect the cost of service to the customer(s)?

Acadia Center supports the broader use of time-varying rates for customers. Many of the grid and consumer benefits that electric vehicles (EVs) and heat pumps provide cannot be realized without the use of time-varying rates (TVR). Time-of-use (TOU) rates, a category of time-varying rates with a tiered pricing structure for defined peak and off-peak time periods, can offer several benefits, including:

- Providing the opportunity for customers to adjust their electricity usage throughout the day to result in lower overall electricity bills;
- Reducing peak demand and strain on the electricity system, especially as the New England states move towards beneficial electrification; and
- As peak demand is reduced, reducing the reliance on fossil-fuel generation to meet only the highest peak demand days throughout the year.

Electric vehicles are a perfect example of why time-varying rates are important. Without the proper incentives, the most natural path for residential customers with EVs may be to charge a vehicle as soon as they get home, often in the late afternoon. From a system perspective, late afternoons are often peak hours. A simple on/off-peak rate can provide an incentive to begin charging an EV later in the evening instead. Alternatively, if the customer truly needs to charge at that time, they will be paying appropriately for the costs they cause. Relatedly, TVR provide an economically justified way to lower fueling costs for EVs, with lower electricity costs during off-peak hours. Time-varying rates can provide better economic incentives to reduce overall costs and provide customers with opportunities to save money by taking advantage of low-cost hours. While there are a range of specific TVR, the Commission should consider which type of rate design is best suited to enable the functionality that heat pumps and EVs provide.

Rate design can be used to support a range of policy priorities, including promoting fairness and equity among all customer classes; maximizing the value of and supporting the deployment of clean energy resources; optimizing the use of system resources; reducing emissions; improving incentives for energy efficiency; preserving equitable access to clean energy; and maintaining protections for low-income ratepayers.

What are those policies and how would rate design promote them? Please provide specific rate design proposals and consider whether policy driven rates should be mandatory or optional for customers.

Acadia Center recommends TOU rates with an opt-out option to protect customers who, for legitimate reasons, cannot shift their usage and would be burdened with higher rates. Load-wide application of TVR should be accompanied by extensive customer education programs and integration with software that can enable customers, especially residential customers, to manage their household load to take advantage of price signals and not be caught off guard by unexpectedly high bills.

Acadia Center has identified the following rate design best practices:

- Time-varying rates must include a peak window that is narrow enough to motivate customer behavior change and to deliver the intended peak-shifting benefits.
- The ratio between on-peak and off-peak rates must be large enough for customers to see a noticeable difference in their bills and to motivate changes in behavior.
- Time-varying rates must help customers save money, improve system reliability, and prepare for the integration of distributed energy resources in the future.
- Transparent pricing is key for helping customers understand and act in response to different price signals. Time varying rates must enable customers to have the necessary understanding and access to their energy usage data to make use of TOU and to control their energy use.
- TVR must ensure that data privacy and security protocols are sufficiently robust.
- Customer education and outreach programs are essential for increasing customer enrollment in EV rates.
- Opt-out programs achieve higher levels of long-term customer enrollment than opt-in rates.
- The Commission, Efficiency Maine Trust, and other agencies must be able to measure and verify progress, including lessons learned and best practices.

Examples of EV-specific time-varying rates employing some of these best practices include:

- [PG&E](#), 2020: Includes two EV rates, one applied to EVs only, the other applied to the entire household load. The whole-household rate varies between on-peak (\$.48/kWh between 4pm-9pm) and off-peak (\$.17/kWh between 12am-3pm) and includes a narrow peak. The EV-only rate includes a wider peak (2pm-9pm), but with rate tiers of \$.54/kWh, \$.30/kWh, and \$.15/kWh).
- [SDGE](#), 2020: Includes a narrow peak window with clear difference between on-peak and off-peak, as well as significantly lower “super off-peak” rates; includes options for EV-only rates, or whole-household rates. EV-only summer rate ranges from \$.55/kWh between 4pm-9pm and \$.19/kWh between 1am-6am.
- [Southern California Edison](#), 2020: Includes a narrow peak window with a clear difference between on-peak and off-peak, as well as significantly lower “super off-peak” rates. Also includes options for EV-only rates, or whole-household rates. The TOU-D-Prime rate is available to customers with EVs, a residential battery, and/or an electric heat pump. The summer rates range from \$.41/kWh between 4pm-9pm and \$.15/kWh all other hours.
- [NV Energy](#), 2020: Includes several rates depending on location within the service territory, each with large on- and off-peak ratios. For example, summer rates for northern Nevada single family homes vary from \$0.52/kWh (1pm-6pm) to \$0.04/kWh (10pm-8am).

Another example of time-of-use rates comes from Liberty Utilities in New Hampshire:

Rate Code	Rate			Mid-Peak Period	Critical Peak Period(s)
	Critical Peak	Mid-Peak	Off-Peak		
EV Plug-In Electric Vehicle	30.43	13.97	8.54	Weekdays, 8 a.m. to 3 p.m.; holidays/weekends 8 a.m. to 8 p.m.	Weekdays 3 p.m. to 8 p.m. excluding holidays
D-11 Battery Storage Pilot	30.43	13.97	8.54	Weekdays, 8 a.m. to 3 p.m.; holidays/weekends 8 a.m. to 8 p.m.	Weekdays 3 p.m. to 8 p.m. excluding holidays

Source: *Time-Varying Rates in New England: Opportunities for Reform*, RAP, October 2020

In this example, Liberty Utilities' peak to off-peak ratio is 3.56 and includes a sufficiently narrow peak window. For any time-varying rates, the peak and off-peak windows must be targeted sufficiently to motivate behavior change. TVR must be targeted to customers that could respond to different prices signals. TVR must also be targeted at peak system demand with a sufficiently narrow window to deliver the most grid benefits and customer savings. Time-varying rates must consider customers who are unable to change their energy usage (e.g., because they use health equipment that cannot be turned off – see 3rd question below).

What are the relevant and possibly competing impacts upon ratepayers?

TOU rates are inherently more difficult for people who cannot shift their usage. For example, TOU rates may be impossible for customers who use oxygen or other medical equipment that must operate 24 hours/day. TOU rates may not be feasible for seniors and other vulnerable individuals who are susceptible to heat and need to run their window air conditioners during the hottest parts of the day. Similarly, low-income households may need to do the same, especially if they live in poorly insulated homes. An opt-out provision for these and other vulnerable communities is necessary.

Are there other issues of equity, rate impacts or other matters that the Commission should consider?

The Commission should consider how to establish and coordinate companion programs, such as those offered through Efficiency Maine Trust and MaineHousing, to ensure that time-varying rates are available to serve low- and moderate-income populations and those who may rely on public charging stations. Examples of these may include transit services and car-share programs. For example, off-peak and on-peak TVR rates for EV customers could include an additional charge to fund electrifying transit options in environmental justice communities.

The Commission must also ensure that time-varying rate costs and benefits are equitably distributed. Will all ratepayers pay into these programs that will initially serve only customers who own an electric vehicle and a private charging station? If so, what are viable options to more equitably distribute the benefits of transportation electrification and the use of TVR?

Far more must be done to ensure that all communities reap the full benefits of time-varying rates. Despite the good work already done over the last ten years by entities like the Trust and MaineHousing, there is still more that can be accomplished to ensure that electricity, heating, and transportation programs deliver benefits equitably across all communities and income levels. Underserved groups, including renters, low-and-moderate income communities, and non-English speakers, often face the worst impacts of climate change and poor housing quality but often have been unable to easily access the benefits of efficiency programs. At the same time, time-varying rates must be better aligned with electrification efforts, and energy efficiency should be elevated as a key tool to reduce GHG emissions.

Acadia Center is bringing together these complex but overlapping issues into its [Next Generation Energy Efficiency](#) initiative. *Next Generation Energy Efficiency* addresses these challenges through a new approach to energy efficiency – one that focuses on energy savings as a core energy system resource, but is also centered on meeting climate, environmental justice, and electrification goals. The four pillars of *Next Generation Energy Efficiency* are to:

1. Strengthen the role of efficiency in improving housing quality;

2. Address climate mitigation and GHG reductions through energy efficiency;
3. Better align energy efficiency and electrification; and
4. Sustain investments in energy efficiency as a leading energy resource.

In its recent comments on the Trust's Triennial Plan V draft, Acadia Center recommended that the Trust expand program offerings that help to deliver the benefits of load management and TVR. The Trust's Demand Response Initiative and Load Shifting Initiative present significant opportunities.

Support Maine Utility/Regulatory Reform & Decarbonization Initiative (MURRDI)

The Maine Utility/Regulatory Reform and Decarbonization Initiative (MURRDI) was convened by The Nature Conservancy and the Great Plains Institute and charged with developing strategies to:

1. plan, build, and operate an electricity grid, that
2. meets the State's aggressive climate and energy requirements, while
3. maintaining a safe, reliable, secure, and affordable grid.

The MURRDI report, released in Spring 2021, includes the following:

- Recommendation: Maine should move toward a more dynamic grid with more granular load flexibility capabilities in a concerted manner. As a first step, the Maine PUC should immediately look more closely at time of use rates and/or other dynamic rate structures that more accurately reflect the cost of producing and delivering power. It should also take into account how time-varying rate designs could help to meet the state's climate and energy requirements.
- Rationale: Operating the electric grid to meet Maine's climate and energy requirements while maintaining safe, reliable, and affordable service will require flexible loads that can be aligned with renewable energy generation and managed to reduce demand peaks. Load flexibility can be achieved through consumer behavior changes enabled by intelligent and dynamic rate design, autonomous customer-owned devices, and/or active management of those devices. The full capabilities of these technologies are enabled by grid modernization such advanced metering infrastructure (AMI), operator visibility, and grid automation. The group believes that load flexibility can substantially reduce the extent and cost of the infrastructure upgrades that would otherwise be required for beneficial electrification; for example, by smoothing out demand peaks throughout the day. The group noted that end-use technology advancements are increasingly making load flexibility a viable option for grid operations. As customer devices become more responsive, they can be linked to three key elements that should drive how load flexibility is deployed:
 - The price of electricity production and delivery
 - Grid constraints, such as temporal and locational congestion
 - Grid modernization to enable load flexibility

Acadia Center, as a Member of the MURRDI stakeholder group, supports the full report and the "load flexibility enabled by dynamic rate designs" recommendation. For more information and a link to the report, please visit <https://acadiacenter.org/have-you-heard-the-one-about-maines-electric-grid/>.

A final note re: LD 1682

LD 1682, An Act To Require Consideration of Climate Impacts by the Public Utilities Commission and To Incorporate Equity Considerations in Decision Making by State Agencies opens the door for all state agencies to address equity concerns in environmental justice, frontline, and other vulnerable communities that are underserved or overburdened by current energy policies, programs and systems due to geography, race, income or other socioeconomic factors. The Commission should work with GOPIF to ensure that those Maine individuals and communities who are most affected by energy burdens and climate impacts benefit from, and are not incumbered by, Commission decisions. LD 1682 requires GOPIF, in consultation with other states agencies and with input from the public and stakeholders, to incorporate equity considerations in decision-making and to develop definitions necessary to capture equity considerations in decision-making by February 2022. It allows for a bill to the Second Regular Session of the 130th Legislature based on the report.

Equity needs to be elevated in Commission decision-making to ensure that those Maine individual and communities who are most affected by energy burdens and climate impacts benefit from Commission decisions and the transition to a clean energy economy. The "public interest" standard in the PUC statute does not adequately address equity, but better encapsulates reliability, affordability, and "just and reasonable" because those considerations are explicitly laid out in statute, as is "climate" which was recently added to the Commission's mission as part of LD 1682. If we are truly trying to decarbonize and electrify the economy, while alleviating or avoiding energy burdens on vulnerable communities, these considerations must be elevated in the Commission enabling statute.

By reforming enabling statutes to specifically add equity and environmental justice to the agencies' responsibilities, the Commission would be fully empowered to not only to make decisions that incorporate considerations of the costs and benefits of climate change, in alignment with states' priority goals and targets, but also give the Commission the authority to push achievement of those goals and others like climate justice, equity, and transparency forward in all rate design cases and decisions.

Acadia Center looks forward to working with the Commission to ensure that rate design policy builds on the solid programs already in place and fulfil the goals and targets in the Maine Climate Action Plan.

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