
Time-of-Use Rates for Delivery and Standard Offer

Response to the Maine Public Utilities
Commission's Request for Comments

Prepared for the Maine Office of the Public Advocate

October 2, 2024

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INTRODUCTION

On August 28, 2024, the Maine Public Utilities Commission (Commission) issued its Notice of Inquiry (NOI) in Docket No. 2024-00231 to “further consider issues raised by the possible development and implementation of time of use (TOU) standard offer and delivery rates for residential and small business customers of investor-owned transmission and distribution (T&D) utilities and to consider the possible use of demand charges for residential customers.”¹ The Commission identified its primary objective as the consideration of rates that can reduce peak demand, thereby reducing the need for “expensive generation and grid infrastructure investments” and potentially lowering future supply and delivery rates.²

On September 12, 2024, the Commission issued a request for comments on a number of topics related to its investigation into TOU rates and demand charges. The Maine Office of the Public Advocate (OPA) retained Synapse Energy Economics, Inc. (Synapse) to respond to the Commission’s questions. On behalf of the OPA, below we provide comments in response to each of the first nine questions in the Commission’s request for comments.

OVERVIEW

Synapse strongly supports the Commission’s objective of reducing customer costs through incentivizing peak shaving through time-varying rates. At the same time, we urge the Commission to consider the full suite of rate options to meet this objective and the benefits and drawbacks associated with each in order to maximize the success of this effort.

One reason why it is important to consider the full menu of rate options is that each rate design has different levels of customer response and acceptance under opt-in and opt-out enrollment. For example, TOU rates tend to result in relatively modest peak load reductions relative to more targeted rates that are called only on peak days.

It is especially important to consider customer acceptance when determining the most appropriate rate design and implementation approach for Maine at this time. While we appreciate the Commission’s desire to develop a deeper understanding of whether an opt-in or opt-out approach is most likely to succeed,³ experience in other jurisdictions has demonstrated that default TOU rates can fail if

¹ Maine Public Utilities Commission. Docket No. 2024-00231, Notice of Inquiry, August 28, 2024, at 1.

² *Ibid.*

³ *Id.*, at 5.



implemented too rapidly and without sufficient customer buy-in. For example, in Minnesota, the pushback on default TOU rates was so significant that Xcel Energy recently withdrew its default TOU rate proposal.⁴

Additional rate options include the following:

- Critical Peak Pricing (CPP): This is another form of time-varying rate that generally achieves much greater per-customer peak load reductions than TOU rates. An opt-in CPP rate could potentially deliver similar, or greater, peak load reductions as a default TOU rate.
- Peak Time Rebates (PTR) offer customers a credit for peak load reductions, rather than charging customers a higher price during peak hours. Because of this, PTR can be implemented on a default basis without the same pushback that often plagues default TOU rates.

We urge the Commission to expand its inquiry to include these rate options as well, since they may be able to better achieve the Commission's goals with minimal customer dissatisfaction.

QUESTION 1: TOU TIME PERIODS

The Commission has requested comments on its expectation that standard offer and delivery TOU rates will use identical peak and off-peak time periods and 2) the appropriate ratio to set between peak and off-peak rates. The Commission has also indicated that parties will have the opportunity to offer responsive comments to the utilities' forthcoming comments and data on the differences between T&D and supply peaks and the implications for residential and small business TOU rates.

Data Required to Develop TOU Rates

Synapse appreciates the Commission's request for Central Maine Power Company (CMP) and Versant Power (Versant) to provide historical system load data, as such data is important for informing the design of TOU rates. However, TOU rates cannot be designed from load data alone because wholesale market prices and other marginal costs are not always fully correlated with load. For example, although winter loads tend to be lower than summer loads, winter wholesale energy market prices can surpass summer prices due to spikes in natural gas fuel costs. Further, energy market prices can be lower when load is met by substantial amounts of solar and wind, which have zero fuel costs and tend to lower the

⁴ Orenstein, Walker. Minnesota Star Tribune. "After backlash, Xcel retreats from Minnesota plan for higher peak rates, lower overnight costs." August 22, 2024. Available at <https://www.startribune.com/after-backlash-xcel-retreats-from-minnesota-plan-for-higher-peak-rates-lower-overnight-costs/601127975>.



market clearing price. LMP data is necessary to identify the highest-cost hours, which may differ from the highest load hours.

In addition, it is also important to consider marginal distribution costs because these account for both peak loads and expected infrastructure costs required to meet that load. As discussed further below, in order to develop TOU periods aligned across both the supply and delivery levels, it will be critical to directly compare system costs for both supply and delivery, for which load data alone is insufficient.

Synapse therefore recommends that the utilities also provide:

- Historical hourly locational marginal price (LMP) data for their respective service territories; and
- Forecasted hourly marginal distribution and transmission costs.

Regarding the Commission's expectation that standard offer/delivery TOU rates would have identical peak and off-peak time periods, making such a determination requires the data to quantify each system's hourly costs and load and consider how the timing and magnitude of cost and load peaks differ across system levels.

TOU Time Periods

Synapse agrees that TOU time periods should be designed holistically to consider generation, transmission, and distribution together, since it would be overly complex from both a practical and customer education standpoint for customers to respond to multiple peak periods and multiple pricing schemes throughout the day. The on-peak TOU period can be set by identifying the highest marginal cost hours across the year. To accomplish this, utilities would sum the average hourly supply and delivery costs for each hour of the year – ideally based on forecasted hourly marginal costs. Then, a heat map analysis would average marginal costs across each hour of the day for each month of the year, allowing for comparison of system cost variations by time of day and by season. Because ratemaking objectives often include policy priorities such as greenhouse gas reductions, the utilities should also examine ways to incorporate emissions costs into its marginal costs so that price signals incentivize customers to reduce peak load *and* emissions, if possible.

Evaluating the costs as described above will allow for comparison between costs at different levels of the power system. It is possible that the supply and delivery costs will overlap neatly, but it is also possible that they will not. The latter case will require TOU design choices that can incorporate the length of the on-peak period, inclusion of a shoulder period, use of different seasonal TOU rates, and even different on-peak hours for the summer and non-summer seasons. Synapse looks forward to analyzing utility data and commenting on these options once the data become available.



Standard Offer TOU

While Synapse agrees with the Commission that standard offer TOU rates are likely to be most effective when offered in conjunction with a TOU delivery rate, customers should still be eligible for a delivery TOU rate if they take competitive retail supply service that is not TOU.

On-Peak to Off-Peak Price Ratio

To determine the appropriate peak to off-peak price ratio, the Commission should consider multiple factors. In particular, the Commission should consider:

- 1) The difference between marginal costs in each period,
- 2) Customer acceptance, and
- 3) The incentive provided for load shifting.

The hourly marginal cost analysis described above enables a cost comparison between peak and off-peak hours. This cost differential alone may be reasonable, but it should be benchmarked against industry best practices in terms of customer acceptance and whether it provides adequate incentives for customers to shift load.

Customer acceptance is also dependent on whether the rate is offered on an opt-in or opt-out basis. TOU rates that are offered on an opt-out basis tend to have the lowest on-peak to off-peak price differentials, while opt-in rates tend to have the highest price differentials. For example, in Missouri, both Evergy and Ameren's default TOU rates have a very mild on-peak to off-peak price differential. Evergy's summer price differential is currently \$0.02/kWh,⁵ while Ameren's is only \$0.005/kWh.⁶

In its proposal to implement a mild differential default TOU rate, Ameren Missouri referenced the difficulty in gaining customer acceptance of a higher differential rate. Ameren stated, "The Commission and Commissioners are very familiar with Evergy's recent experience of negative media and customer feedback and confusion regarding Evergy's high-differential TOU default, including an assumption by customers that their bills will be increased by imposition of a default TOU rate. The potential for confusion and negative reaction of Ameren Missouri's remaining approximate 215,000 residential

⁵ Evergy Missouri West. Electric Tariff. Residential Peak Adjustment Service Schedule RPKA. Effective January 9, 2023. Available at https://www.evergy.com/-/media/documents/billing/missouri/detailed_tariffs_mo/mo-west/mo-west-rate.pdf.

⁶ Ameren Missouri/Union Electric Company. Electric Tariff. Residential Evening/Morning Saver Service. Effective December 3, 2023. Available at <https://www.ameren.com/-/media/rates/files/missouri/uecsheet54rate1mres.ashx>.



customers impacted by the Company's new Default TOU similarly warrants modification to a low-differential TOU rate plan, like the Commission recently approved for Evergy.”⁷

In general, TOU on-peak to off-peak price ratios of 2:1 or more will provide sufficient price signals and potential bill savings to motivate customers to shift load. However, price differentials greater than 4:1 tend to have lower enrollment due to the perceived risk associated with such high differentials. For example, Maryland’s recent TOU pilot program tested rates with differentials up to 5.8:1. The rates with the highest differentials enrolled less than 1 percent of the customers recruited.⁸ For this reason, TOU rates with price ratios in the range of 2:1 to 4:1 are likely to be most effective.

QUESTION 2: OPT-IN, OPT-OUT, OR MANDATORY?

It is Premature to Implement Opt-Out TOU Rates

The Commission’s Request for Comments indicates that it expects that TOU rates would be implemented as a default (opt-out) product. While it may be reasonable to transition customers to default TOU rates at some point in the future, Synapse does not recommend this path in the near-term due to the potential for adverse bill impacts on vulnerable customers, as well as customer confusion and backlash,⁹ which could undermine the Commission’s goals in this proceeding. Instead, TOU rates should be implemented gradually with the objective of increasing enrollment in opt-in TOU rates, educating customers about their rate options, and mitigating bill increases for vulnerable customers. Further, the Commission should consider other rate design options that could potentially provide similar load shifting results without requiring a transition to default TOU rates.

Impacts on Vulnerable Customers

When considering the implementation of TOU rates, the Commission should adhere to widely accepted rate design principles including the need to ensure “public acceptability” of rates and relative stability in rates, “with a minimum of unexpected changes seriously adverse to existing customers.”¹⁰ To meet

⁷ Union Electric Company d/b/a Ameren Missouri. Application for Approval of Tariff Revision (JE-2024-0056) to Continue to Default Certain Residential Customers to the Evening/Morning Savers Rate Plan. Docket ET-2024-0156. November 3, 2023, at 16.

⁸ For Delmarva Power and Light (DPL), the on-peak to off-peak price ratio was nearly 6:1. Only 674 customers enrolled, which is less than 1% of the recruited customers. Further, 24% of those customers dropped out during the pilot. PC44 Time-of-Use Pilot Final Pilot Evaluation, Attachment 3C. October 4, 2021, at 9. Available at <https://webpsc.psc.state.md.us/DMS/maillgpdfview/Public/PC44/289/0/0>.

⁹ See, for example: Orenstein, Walker. Minnesota Star Tribune. “After backlash, Xcel retreats from Minnesota plan for higher peak rates, lower overnight costs.” August 22, 2024. Available at <https://www.startribune.com/after-backlash-xcel-retreats-from-minnesota-plan-for-higher-peak-rates-lower-overnight-costs/601127975>.

¹⁰ James Bonbright, *Principles of Public Utility Rates*, Columbia University Press, 1961, page 291.



these objectives, the potentially adverse effects on vulnerable customers that can arise with default TOU rates must be better understood before any decision to transition customers to default TOU rates is made.

A key issue to consider is that transitioning customers onto alternative rate structures can result in significant negative impacts for “structural losers”—those whose energy usage patterns are likely to lead to higher bills under TOU rates, particularly if the customer is unable to shift load away from higher-priced on-peak periods. This is especially concerning for vulnerable populations, including low and middle-income households who do not have the means to absorb significantly higher costs, resulting in disproportionate hardship relative to other customers. It is therefore imperative that the Commission understand the potential impacts on vulnerable populations from default TOU rates prior to deciding whether to approve opt-out TOU rates.

Prior to the implementation of opt-out TOU rates in California, there was significant data collection and discussion among stakeholders regarding how to mitigate impacts on vulnerable customer populations. Vulnerable populations, including customers who require medical devices that use electricity and low-income customers in hot climate zones, were exempted from default TOU.¹¹ The latter were found to experience significantly greater hardship on TOU rates than other customer groups. These considerations are relevant in all locales. As stated by Opinion Dynamics, “The interaction of rate structure, climate, income, and HVAC fuel type reveals an important policy implication for those planning to transition residential customers to TOU rates: utilities should consider implementing preventative measures that ensure low-income customers with electric HVAC systems in extreme climates are not economically burdened by the transition [to TOU].”¹² This includes a thoughtful approach to a) identifying these customers, and b) implementing mitigation measures to ensure unnecessary hardship is not experienced, such as exemption of vulnerable populations from default TOU.

While we understand the Commission views a pilot to be time consuming and expensive, more data collection on customer acceptance and bill impacts related to default TOU rates can be obtained *at the same time* as opt-in time-varying rates are implemented and aggressively marketed to customers. In particular:

- An opt-out TOU rate option can be piloted at the same time as an opt-in TOU rate is implemented.

¹¹ Per statute, medical baseline customers and customers who the Commission ordered cannot be disconnected from service without an in-person visit from a utility representative were excluded from default TOU. Based on data and intervenor input, the Commission also decided to exempt low-income customers in hot climate zones. See D.19-07-004, July 11, 2019, pp. 77; 204, <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M309/K843/309843509.PDF>.

¹² https://opiniondynamics.com/wp-content/uploads/2021/06/2020_ACEEE-Summer-Study_Assessing-Equity-How-Low-Income-Customers-Fare-on-TOU_Rates_Folks.pdf.

- In collaboration with stakeholders, the utilities should develop approaches for identifying low-to moderate income and medically vulnerable customers, as well as measures to mitigate unnecessary hardship for future default rate implementation. For example, bill protection schemes, which effectively act as insurance for customers, can be helpful in increasing initial enrollment in opt-in TOU rates and rapidly increase information for the Commission to rely upon if it does pursue default time-varying rates in the future.
- Learnings from opt-in rates and associated education and outreach campaigns can inform any potential transition to default TOU. For example, surveys sent to both participants and non-participants can help the utilities and Commission understand the most effective marketing techniques, customer acceptance, understanding of the rates, and reasons why customers enroll or decline to participate.

For these reasons, Synapse advises the Commission to take a careful and deliberate approach to any major rate design changes . Moving to default TOU rates at this time would be premature, especially since opt-out rates have not been proposed or their impacts fully assessed.

Other Rate Design Options and Programs can Achieve Peak Load Reductions

Aggressively marketed opt-in rates can achieve many of the benefits of default TOU without automatically enrolling customers into a certain rate design. For example, critical peak pricing (CPP) tends to produce greater load-shifting response, requiring fewer participating customers to achieve load reductions. Indeed, Nova Scotia Power’s recently-filed evaluation report¹³ showed that opt-in CPP customers achieved more than four times as much peak load reductions as opt-in TOU customers, as shown in the table below.

Table 1. TOU versus CPP Load Shifting in Nova Scotia’s Time-Varying Pricing Pilot, Year Three

Tariff	Average Absolute Reduction per Household		Average Percentage of Total Household Load Reduction	
	Morning Peak	Evening Peak	Morning Peak	Evening Peak
TOU	0.154 kW	0.153 kW	7.4%	7.0%
CPP	0.768 kW	0.943 kW	27.0%	32.2%

Source: Nova Scotia Power. *Evaluation of the Time-Varying Pricing Pilot, Phase 3. Matter M11823. July 23, 2024.*

¹³ Nova Scotia Power. *Evaluation of the Time-Varying Pricing Pilot, Phase 3. Matter M11823. July 23, 2024.* Available at <https://uarb.novascotia.ca/fmi/webd/APP/connector/0/855/dl/20240731+NSPI+to+NSUARB+TVP+Pilot+Program+Year+Three+Evaluation+Report.pdf>.



It is also important to note that opt-in rates generally provide greater customer response (peak load shifting) than default rates.¹⁴ Thus, if results in Maine are similar to Nova Scotia, an opt-in CPP tariff with enrollment levels of approximately 20% of residential customers could potentially provide the same level of load shifting as a default TOU tariff.

Finally, consideration should be given to Peak Time Rebates (PTR), which do not penalize customers for failing to shift load. Instead, PTR rewards customers for reducing consumption during peak hours relative to their baseline level of consumption. Peak Time Rebates are typically much more acceptable to customers and could therefore be implemented on an opt-out basis without the same concerns for customer backlash.

QUESTION 3: INTERACTION WITH OTHER RATES OFFERED BY THE T&D UTILITIES

When considering customer acceptance of TOU rates, it is important to consider how such rates compare to other rate options, such as the current standard residential tariff. At the present time, the standard residential tariff is not seasonally differentiated. If TOU rates include a seasonal component, residential customers who switch from the standard tariff to the TOU tariff will almost certainly see bill increases in the summer season, despite their efforts to shift load. This effect could discourage customers from adopting TOU rates and undermine the Commission's goals. For this reason, Synapse recommends that other rate options include a seasonal component as well.

QUESTION 4: WHAT EFFECT WILL EXPECTED CHANGES IN SEASONAL LOAD VARIABILITY HAVE ON DEMAND RESPONSE?

Rate design should reflect the seasonal variability in the marginal cost to serve load across the year. Sending price signals that accurately reflect seasonal variation in costs is essential to effectuating the

¹⁴ Wenjie Wang, Takanori Ida, Hideki Shimada, Default effect versus active decision: *Evidence from a field experiment in Los Alamos*, *European Economic Review*, <https://www.sciencedirect.com/science/article/abs/pii/S001429212030129X>. "The option to opt into an intervention may result in a limited number of participants, while the subsequent outcomes for these participants may be large because of the attention triggered by the active decision-making process."

Commission’s finding that “carefully designed TOU supply and distribution rates are likely to shift load, reduce peaks, and thus meaningfully reduce overall costs for ratepayers.”¹⁵

As Synapse testified in CMP’s most recent rate case, there is dramatic seasonal variation in costs on the utility’s system. Per the Company’s marginal cost of service study, marginal distribution substation and feeder costs are 28 times higher during the summer peak period than the winter peak period.¹⁶

Therefore, offering rates that charge the same prices during the summer and winter results in the winter rates being far too high relative to marginal costs. As a result, the lack of seasonality contributes to intra-class inequities, with customers who use a larger share of electricity during the winter subsidizing those who use a larger share of electricity during the summer. Further, by pricing winter rates much higher than the marginal costs indicate, the incentive to invest in electric heat pumps that consume significant electricity during the winter is substantially weakened.

The Commission rightly considers that widespread heat pump adoption may in turn lead to higher winter peaks and the possibility that Maine becomes a winter-peaking zone. Although it is unlikely that such a transition will occur in the near-term or broadly enough to necessitate significant changes to TOU rate design this decade, load and cost patterns may indeed shift in the coming years. The rapid evolution of the power system towards higher levels of variable renewable resources, distributed energy resources, and new decarbonized (which often means electrified) end uses means that the cost drivers behind effective rate design will shift over time. Regulators, utilities, and customers must therefore be prepared to iterate on existing rate designs as policy, technology, and grid economics change. The Commission must consistently re-evaluate its assumptions and adjust rates when needed, though reasonable forecasts of future system dynamics can help ensure rate designs are somewhat “future proof.” The Commission should nevertheless consider circumstances that would trigger an overhaul of rate design, while also balancing customer education and awareness considerations where mixed messaging can lead to customer confusion.

QUESTION 5: WHAT CAN BE LEARNED FROM OTHER JURISDICTIONS THAT HAVE IMPLEMENTED A SIMILAR TOU RATE?

California provides a useful example of a jurisdiction that has made time-of-use rates the default option for residential customers while allowing customers to opt-out. The transition to time-of-use rates in California has been long, iterative, and deliberate, which has enabled regulators and the utilities to collect substantial quantities of empirical data and develop meaningful protections for vulnerable customers. In addition, the long timeline has allowed for robust marketing, education, and outreach,

¹⁵ Maine Public Utilities Commission. *Report – Regarding Time-of-Use Rates (Resolves 2023, chapter 79)*. November 20, 2023. p.3.

¹⁶ Direct Testimony of Whited and Borden. Docket No. 2022-00152. p.21.



which has allowed customers to develop an understanding and familiarity with the rates prior to implementation. Finally, the default TOU rates in California have been implemented with mild on-peak to off-peak price ratios (generally less than 2:1) to enable customers time to learn how to shift their usage without experiencing large bill impacts in the early years.

1.1. California’s Timeline

The transition to default TOU rates in California began in earnest with a 2012 order from the Public Utilities Commission initiating a rulemaking to consider the transition to time of use rates.¹⁷ In 2015, the Commission issued a decision requiring the California IOUs to begin the transition to TOU rates, and laying out specific requirements for the utilities to fulfill in advance in order to determine the appropriate design of the TOU rates, ensure customer acceptance, measure the environmental and cost savings from load shifting, and identify customer classes who are not able to respond and should remain on the tiered default rate.¹⁸

In laying out the schedule for the transition to default TOU rates, the California commission specifically noted that “For a default TOU rate to be successful, the design should be based on empirical evidence that supports both measurable benefits of TOU on the grid, and the acceptance and understanding of TOU rates by the residential customer.”¹⁹

1.2. Data Gathering, Pilots, and Education & Outreach Plans

The Commission required the California IOUs to evaluate customer responsiveness to time-varying rates, develop effective education and outreach plans, measure differences in impact by region and customer profile, and study other aspects of rate design and implementation. Specifically, the utilities were required to:

- 1) Implement default rate pilots, in addition to opt-in pilots. The default trial was specifically designed to address problems arising from self-selection bias in the opt-in trial, and “to fine-tune customer education and test system operability.”²⁰

¹⁷ California Public Utilities Commission (CPUC). Rulemaking 12-06-013. Order Instituting a Rulemaking on the Commission’s Own Motion to Conduct a Comprehensive Examination of Investor Owned Electric Utilities’ Residential Rate Structures, the Transition to Time Varying and Dynamic Rates, and Other Statutory Obligations. Issued June 28, 2012. http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/169782.PDF

¹⁸ CPUC Decision 15-07-001, July 3, 2015, at 129.

<http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M153/K110/153110321.PDF>

¹⁹ CPUC Decision 15-07-001, July 3, 2015, at 130.

<http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M153/K110/153110321.PDF>

²⁰ CPUC Decision 15-07-001, July 3, 2015, at 170.

<http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M153/K110/153110321.PDF>

- 2) Conduct analysis regarding bill impacts on vulnerable customers and their ability to shift load.²¹
- 3) Establish a Marketing, Education, and Outreach (ME&O) working group; hire a consultant to advise the working group on appropriate metrics, goals, and strategies; and deliver a comprehensive ME&O plan that including a vision, metrics, timeline, and budgets through the implementation of default TOU rates.²²
- 4) Provide significant information and support to customers well in advance of the transition to default rates, including:²³
 - a. A bill comparison tools to allow customers to choose the rate schedule that best meets their needs
 - b. Information that will help potential benefiter opt-in to TOU rates ahead of default and enroll said customers
 - c. Information to help structural non-benefiters understand what actions to take to mitigate bill impacts, and information on how to opt-out to other rate options (such as the inclining block rate) for structural non-benefiters who are unable to shift load sufficiently.²⁴
 - d. In addition, the Commission required the IOUs to offer multiple rate options to customers, including an inclining block (non-TOU) rate, and provide bill protection (hold harmless provision) for a year.

1.3. Lessons Learned

California’s transition to default TOU was conducted over many years, which provided the utilities and regulators with the necessary time to gather critical information about potential TOU bill impacts; create meaningful customer protections; develop effective marketing, education, and outreach strategies; and create tools and provide information to customers to help them choose the rates that would be best for

²¹ The Commission found that economically vulnerable customers in hot climate zones may be more likely than other customers to experience high summer bill impacts on a TOU rate while being unable to shift their energy usage patterns to mitigate these negative bill impacts. In order to ensure that economically vulnerable customers do not experience unreasonable economic hardship on TOU rates, the Commission in D.17-09-036 excluded customers eligible to receive income-based assistance in hot climate zones from being defaulted to TOU.

²² CPUC Decision 17-12-023 in docket R.12-06-013, December 20, 2017, at 3-4.

<http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M201/K231/201231862.PDF>

²³ CPUC Decision 17-12-023 in docket R.12-06-013, December 20, 2017, at 10.

<http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M201/K231/201231862.PDF>

²⁴ CPUC Decision 17-12-023 in docket R.12-06-013, December 20, 2017, at 10.

<http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M201/K231/201231862.PDF>

them. This careful, measured approach has allowed California’s roll-out of default TOU rates to proceed relatively smoothly.

QUESTION 6: DEMAND CHARGES

Synapse generally does not recommend demand charges for residential and small business customers for two reasons:

- 1) Demand charges provide less efficient price signals than TOU rates; and
- 2) Demand charges are difficult for residential customers to understand.

With respect to the price signal sent by demand charges, non-coincident demand charges should be avoided because these charges apply at any hour and do not reflect whether the system is facing capacity constraints or whether there is excess capacity or generation on the system. For this reason, non-coincident demand charges can discourage beneficial electricity consumption, particularly during off-peak hours.

Time-limited (or time-varying) demand charges provide better price signals, but they are still inferior to time-of-use rates. This is because the demand charge concentrates the price signal into a single hour of the month – the hour of the customer’s individual maximum demand. During the other peak hours, the price signal sent to customers to reduce demand is limited, since reducing demand below his or her monthly maximum will have no financial benefit for the customer. In contrast, a time-of-use rate encourages customers to reduce consumption during all hours in the on-peak window.

To the extent the Commission seeks to consider alternative rate structures that would promote beneficial electrification and peak shaving, Synapse recommends consideration of other time-varying rates, such as critical peak pricing. If demand charges are used, Synapse recommends that they be limited to recovery of costs associated with equipment used solely by individual customers, rather than shared distribution equipment where the capacity is driven by the aggregate demand of many customers.

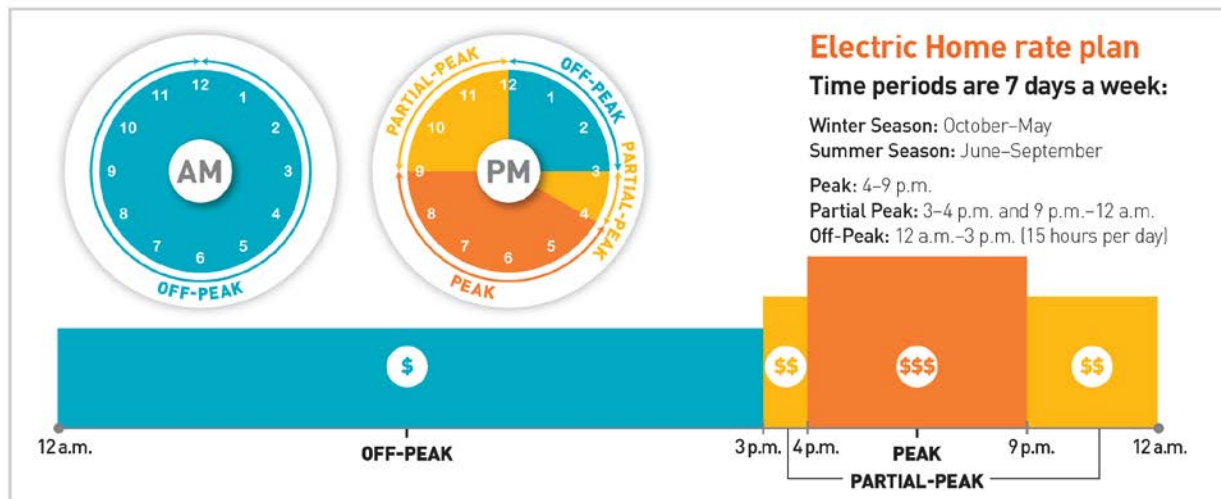
QUESTION 7: CUSTOMER EDUCATION

Synapse recommends that the utilities seek to gather lessons learned from other jurisdictions in terms of customer marketing, education, and outreach. It may be useful to ask several representatives from other utilities (such as SMUD, San Diego Gas & Electric (SDG&E), and Public Service Colorado) to give a presentation at a stakeholder session so that the Maine electric distribution companies do not have to reinvent the wheel. For example, some utilities report that customers are better able to understand



graphics that present the TOU windows in the form of a circular clock, rather than as a bar graph. The figure below shows PG&E’s representation of one of its TOU rates in both formats.

Figure 1. PG&E Presentation of TOU Rates



Source: <https://www.pge.com/en/account/rate-plans/find-your-best-rate-plan/electric-home.html>

In addition, it is helpful to review the timelines and marketing materials that have been used by other utilities to successfully enroll customers in TOU programs. SDG&E’s timeline involved targeted education and outreach activities beginning in 2017 – approximately 18 months prior to beginning the transition to default TOU.²⁵ Then, beginning more than a year in advance of the default TOU roll-out, customers were provided with rate comparison mailers, which forecast the estimated annual bill on each of the pricing options based on the customer’s last 12 months of usage and provided the actual annual bill for their current rate.²⁶ These rate comparisons are updated and provided to customers every six months.²⁷

- During their transition month, customers receive welcome information regarding their new rate, and after the transition, customers continue to receive support through After Care communications, including a Personalized Video email.²⁸

²⁵ SDG&E Advice Letter 2992-E-A, March 15, 2017. <http://regarchive.sdge.com/tm2/pdf/2992-E-A.pdf>

²⁶ SDG&E Advice Letter 2992-E, November 1, 2016. <http://regarchive.sdge.com/tm2/pdf/2992-E.pdf>

²⁷ San Diego Gas & Electric Company Quarterly Report on Progress of Residential Rate Reform, Rulemaking 12-06-013, February 3, 2020. <http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M329/K656/329656588.PDF>

²⁸ San Diego Gas & Electric Company Quarterly Report On Progress Of Residential Rate Reform, Rulemaking 12-06-013, February 3, 2020. <http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M329/K656/329656588.PDF>

- All customers receive bill protection (hold harmless provision) for one year, and after 10 months on the TOU plan, customers receive notification that bill protection is coming to an end.²⁹

The table below illustrates SDG&E’s estimated timeline as of March 2017.³⁰

Table 2. SDG&E’s Estimated Default TOU Roll-out Timeline

TOU ME&O by Group		2017				2018				2019				2020			
Opt-in Pilot of 20,000		Opt-in TOU Pilot															
						Learnings											
Default Pilot of 100,000						Default TOU Pilot											
										Learnings							
Default of remaining residential customers	New electric rates are here based on when you use energy. SDG&E has solutions to help you succeed.													Rolling Default TOU			
Targeted ME&O to Vulnerable	Time of Use is coming. SDG&E can help you prepare.					Targeted ME&O to Vulnerable Customers											
Targeted ME&O to Structural	You may be able to start saving money today.					Targeted ME&O to Structural Savers											
Targeted ME&O to All	We have solutions to help you be successful on TOU.									Targeted and Mass ME&O to default segments							
TOU ME&O by Phase		2017				2018				2019				2020			
Awareness	When you use energy matters. New rates are					Awareness											
Acknowledge	New rates are available. Soon all customers will need to choose their new rate.									Acknowledge							
Activation	SDG&E has tools to help you compare rates and be													Activation			
Agreement	Here's how to get the most from your TOU rate.													Agreement			
Bill/Rate Comparisons		2017				2018				2019				2020			
Rate Comparison Mailers	Here is a comparison of available rates																
	It's easy to compare and select rates																

²⁹ San Diego Gas & Electric Company Quarterly Report On Progress Of Residential Rate Reform, Rulemaking 12-06-013, February 3, 2020. <http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M329/K656/329656588.PDF>

³⁰ SDG&E Advice Letter 2992-E-A, March 15, 2017. <http://regarchive.sdge.com/tm2/pdf/2992-E-A.pdf>



QUESTION 8: MODELING AND MONITORING

Standard offer (SO) pricing is currently obtained from suppliers as a flat rate for all kilowatt-hours. The Commission requested input regarding whether standard offer TOU pricing should be procured through separate SO bids, or whether the flat SO price should simply be presented to customers as a TOU rate in the billing process.

Synapse recommends that the Commission consider another option: that all SO bidders provide bids with on-peak and off-peak pricing, as is done in Connecticut. The electric distribution companies in Connecticut obtain bids separately for each class and may choose to define the on-peak and off-peak hours according to their retail rate schedules or according to ISO-New England’s on-peak and off-peak periods. Bidders provide on- and off-peak pricing, but they are free to determine how much price differentiation between on- and off-peak periods, if any, they choose to reflect in those prices. Bidders’ winning prices are then combined into a 6-month flat rate for most customers.³¹

To illustrate, United Illuminating’s term sheet for SO bids for 2025 defines the on-peak and off-peak periods by customer class as follows:³²

Table 3. United Illuminating's Standard Offer Procurement Classes and Periods

Customer Class	UI Retail Rate	On Peak period - weekday hours only	Off Peak period - all weekend hours plus weekday hours below
Residential	R, RT	HE* 13 - HE 20	HE 21 - HE 12
Small C&I	GS, GST	HE 11 - HE 18	HE 19 - HE 10
Large C&I	LPT	HE 11 - HE 18	HE 19 - HE 10
Street Lighting	M, U, MC, MH	-----	All Hours
* HE = Hour Ending			
<i>Note: All UI historical load data is provided as HE data.</i>			

Approximately 25% of United Illuminating’s residential customers are on its time-of-use rate (Schedule RT). According to the utility’s most recent rate case, the TOU customers represent approximately 200 MW of load.³³ Nevertheless, United Illuminating currently procures all of its residential load together

³¹ CL&P dba Eversource Energy. Response to Q-UPA-039(b). Docket 17-12-03RE10. October 10, 2023. Available at: [https://www.dpuc.state.ct.us/2NDDOCKCURR.NSF/8e6fc37a54110e3e852576190052b64d/b4c4f95c8960ef9585258a4500440470/\\$FILE/PURA_04_UPA_039_0_Answer.pdf](https://www.dpuc.state.ct.us/2NDDOCKCURR.NSF/8e6fc37a54110e3e852576190052b64d/b4c4f95c8960ef9585258a4500440470/$FILE/PURA_04_UPA_039_0_Answer.pdf).

³² United Illuminating Company. Docket No. 24-01-02. RFP 102024 Term Sheet. UI Attachment 3, Exhibit A. Available at: <https://www.uinet.com/documents/1678076/1696302/Oct+16+2024+Term+Sheet+RFP+09172024.pdf/e7853c07-a488-1200-703b-be236743b030?t=1726579250055>.

³³ CT PURA Docket No. 22-08-08. UI Allocated Cost of Service Study External Allocation Factors. Witness Rimal, Schedule E-6.0. Available at [https://www.dpuc.state.ct.us/dockcurr.nsf/8e6fc37a54110e3e852576190052b64d/5eb0992a2d68303885258892004ff578/\\$FILE/76640831.pdf/WP-5.0%20-%20Class%20Allocation%20Factors.pdf](https://www.dpuc.state.ct.us/dockcurr.nsf/8e6fc37a54110e3e852576190052b64d/5eb0992a2d68303885258892004ff578/$FILE/76640831.pdf/WP-5.0%20-%20Class%20Allocation%20Factors.pdf).

using the Schedule RT on-peak and off-peak hours. Synapse also recommends that Maine procure its SO service for all residential customers together, at least until a sufficient quantity of load data is available for customers on TOU rates. As the Commission found in its *Report Regarding the Implementation of Time-of-Use Rates Pursuant to Resolves 2023, chapter 79*, without access to TOU load data, suppliers are likely to include “potentially unacceptable risk premiums in their bid prices.”³⁴

Consistent with Connecticut’s practice, however, the TOU prices that Maine customers face should not necessarily include the same price differentials as the SO suppliers’ on-peak and off-peak bids. Suppliers will likely vary in the extent to which they reflect actual on-peak to off-peak ISO-NE market price differentials in their bids based on each supplier’s internal risk threshold and the load information provided for each class.

³⁴ Maine Public Utilities Commission. Report Regarding the Implementation of Time-of-Use Rates Pursuant to Resolves 2023, chapter 79, November 20, 2023, at 2.

