

**Concord Municipal Light Board**  
**June 10, 2020**  
**Final**

Pursuant to a notice duly filed with the Town Clerk, a meeting of the Municipal Light Board was held on Wednesday June 10, 2020, at 5:00PM, via a Zoom Webinar. Present were Board Members: Wendy Rovelli, Gordon Brockway, Peggy Briggs, Alice Kaufman and Lynn Salinger. Also in attendance were David Wood, CMLP Director; Laura Scott, CMLP Power Supply and Rates Administrator; Karin Farrow, CMLP Admin; Matt Cummings, CMLP Financial Manager; Jan Aceti, Energy Conservation-Coordinator; Joe Repoff, CMLP Assistant Director; Russell Hissom, Baker Tilly Consultant; Andy Puchrik, Pamela Dritt, Brian Foulds, David Allen, Louise Berliner, Jim Terry, Baird Ruch

Note definitions for acronyms used in these minutes:

- APPA: American Public Power Association
- CIO: Chief Information Officer
- CMLP: Concord Municipal Light Plant
- CPW: Concord Public Works
- ETS: Electric Thermal Storage
- EV: Electric Vehicle
- KWH: Kilowatt hour
- PILOT: Payment in Lieu of Taxes
- PPE: Personal Protective Equipment
- TOU: Time of Use
- VPN: Virtual Private Network

Meeting materials: Electric Rate Study Board Presentation by Baker

**CALL TO ORDER**

Ms. Rovelli called the meeting to order at 5:01 PM. Noted was that the meeting was being recorded<sup>1</sup> and that the last meeting was the March meeting. Participation was to be via utilization of the chat function or the raise hand function. Meeting recording to be posted to the website as soon as it is available.

**FUTURE MEETINGS and MINUTES**

June 24, 2020, July 8, 2020, August 12, 2020, September 9, 2020, October 14, 2020, November 18, 2020, December 9, 2020. The December special budget meeting needs to be scheduled.

The minutes from the March meeting were not ready for approval.

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<sup>1</sup> Minuteman Media Network Coverage: <https://www.youtube.com/watch?v=SVaGrJlsH-U>

## **DIRECTOR'S REPORT**

Mr. Wood reported on the status of ongoing projects:

**Current CMLP Operating Procedures:** Due to the Coronavirus pandemic, on March 13, 2020 Concord Town Offices were closed to the public and the Town started providing only essential services. The Light Plant split essential service employees into two teams with each team reporting to the office every other day to limit exposure while continuing to provide essential services. On the days staff are not in the office they are working remotely using a Virtual Private Network (VPN). The VPN is a secure network using a multi factor authentication, and was launched shortly before the office closure. Mr. Wood reported that there have been no active cases of COVID19 at the Light Plant to date.

CMLP has increased safety procedures by disinfecting twice daily by staff, a cleaning service afterhours and a bi-weekly deep disinfectant cleaning. State and Federal mandates are being closely followed. A contingency plan has been developed in the event that one of the teams comes down with COVID-19.

Mr. Wood praised the ability of the teams to perform well in light of two major storms with power outages.

Preparation has been made, and all employees have been trained on our new operating procedures. All conference rooms will remain closed, there are limitations on the use of lunch rooms, and employees are required to wear masks in common areas. Mr. Wood reported that adequate PPE is on hand and supplies will be monitored closely.

Joe Repoff and Laura Scott are members of the Town Manager's Reopening Task Force which will provide guidance and recommendations on how the Town will re-open. Mr. Wood anticipates the two-team structure to remain in place for some time, even after town offices reopen.

**Tree Trimming:** Annual tree trimming has been completed by CMLP's contractor. Approximately 30 trees were identified as hazardous.

**Cambridge Turnpike Project:** Phase 1 (from Lexington Road to the bridge) underground utility conversion has been completed. Decorative streetlights were installed, and overhead electrical distribution system will be removed. Mr. Wood praised the teamwork between CMLP, Concord Public Works, and the Town's facilities that resulted in swift and coordinated progress even during the pandemic. The conversion of the fiber optic network has begun.

**EV Shared Charging Infrastructure:** CMLP has prepared dedicated and shared EV charging infrastructure designs, cost estimates and specifications for two multi-dwelling unit properties participating in CMLP's EV Ready Pilot program: Center Village and Riverwalk. An agreement has been executed with the 3<sup>rd</sup> pilot program participant, Milldam Square Condominiums, and work will begin soon. CMLP is developing a financing program to help participants with the anticipated cost of infrastructure installation.

**Virtual resources:** An e-newsletter was sent out in April informing customers about virtual learning resources on electrifying houses, energy efficient water heating and electric vehicle technology. The

resources included EV and heat pump podcasts, an EV Virtual Test Drive portal, remote home energy assessments and an online EV Live Q &A session.

**DEED Grant** A \$38,000 DEED Grant from APPA has been awarded to pilot a Heat Pump Coaching Program. Grant money will fund three part-time temporary employees as Heat Smart Coaches, to provide coaching to customers interested in installing air-source heat pumps, ground source heat pumps or a heat pump water heater system in their home.

**NISC:** Currently 3038 customers have signed up and are using Smart Hub. Impressive as it has not yet been marketed.

**Forest Ridge:** Replaced all the metal halide streetlights on Forest Ridge Rd. to LED.

**Recruitment:**

- Telecommunication Technicians (2) – hired.
- Grade 3 Line Worker (Apprentice) – hired.
- Network Engineer – On hold as training currently unavailable due the split teams.
- CIO- recruitment launched and closed on June 8. Received 93 applications which are currently being reviewed. Timeline is to complete initial screening by June 12. Choose applicants on June 17<sup>th</sup> and start first round interviews on the week of June 22.

**Cost of Service Rate Design Presentation:** Russell Hissom of Baker Tilly presented a Cost of Service Electric Rate Study (Addendum A) Presentation represents a first draft of the study as input and discussion is being sought. Presentation consisted of four parts and summarized below:

*CMLP's Story and Strategic Plan:* The parts of the CMLP plan that drive utility rates and the rate strategy initiatives were identified in a Goal with corresponding Target Value format.

*The Revenue Requirement:* The revenue requirement was developed based on the 2020 budget. The breakdown is as follows: Sixty-three percent (63%) of the allocation was for Power Supply expenses with the balance consisting primarily of Admin & General (14%), Depreciation (7%), Return on rate-base (6%), Customer Account expenses (5%) Distribution expenses (3%) and PILOT (2%). A comparison was provided of the 2014 Study to the current Study indicating a 13.43% increase in the total revenue requirement.

*Cost of Service Analysis:* Strategy was to assign electric system costs to users based on load curves. To do that, Baker Tilly identified rate class subsidies and sought to ensure revenue stability and adequate cash flow. The study based on CMLP customer data, industry standards and CMLP specifics. Classification of Functional Costs is based on: Demand (fixed costs), Energy (variable costs), Customer costs and Direct Assignment.

According to Baker Tilly, the results indicate that CMLP revenues is adequate to meet its costs. A more detailed analysis found that there some rate classes are paying more than their cost of service while other rate classes are paying under their actual cost of service. The result is a cross subsidy of about \$2M of commercial ratepayers paying to offset the actual costs in the various residential rate classes. BakerTilly recommends that CMLP consider modifying the rate structure over time so that residential customers pay more of the costs of service, and to undertake regular cost of service studies to align rates to their costs. Additional data is needed to determine an Opt-out Residential Time of Use Rate plan. A Residential Demand Rate should become part of the CMLP rate structure.

Rate Design Considerations: Key findings in the study: design rates based on allocated costs to rate classes: All CMLP functional costs allocated to all users – current users pay for current cost of system. Rate philosophy should align with strategic plan goals. Revenue is generated primarily by the Residential and General Services classes and drives the majority of the rate design. Determining what rate differential will cause customers to seek to change their time of use. The Strategic Plan, which calls for an increase in the fixed monthly residential customer charges towards \$30, falls short of the \$122 monthly fixed costs indicated by the Study. Fixed cost being made up of weighted components of: Fixed power supply, Depreciation, Substation, Distribution, Meter operation, Services, Meter reading and Billing. Time of Use Rates – more data is needed to forecast any changes in usage behavior.

Other Topics:

- Net metering – CMLP currently credit customers for the day ahead price whereas the current trend is to credit the customer per kWh for the value of their solar to the utility.
- The ETS customer class cost of service is 18% higher than the current revenues from that class.
- The beneficial electrification issues include: savings to consumers compared to alternative sources, better grid management and the reduction of negative environmental impacts.

Next Steps: Design customer rates, present rate design to management, make final revisions and then present final report and recommendations to the Light Board.

Mr. Hissom answered questions by the Board that included a discussion of how the allocation of costs were determined. Mr. Hissom reported that a line-by-line analysis of the budget was used to determine the allocation of costs, with an understanding that some line items are fixed or variable and some have a combination of fixed and variable components to them. Mr. Hissom explained that weighting factors were used to allocated cost to various rate classes that was presented as an industry standard methodology.

Tiered rates will be addressed when the Rate Design is presented.

The Summary of differences in cost of service and forecasted revenues represents the classes where a rate increase (revenue not covering costs) was indicated and the classes where a rate decrease (revenues greater than cost) may be warranted. It was noted that consistent with prior studies, revenues for medium and large general service exceeded cost of service, while the residential class had costs that exceeded revenues.

When asked by the Board to define the critical steps ahead in order to proceed to the Rate Design portion, Mr. Hissom said that the Board will need to decide what the revenue goal from each customer class is based on the Cost of Service Study and if needed, make any policy adjustments.

The current trend across the industry standards is a move away from large commercial ratepayers providing cross-subsidization to residential.

Members of the audience asked for clarification and commented as follows: The \$122 figure for residential fixed cost comes from the cost of kWh used divided by the number of customers. The cost of capacity is included in the cost calculation. Mr. Hissom noted that in this region most residential fixed monthly charges are not greater than \$20. There is a need for further review and clarification on the cost allocation factors before the board is able to provide policy direction, based on the study numbers. Additional discussion maybe needed on long term goals: – Will all Concord’s electric be generated from green sources? Is most of the energy usage electric? Is additional the infrastructure needed to support all the solar residents want to install? A high fixed cost could dis-incentivize residents from installing solar.

The Board agreed that a supplemental meeting in June should be scheduled.

The Study was based upon a pre-COVID19 budget and usage data. Only about 20% of the current power supply costs are variable.

The board agreed that a discussion on increasing the Renewable Energy Credit rate by .005/kWh would be added to the next agenda.

Development of an RFP for the smart meter consultant has been put on hold due to time constraints imposed by the pandemic.

Mr. Wood again offered thanks for a job well done to the entire CMLP team.

### **LIASON & PUBLIC COMMENTS**

Mr. Foulds raised a concern about the inclusion of capacity in the calculation of fixed power supply costs. He asked, “If you remove the “Fixed power supply” from the Customer fixed charges calculation does the \$71 per month drop to the \$30 per month for residential customers?” Ms. Scott noted that if you removed the fixed power supply you get to \$71. Mr., Foulds noted that with only 10% of smart meters in town you are using the kWh sold per customer class instead of real kW data to allocate capacity expense. CMLP needs real data to do this correctly. While the discussion focused on fixed cost for residential customers, Ms. Aceti reminded participants that CMLP’s strategic plan called for increased fixed charges for commercial customers as well as residential customers.

In response to a question, Ms. Scott indicated that a TOU could be offered with or without a demand charge

Ms. Dritt asked whether there were other methods of incentivizing customer behavior. How do we incentivize residential solar while increasing the charge for fixed costs/infrastructure? Do we compensate by giving solar-generating residents higher net metering payments to solar homeowners for their power generated? What behavior do we want to incentivize? Don't we want to incentivize electric vehicles and residential solar installations? Do we want to get to a future where CMLP essentially manages the infrastructure and the customers generate clean power locally?

Mr. Terry commented that board needs to learn and understand residential demand. Ms Scott recognized that although CMLP does not have smart meter data for all customers, the nearby Eversource load is the best approximation we have to use to inform rates going forward

## Adjourn

Ms. Salinger moved to adjourn the meeting. Mr. Brockway seconded and with unanimous roll call vote, the meeting was adjourned at 6:58PM.

Respectfully submitted,  
Alice Kaufman, Clerk

## Addendum 1



Concord Municipal Light Plant

Electric Rate Study Board Presentation

June 10, 2020

 **bakertilly**  
now, for tomorrow.

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TODAY'S AGENDA

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## CMLP's Story and Strategic Plan

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### The Revenue Requirement

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### Cost of Service Analysis

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### Rate Design Considerations

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The strategic plan drives utility rates

Goal	Target Value
1. Maintain system reliability	No change in customer rating (95.2%)
2. Maintain or increase customer satisfaction/perception of value	Greater than or equal to 85.8%
3. Provide energy related services to as many customers as possible	25% residential participant, 50% commercial participation
4. Increase revenue	0% to 5%
5. Increase net operating income	0% to 5%
6. Reduce GHG emissions	100% of 35% goal for 2025

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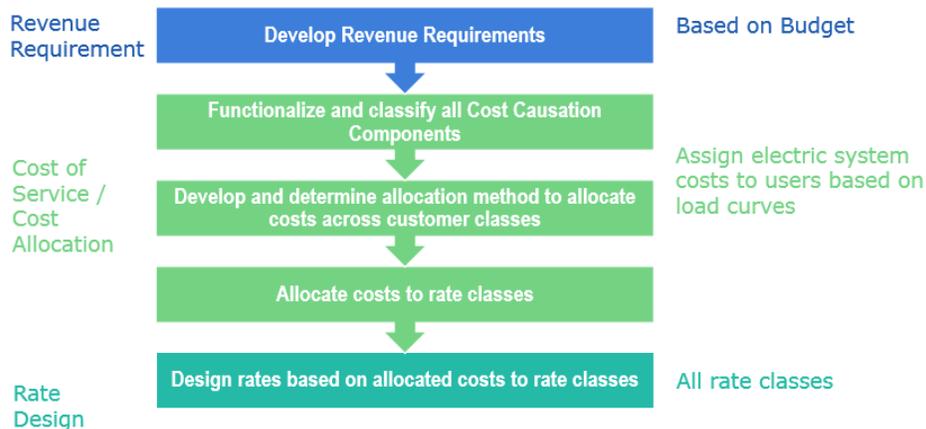
Rate strategy that is an integral part of CMLP's strategic initiatives:

Goal	Target Value
1. Time of use rates	Sending a price signal to customers to shift their consumption to off-peak periods
2. Higher fixed charges	Increasing residential and general service charges, sending a clearer price signal to customers and grid services providers about the value of the connection they are using
3. Beneficial electrification for electric vehicles	Mechanisms needed to ensure that charging is done off-peak, including participation in TOU rates or controlled charging programs

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### Ratemaking Process

A Systematic Process

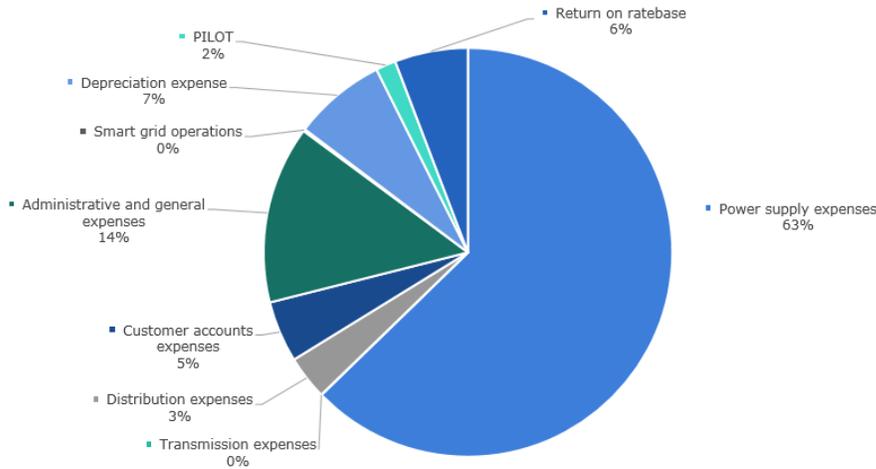


Embedded cost approach: All functional costs of the utility allocated to all users – current users pay for current cost of system

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# Revenue Requirement Components

Based on CMLP 2020 budget



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# Revenue Requirement Components

Current Rate Study compared to 2014 Rate Study

**Change in major cost components:**

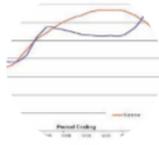
	Current Study	2014 Study	Difference
Power supply expenses	\$ 17,706,079	\$ 17,056,000	\$ 650,079
Transmission expenses	-	92,000	(92,000)
Distribution expenses	977,889	682,000	295,889
Customer accounts expenses	1,368,250	482,000	886,250
Administrative and general expenses	3,971,877	2,826,000	1,145,877
Smart grid operations	46,123	46,123	46,123
Depreciation expense	2,067,795	1,711,000	356,795
PILOT	448,753	-	448,753
Other revenues	-	(120,000)	120,000
Return on ratebase	1,635,984	2,152,000	(516,016)
<b>Total</b>	<b>\$ 28,222,750</b>	<b>\$ 24,881,000</b>	<b>\$ 3,341,750</b>

Percentage Increase

13.43%

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## Cost of service objectives



Allocate revenue requirement to customer classes based on load curves and cost-causation principles



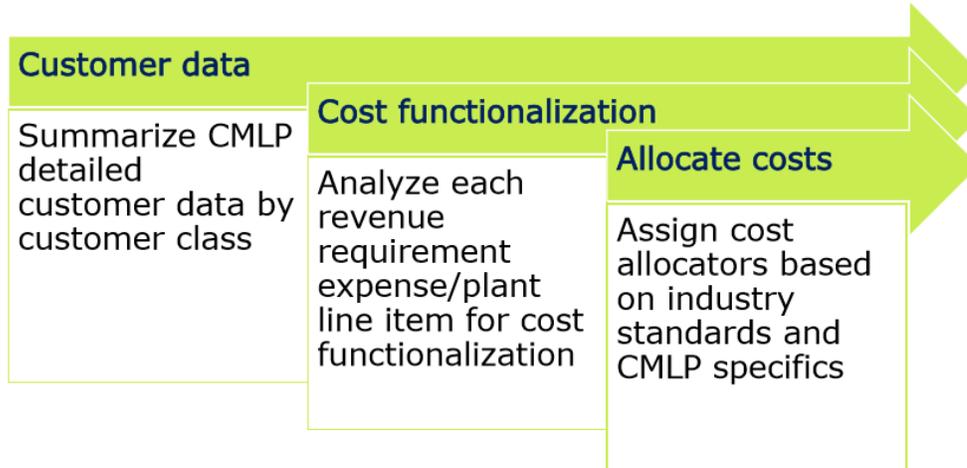
Year Revenue	Cost of Service
\$ 4,307,702	\$ 4,488,024
\$ 2,238,467	\$ 2,337,000
\$ 1,628,800	\$ 1,796,800
\$ 1,847,510	\$ 1,803,200
\$ 9,620,580	\$ 10,225,707

Identify rate class subsidies



Ensure revenue stability and adequate cash flow

## Cost of Service > Customer load data drives cost allocations



## Cost of Service > Classification of Functional Costs



### Demand (Fixed costs)

*Costs of facilities to meet peak demands on the system*



### Energy (Variable costs)

*Costs associated with consumption of electricity*



### Customer costs

*Costs incurred to serve customers without regard to usage*



### Direct Assignment

*Cost incurred to serve specific customers*

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## Cost of Service > Results

### Cost of service compared to revenues

Overall, revenues from current rates in total equal the cost to serve CMLP's customers

### Allocated costs

Proportionally, the cost of service has shifted slightly towards the residential customer class from other classes

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## Summary of differences in cost of service and forecasted revenues

Customer Class	Cost of Service	Forecasted		% Over/(Under)
		Revenues at Current Rates	\$ Over/(Under) Cost of Service	
Residential	\$ 13,628,445	\$ 11,525,569	\$ (2,102,876)	-18.2%
Residential Assistance	229,951	87,654	(142,297)	-162.3%
Residential TOU	46,903	22,628	(24,275)	-107.3%
Residential Heating	73,024	50,489	(22,535)	-44.6%
Residential Controlled Water Heating	837,145	667,349	(169,796)	-25.4%
Residential Net Metering	-	33,917	33,917	100.0%
ETS Off Peak	250,034	211,632	(38,402)	-18.1%
Small General Service	2,498,983	2,657,699	158,716	6.0%
Medium General Service	3,830,601	4,774,224	943,623	19.8%
Large General Service	6,728,892	8,204,638	1,475,746	18.0%
General Service Net Metering	-	(10,363)	(10,363)	100.0%
Street Lights	186,390	62,620	(123,770)	-197.7%

**Totals** \$ 28,310,367 \$ 28,288,056 \$ 22,311 0.1%

In the % column (far right), Positive means the cost of service is less than forecasted revenues. Negative means the cost of service is greater than forecasted revenues.

NEXT STEPS

## Overall recommendations/observations

Recommendations/Observations
1. Current rates in total meet the current CMLP cost of service
2. Customer rates should move towards their cost of service
3. CMLP should undergo regular cost of service studies to determine the direction of each classes' cost of service
4. CMLP should obtain more data from a larger customer study group to determine usage patterns that will evolve with an Opt-out Residential Time of Use rate. This data will become readily available for analysis as CMLP installs more smart meters.

## Overall recommendations

### Recommendations/Observations

5. As CMLP installs more smart meters, a Residential Demand Rate should become part of CMLP's rate structure in order to send price signals to customers on their electricity usage.

6. To avoid rate shock, a transition plan should be used to move customer rate classes to their cost of service.

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## Rate design considerations

### Study frequency

- Frequent cost of service studies allow rates to move towards the cost of service

### Strategic plan

- Rate philosophy should fit with strategic plan goals

### Ratemaking process

- Decide on rate increase and revenue targets, rates are designed based on those parameters

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## Rate design considerations

### Residential/General Service

- Decide on rate targets
- This will drive the majority of the rate design

### Time of use

- Philosophy of incentive for customers to change their behavior
- Need to determine what rate differential will cause customers to seek to change their time of use of electricity

### Fixed charges

- Strategic plan calls for increase in monthly customer charge towards \$30 per residential customer
- Cost of service study indicates monthly residential fixed costs are \$122 per customer per month including power related demand charges and \$71 without power related demand charges

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## What costs and accounts are part of the customer fixed charge?

### Customer fixed charges

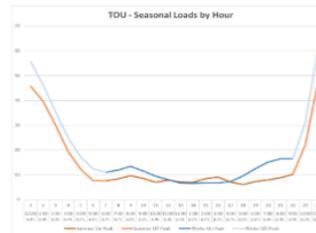
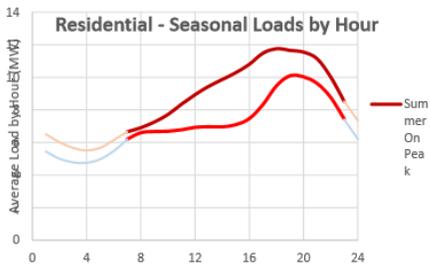
- The customer fixed charge is made of components of these cost categories:
  - Fixed power supply
  - Depreciation
  - Substation
  - Distribution
  - Meter operation
  - Services
  - Meter reading
  - Billing

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## Changes in rate approach – opt-out time of use rates, residential customer demand rates

### Time of Use Rates

- Time of use rate differentials send price signals to shift their electric use
- The load curves below tell the story – the left graph is the current residential load curve, the right curve is the current residential time of use load curve
- As more smart meters are installed, data will become available for analysis
- Data is needed to forecast if/how long/how many it will take for customers to change their usage behavior



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## Other topics

### Net metering

- CMLP net metering customers receive a credit for the average day ahead price in ISO-NE
- Some utilities with this type of rate structure base the credit on the actual/average real time price, as this is the avoided cost in their energy portfolio
- CMLP charges net metering customers a monthly distribution charge based on the installed generation capacity of the customer
- A trend in utilities is to credit the customer per kWh for the value of their solar contribution to the utility

### ETS rates

- The ETS customer class ` cost of service is 18% higher than the current revenues from that class
- The ETS load curve may fit within a residential time-of-use rate if the technology is effective within the parameters of the time-of-use periods

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Other topics

**Beneficiation  
electrification  
issues**

- Saving consumers in their overall rates compared to alternative sources
- Better grid management
- Reducing negative environmental impacts

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Next steps

- Design customer rates
- Present rate design to management
- Make final revisions
- Present final report and recommendations to the Board

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## Summary

- We greatly appreciate the assistance of the CMLP Power Supply and Rates Administrator and Financial Manager in preparing this report
- Please contact us anytime with questions or comments
- We are grateful to have been of assistance on this project!

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## Further discussion

You can contact us anytime:

Jodi Dobson  
[Jodi.Dobson@bakertilly.com](mailto:Jodi.Dobson@bakertilly.com)  
608 240 2469

Peter Haney  
[Peter.haney@bakertilly.com](mailto:Peter.haney@bakertilly.com)  
312 819 4301

Russ Hissom  
[Russ.Hissom@bakertilly.com](mailto:Russ.Hissom@bakertilly.com)  
608 628 4020