

**THE STATE OF NEW HAMPSHIRE**  
**BEFORE THE**  
**NEW HAMPSHIRE PUBLIC UTILITIES COMMISSION**

**TESTIMONY OF EDWARD A. DAVIS**

**PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE**  
**D/B/A EVERSOURCE ENERGY**

**PROPOSED RESIDENTIAL TIME-OF-DAY RATE**

**Docket No. DE 21-XXX**

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1   **INTRODUCTION**

2   **Q.    Mr. Davis, please state your name, business address and position.**

3   A.    My name is Edward A. Davis. My business address is 107 Selden Street, Berlin, CT  
4        06037. My position is Director, Rates at Eversource Energy Service Company and in that  
5        position I provide rate and tariff related services to the operating companies of  
6        Eversource Energy including Public Service Company of New Hampshire d/b/a  
7        Eversource Energy (“Eversource” or “the Company”).

8   **Q.    Have you previously testified before the New Hampshire Public Utilities**  
9        **Commission?**

10  A.    Yes. I have on many occasions testified before the New Hampshire Public Utilities  
11        Commission (“Commission”) on behalf of Eversource, and at the state utility

1 commissions in Connecticut and Massachusetts on behalf of other Eversource Energy  
2 affiliates on rate related matters.

3 **Q. Please describe your educational background and professional experience.**

4 A. I hold a Bachelor of Science degree in Electrical Engineering from the University of  
5 Hartford and Master of Business Administration from the University of Connecticut. I  
6 joined Northeast Utilities, now Eversource Energy, in 1979 and have held various  
7 positions in the areas of consumer economics, engineering and operations, wholesale and  
8 retail marketing and rate design, regulation and administration.

9 **Q. What is the purpose of this testimony?**

10 A. The purpose of my testimony is to propose, for review and approval by the Commission,  
11 an amendment to the Company's optional time-of-day (TOD) tariff for its residential  
12 customers. This proposal has been developed and is being filed pursuant to the  
13 Settlement Agreement in Docket No. DE 19-057, the Company's Permanent Distribution  
14 Rates case approved by Commission Order 26,433.

15 **Q. How is your testimony organized?**

16 A. Section I of this testimony provides an Introduction, while Section II provides a summary  
17 of the Company's proposed new Residential TOD rate, tariff amendments and associated  
18 bill impacts. Section III discusses the design of proposed rate; Section IV discusses  
19 tariff and customer rate options and provides bill comparisons associated with  
20 introduction of the new rate; Section V discusses technical requirements and the process

1 for implementing and transitioning customers to the proposed new rate; and Section V  
2 provides the conclusion.

3 **II. SUMMARY OF PROPOSED RATE AND TARIFF AMENDMENTS**

4 **Q. Please summarize the Company’s proposed new Residential TOD rate and**  
5 **associated Tariff amendments.**

6 A. In this filing the Company proposes an amendment to its Tariff to revise its Residential  
7 TOD rate, changing the duration and pricing of its current time varying rates offered  
8 under Rate R-OTOD, from a 13-hour peak period (7 a.m. to 8 p.m.) to a new seven-hour  
9 peak period (12 Noon to 7 p.m.), during non-holiday weekdays. Please refer to Table 1,  
10 below for the new peak/off-peak division of rates.

<b>Table 1: Proposed Rate R-OTOD-2 Rates</b>		
Customer Charge		\$32.08 per month
Distribution		
	On-Peak	2.800¢ per kWh
	Off-Peak	2.310¢ per kWh
Transmission		
	On-Peak	7.400¢ per kWh
	Off-Peak	1.650¢ per kWh
Stranded Cost Recovery		
	All hours	1.238¢ per kWh
System Benefits Charge		
	All hours	0.743¢ per kWh
Energy Service		
	All hours	6.627¢ per kWh
<b>TOD Periods</b>		
On-Peak: 12:00 Noon to 7:00 pm weekdays, excluding holidays		
Off-Peak: All Other Hours		

11

1 Pursuant to the requirements of Puc 1605.02, the Company is filing proposed new tariff  
2 pages reflecting the proposed amended rate, (“R-OTOD-2”), as provided in Attachment  
3 EAD-1 (clean) and Attachment EAD-2 (redlined). The Company requests Commission  
4 review and approval of this amended rate and the proposed new pages in order to put the  
5 new rate into effect, provide the basis for the Company to inform customers of this new  
6 R-OTOD-2 rate option, and to work with current Rate R-OTOD customers to transfer  
7 service to the new rate. Once the proposed rate is approved along with the new tariff  
8 pages, the Company will review its full tariff and amend pages throughout accordingly to  
9 reflect the newly-approved rate and submit those amended pages as a separate tariff  
10 compliance filing.

11 **Q. Why is Eversource proposing this new rate?**

12 A. Under the Company’s Settlement Agreement in DE 19-057, Eversource agreed to  
13 propose amendments to its tariff, revising its optional Residential TOD rate, Rate R-  
14 OTOD, to have a peak period with a duration of no greater than eight hours<sup>1</sup>. Should the  
15 Commission approve the new rate R-OTOD-2, the Company asks that the Commission  
16 provide a sufficient period of time between its approval and the implementation date  
17 replacing the existing R-OTOD so that the Company may transition its current R-OTOD  
18 customers either to the new rate R-OTOD-2, or to residential Rate R. The efforts and

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<sup>1</sup> Docket No. DE 19-057, Settlement Agreement, Section 14.6: Within six months of the Commission’s approval of this Settlement Agreement, the Company shall propose amendments to its tariff to revise its optional time-of-day rate for residential customers. Such proposal shall include, but not be limited to, a two-period rate structure consisting of peak and off-peak periods, with a peak period lasting no more than eight hours. PSNH shall collaborate with interested members of the Settling Parties and other stakeholders in developing the proposal. [https://www.puc.nh.gov/Regulatory/Docketbk/2019/19-057/LETTERS-MEMOS-TARIFFS/19-057\\_2020-10-09\\_EVERSOURCE\\_SETTLEMENT\\_AGREEMENT.PDF](https://www.puc.nh.gov/Regulatory/Docketbk/2019/19-057/LETTERS-MEMOS-TARIFFS/19-057_2020-10-09_EVERSOURCE_SETTLEMENT_AGREEMENT.PDF)

1 steps of such a transition are discussed below in the next response, and later in Section V  
2 – Implementation.

3 **Q. Please summarize the impacts to customers of these proposed changes.**

4 A. The proposed new Rate R-TOD-2 is intended to update the TOD characteristics and  
5 pricing of current Rate R-OTOD. As generally indicated above, a process of customer  
6 education and outreach will be needed to inform customers of the impacts of the revised  
7 rate, and to support the transition from Rate R-OTOD to either R-OTOD-2 or Rate R.  
8 There are currently approximately 45 residential customers who receive service under R-  
9 OTOD. Charges under the new Rate R-OTOD-2 are generally expected to be lower than  
10 those under the existing Rate R-OTOD, assuming no variation from customers' historic  
11 usage. Further changes or shifting of usage between the new TOD periods may result in  
12 a bill decrease or increase, depending on customers' total usage and proportion of peak  
13 and off-peak energy consumption. As with current Rate R-OTOD, customers may elect  
14 to switch to the Company's regular power and light rate, Rate R. Further review and  
15 discussion of rate options and bill impacts associated with the introduction of proposed  
16 Rate R-TOD-2 is provided in Section IV.

17 **III. Rate Design**

18 **Q. Please discuss the basis for the design of the proposed Rate R-OTOD-2.**

19 A. The Company has designed the proposed rate under Rate R-TOD-2 to include a new,  
20 year-round seven-hour peak period, from 12 noon to 7 p.m. weekdays, excluding  
21 holidays, which is more cost-reflective than the current year-round 13-hour peak period.

1 Consistent with current meter and billing system capabilities, the Company has  
2 developed cost-based, time-differentiated rates for this new peak period for the  
3 distribution and transmission components of service. Since an important objective of any  
4 time of use rates is to reflect efficient price signals by time of day, the Company relied on  
5 a marginal cost analysis to determine the appropriate peak and off-peak kWh price  
6 differentials. In particular, the Company's rate R-OTOD-2 design was informed by the  
7 results of the Company's Distribution Marginal Cost of Service ("MCS") study, in  
8 particular hourly marginal distribution substation costs, as well as a transmission  
9 marginal cost analysis, conducted by the same MCS consultant under Docket No. DE 19-  
10 057.

11 **Q. Please describe how the Rate R-OTOD-2 charges were developed for the proposed**  
12 **peak and off-peak periods.**

13 **A.** The proposed Rate R-OTOD-2 maintains the current customer charge of rate R-OTOD,  
14 which is \$32.08/month. The Company's proposed rate design is revenue-neutral with the  
15 residential distribution and transmission rates approved by the Commission (Rate R).  
16 This means that the residual class revenue requirement after maintaining the customer  
17 charge at that level, needs to be collected through TOD kWh charges. The Company's  
18 design applies the distribution and transmission peak to off-peak marginal cost  
19 differentials to set the peak and off-peak distribution and transmission TOD rates,  
20 ensuring that the rate provides the class revenue target for the average residential  
21 customer profile. The detailed rate design for proposed Rate R-OTOD-2 is provided in  
22 Attachment EAD-5. The pricing resulting from this design is summarized in Table 1 of

1 Section II, shown in the proposed tariff amendments (Attachments EAD-1 and EAD-2)  
2 and applied in the bill comparisons discussed in Section IV.

3 **Q. Did you consider alternative peak periods other than the proposed seven-hour**  
4 **period?**

5 A. Yes. A range of peak period durations (e.g., eight hours, seven hours, six hours, and five  
6 hours) were considered, and the seven-hour period from noon to 7 p.m. was selected as it  
7 provided the strongest alignment with the probability of peak, or marginal cost variation  
8 across hours on average across all months of the year. This period analysis looked at the  
9 combined hourly distribution and transmission service costs at a system level.

10 **IV. CUSTOMER BILL IMPACTS AND RATE OPTIONS**

11 **Q. What rate options do customers have with respect to proposed tariff amendments?**

12 A. A current Rate R-OTOD customer could be placed on either the new Rate R-OTOD-2, or  
13 could choose to take service under Rate R. While a small number of customers are  
14 currently enrolled under Rate R-OTOD, each will need sufficient time and information to  
15 evaluate the impacts of switching to either rate option. Additionally, the new Rate R-  
16 OTOD-2 will be available to Rate R customers interested in a TOD rate option. A  
17 change from the current rate R-OTOD to either of the other rate options is expected to  
18 require a meter change.

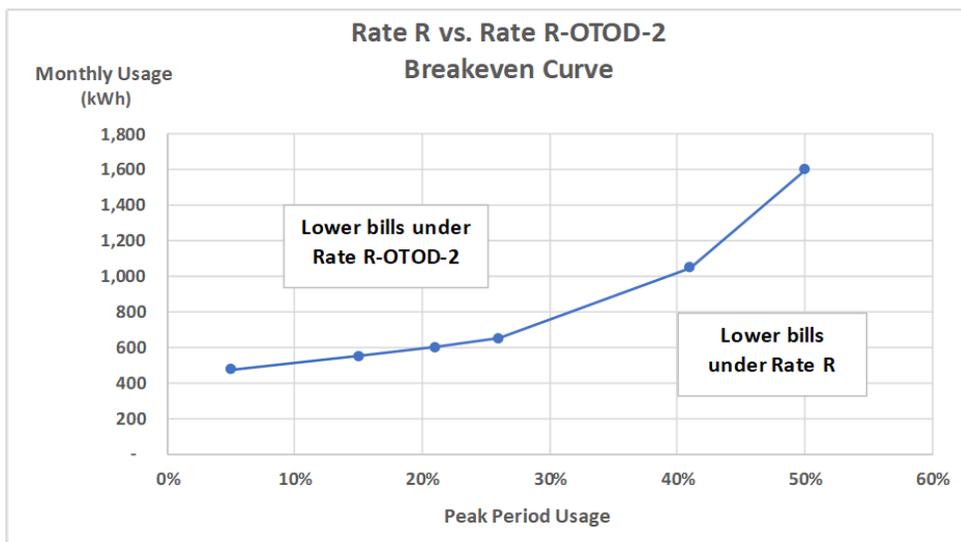
19 **Q. Please discuss customer bill impacts associated with the Company's proposal.**

20 A. The Company has prepared several sets of comparisons of bills at varying levels of usage  
21 for customers who move from the current Rate R-OTOD to the proposed amended Rate

1 R-OTOD-2, or switch between the proposed Rate R-OTOD-2 and the regular power and  
2 light rate, Rate R. While all residential customers will have access to historic total  
3 monthly usage and current residential TOD customers will have historic billed peak and  
4 off-peak usage based on current TOD periods, many will need to determine their usage  
5 under the proposed new TOD periods. Further, customers may want to understand  
6 impacts of changing total usage, shifting load between periods, etc. To facilitate these  
7 comparisons, the Company has prepared an additional “break even” bill comparison that  
8 shows differences in charges between Rate R and Rate R-OTOD-2, and can be used to  
9 evaluate the charges under Rate R and under Rate R-OTOD-2 across a range of monthly  
10 and proportionate peak period usage levels. Attachments EAD-3 and EAD-4 provide  
11 these comparisons.

12 Page 1 of Attachment EAD-3 provides a summary of current Rate R-OTOD vs. proposed  
13 Rate R-OTOD-2 across a range of total and percentage peak usage levels while page 2 of  
14 Attachment EAD-3 compares Rate R vs. proposed Rate R-OTOD-2 across these ranges,  
15 highlighting the “break-even” points between rates at these various usage levels. The  
16 chart on the following page provides a graphical depiction of these break-even points for  
17 various proportions of on-peak percent usage relative to total customer’s monthly usage.  
18 Each break-even point indicates the usage above and below which customer bills are  
19 lower on each rate, i.e. before any response to the new peak/off-peak price differentials.  
20 These points further indicate where customer bills would be lower on the proposed R-

1 OTOD-2 rate if for the same total usage, the customer reduced its share of on-peak usage  
2 by shifting load to the off-peak period, and/or reducing overall peak load.



Breakeven kWh	
On-Peak %	kWh
5%	475
15%	550
21%	600
26%	650
41%	1,050
50%	1,600

3  
4 Attachment EAD-4, page 1 compares Rate R-OTOD-2 customer bills at various usage  
5 levels using the residential (Rate R) class average proportion of peak usage, which is  
6 41% for the 13-hour peak period of Rate R-OTOD and 24% for the seven-hour peak  
7 period. At these relative peak usage levels, current Rate R-OTOD customers will see a  
8 reduction to their total bills by moving to Rate R-OTOD-2 across all usage levels. The  
9 bill for a customer using 650 kWh total at these class average peak percentages would be  
10 lower by \$23.24, or 15.8% under the proposed R-OTOD-2 rate. The actual level of bill

1 reduction will vary by individual customers based on their proportion of peak to total  
2 usage in a given month. However, as shown in Attachment EAD-3, page 1, customers  
3 would generally see a lower bill across a range of peak usage percentages under proposed  
4 Rate R-OTOD-2, compared with current Rate R-OTOD.

5 In contrast, a comparison of bills under Rate R versus proposed Rate R-OTOD-2  
6 provides a different set of outcomes. Depending on the percent of peak period usage,  
7 customers at higher usage levels will tend to have lower bills under the proposed Rate R-  
8 OTOD-2, while lower usage customers may see lower bills under Rate R. Attachment  
9 EAD-4, page 2 shows that, at the class average peak usage of 41%, customers with usage  
10 at or above 650 kWh (the approximate “break-even point” for this peak percentage level)  
11 would see a lower bill under proposed Rate R-OTOD-2 compared with Rate R. The  
12 previously presented break-even curve provides similar comparisons across a broader  
13 cross section of peak usage percentages and usage levels.

14 The understanding of a customer’s historic or expected future peak usage under the  
15 proposed seven-hour peak period can be used to evaluate the most beneficial rate for a  
16 given customer. Despite historic levels, customers who can respond to these new price  
17 signals and shift usage relative to such levels may be able to achieve further bill savings  
18 and thereby benefit under the Company’s proposed R-OTOD-2 rate.

1 **V. IMPLEMENTATION**

2 **Q. Please discuss customer outreach and requirements for implementing the proposed**  
3 **new TOD rate.**

4 A. In determining the appropriate rate to switch to, the Company plans to inform and work  
5 with customers to understand and evaluate the impacts and options available to them. A  
6 meter change may be required for current rate R-OTOD customers who switch to the  
7 either Rate R-OTOD-2 or Rate R, and for customers who switch from Rate R to Rate R-  
8 OTOD-2.

9 **Q. When does the Company request to make the proposed Rate R-OTOD-2 effective?**

10 A. The Company requests that the Commission upon review and approval of the proposed  
11 rate R-OTOD-2, use its discretion in determining an appropriate implementation date  
12 considering steps the Company must take to provide the information customers should  
13 receive prior to or concurrent with their rate changing. Billing under Rate R-OTOD-2,  
14 assuming approval of the same structure as proposed, will begin preparation to be  
15 implemented upon Commission approval, noting that billing for individual customers  
16 will require customer outreach to inform and support the decision of which rate to move  
17 to, and a change of meter consistent with the timing of that decision.

18 **Q. How will customers evaluate the impacts and opportunities presented by proposed**  
19 **R-TOD-2?**

20 A. The Company will work with customers to help them understand the new structure and  
21 determine availability of meter data or other information that can be used to evaluate their

1 peak and off-peak usage under proposed Rate R-OTOD-2. Comparative information  
2 similar to that provided in Attachments EAD-3 and EAD-4, updated to reflect prevailing  
3 rates, will be available for customers to evaluate the appropriate rate to switch to. The  
4 Company would work first with current R-OTOD customers to support customer  
5 decisions and switching to inform them first about the newly-approved rate.

6 **IV. CONCLUSION**

7 **Q. Please summarize your testimony and Eversource's proposal for a new Residential**  
8 **TOD rate.**

9 A. Eversource is pleased to provide a new residential, TOD revenue-neutral distribution and  
10 transmission rate offering based on estimates of marginal costs using existing metering  
11 and billing capabilities to implement such offering. The Company will implement this  
12 rate should the Commission approve it and once it orders a date for implementation. The  
13 new R-OTOD-2 offering is expected to result in immediate bill savings for many existing  
14 residential R-OTOD customers and provides a new opportunity for residential customers  
15 who can take advantage of TOD rates.

16 **Q. Does this conclude your testimony?**

17 A. Yes.