

BEFORE THE
STATE OF NEW HAMPSHIRE
PUBLIC UTILITIES COMMISSION

DOCKET NO. DE 21-030

IN THE MATTER OF: UNITIL ENERGY SYSTEMS, INC.
REQUEST FOR CHANGE IN RATES

DIRECT TESTIMONY

OF

LARRY BLANK
ON BEHALF OF
New Hampshire Department of Energy

NOVEMBER 23, 2021

Contents

I. <u>IDENTIFICATION</u>	<u>1</u>
II. <u>PURPOSE AND SUMMARY</u>	<u>2</u>
III. <u>COMPANY’S REVENUE DECOUPLING PROPOSAL</u>	<u>3</u>
IV. <u>DESIGN CONCERNS WITHIN THE PROPOSED REVENUE DECOUPLING MECHANISM</u>	<u>14</u>
V. <u>LED LIGHTING RATES</u>	<u>19</u>
VI. <u>TIME OF USE RATE DESIGN</u>	<u>23</u>

1 **I. IDENTIFICATION**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS FOR THE RECORD.**

3 A. My name is Larry Blank. My business address is Transform Consulting, LLC, 8701
4 Camden Street, Alexandria, VA 22308.. My email address is
5 Larry@transformconsulting.com..

6 **Q. WHERE ARE YOU EMPLOYED?**

7 A. I am a principal of Transform Consulting, LLC. I am also a Professor of Economics and
8 Associate Director with the Center for Public Utilities in the College of Business at New
9 Mexico State University ("NMSU"). For the purposes of this proceeding, I have been
10 engaged through Transform Consulting, the expert opinions expressed herein are my
11 own, and nothing in this testimony necessarily reflects the opinions of NMSU.

12 **Q. PLEASE PROVIDE A BRIEF SUMMARY OF YOUR BACKGROUND AS IT IS**
13 **RELEVANT TO THIS TESTIMONY.**

14 A. I have served the public in various capacities for over thirty-five years. In 1994, I
15 received a Ph.D. in Economics from The University of Tennessee, specializing in
16 Industrial Organization & Public Policy (including regulatory policy), Econometrics, and
17 Finance. I previously served as an Economist with the National Regulatory Research
18 Institute ("NRRI") at the Ohio State University and later as the Manager of Regulatory
19 Policy & Market Analysis with the Regulatory Operations Staff of the Nevada Public
20 Utilities Commission. My division's responsibilities in Nevada included participation in
21 several rulemaking workshops (primarily telecommunications and electricity) and rate
22 cases for all regulated utilities in that jurisdiction as well as expert witness testimony on

Direct Testimony of Larry Blank
NH PUC Docket No. DE 21-030
Page 2

1 the same. As a consultant, I have served a variety of clients including government
2 agencies, utility customers, and utility companies. I have served as an expert witness
3 and/or advisor in over 150 rate cases and rulemakings of various types. I have previously
4 filed written testimony in the following utility regulatory commission jurisdictions:
5 Alaska, Arizona, Arkansas, Colorado, Delaware, Georgia, Kansas, Montana, Nevada,
6 New Mexico, Oklahoma, Texas, and the Federal Energy Regulatory Commission. I also
7 teach advanced graduate utility regulation to the Masters of Economics students at
8 NMSU who have elected to specialize in this profession, I direct a professional Graduate
9 Certificate Program in Public Utility Regulation & Economics, and I help deliver
10 nationally-recognized rate case training programs, which are attended by hundreds of
11 regulatory professionals from across the United States and are endorsed by the National
12 Association of Regulatory Utility Commissioners (“NARUC”). My resume is attached as
13 Attachment LB-1.

14 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING?**

15 A. I am testifying on behalf of the New Hampshire Department of Energy.

16 **II. PURPOSE AND SUMMARY**

17 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

18 A. I am testifying in response to Until Energy Systems, Inc.’s (“UES” or “Company”)
19 request for change in rates pending before the New Hampshire Public Utilities
20 Commission (“the Commission”). Specifically, I will address the Company’s request for
21 approval of a revenue decoupling mechanism (“RDM”) sponsored by Mr. Timothy

Lyons, the LED lighting rates sponsored by Mr. John Taylor, and the domestic time of use rates sponsored by Mr. John Taylor.

Q. PLEASE SUMMARIZE YOUR REVIEW AND RECOMMENDATIONS.

First, the rationales provided by Mr. Lyons in support of full decoupling lack merit and leave out important considerations for the Commission. If the Commission finds sufficient merit upon completion of the evidentiary record in this case, I provide recommended modifications to the detailed design of the decoupling mechanism proposed by the Company. Second, the Company has proposed LED rates that mirror the existing non-LED rates for lighting fixtures with comparable illumination capabilities. This method is not cost-based and results in LED rates that are not just and reasonable. I offer an adjustment to the proposed LED rates to recognize the reduction in demand and system capacity used by LED fixtures relative to non-LED fixtures. This also recognizes the benefit to all customers on the distribution system from the reduction in capacity requirements to meet total customer demand. Third, the domestic time of use rates proposed by the Company should include time varying rates on the distribution cost component of service and not only the transmission and generation components.

17III. COMPANY'S REVENUE DECOUPLING PROPOSAL

Q. PLEASE PROVIDE A BRIEF OVERVIEW OF REVENUE DECOUPLING

A. In traditional cost of service ratemaking, a utility's distribution revenue requirement is generally set through periodic rate cases. Based on that revenue requirement, customers generally pay a fixed price for the distribution utility's services until the next rate case

1 when the revenue requirement is updated.¹ Once the revenue requirement is set, any
2 variation in utility sales between rate cases which lead to revenues which are either above
3 or below the allowed revenue requirement impact the utility's effective return, rather than
4 ratepayers, because customer prices are generally fixed between rate cases.² These
5 earnings impacts go in both directions, positive and negative. An abnormally warm
6 summer, cool winter, or booming economy could lead to increases in sales that increase
7 an electric distribution utility's effective return between rate cases, while an abnormally
8 cool summer, warm winter, or economic downturn could lead to decreases in sales that
9 decrease an electric distribution utility's effective return between rate cases. Revenue
10 decoupling is a rate adjustment mechanism which, unlike traditional cost of service
11 regulation, holds utility revenues constant during the years between rate cases by
12 adjusting the customer price based on the level of sales.

13 **Q. HAS THIS COMMISSION CONSIDERED IMPLEMENTATION OF REVENUE**
14 **DECOUPLING IN THE PAST?**

15 A. Yes, several times. The Commission conducted an extensive review of revenue
16 decoupling in Docket No. DE 07-064, an Investigation of Energy Efficiency Rate
17 Mechanisms, where it concluded that a rate adjustment mechanism such as decoupling
18 could reduce barriers to utility investment in energy efficiency, but that such mechanisms
19 should be considered within individual utility rate cases so that any impact that
20 decoupling might have on a utility's cost of capital could also be incorporated.³ The

¹ In practice, there are several exceptions to this general concept, including step adjustments for non-growth plant in service subsequent to a test year, non-distribution rate adjustments related to generation or transmission services, and other costs or programs which the Commission may have approved for cost recovery between rate cases.

² In this context, "prices" may refer to either a monthly customer charge, a volumetric (\$/kWh) distribution charge, or a demand (kW) charge.

³ DE 07-064, Order No. 24,934 at 22. (January 16, 2009).

Direct Testimony of Larry Blank
NH PUC Docket No. DE 21-030
Page 5

1 Commission later considered its first full decoupling proposal in the context of a natural
2 gas rate case in Docket No. DG 10-017.⁴ Within the settlement that led to the order
3 ultimately resolving that case,⁵ the utility agreed to withdraw its decoupling proposal.⁶
4 More recently, when the Commission adopted its Energy Efficiency Resource Standard
5 (“EERS”) in 2016, it granted each electric and natural gas distribution utility a limited
6 form of decoupling known as a Lost Revenue Adjustment Mechanism (“LRAM”) and
7 required the regulated distribution utilities to “seek approval of a decoupling or other
8 lost-revenue recovery mechanism as an alternate to the LRAM in their first distribution
9 rate cases after the first EERS triennium.”⁷ The first EERS triennium ended on
10 December 31, 2020. Since the Commission established the EERS, it has reviewed and
11 approved two full decoupling mechanisms: one in Docket No. DG 17-048 for a natural
12 gas distribution utility,⁸ and one in Docket No. DE 19-064 for an electric distribution
13 utility.⁹

14 **Q. WHAT IS A LOST REVENUE ADJUSTMENT MECHANISM?**

15 A. In this context, a lost revenue adjustment mechanism (“LRAM”) is a form of limited
16 decoupling which attempts to compensate a utility between rate cases for a hypothetical
17 level of distribution revenues it would have otherwise received if its sales had not been

⁴ There are generally three types of decoupling: full decoupling, partial decoupling, and limited decoupling. Full decoupling insulates a utility’s revenue collections from any sales variation regardless of the cause. Partial decoupling insulates only a portion of the utility’s revenue collections from sales deviations. Limited decoupling only adjusts a utility’s revenue collections for specified causes of variations in sales. In DE 21-030, Unitil has proposed full decoupling.

⁵ DG 10-017. Order No. 25,202. (March 10, 2011).

⁶ The decoupling proposal faced vigorous opposition from Commission Staff, as detailed by the pre-filed testimony of Thomas C. Frantz and Mark A. Naylor. (October 22, 2010). Available at: <https://www.puc.nh.gov/regulatory/CASEFILE/2010/10-017/TESTIMONY/10-017%202010-10-22%20NAYLOR-FRANTZ%20TESTIMONY.PDF>

⁷ DE 15-137, Order 25,932 at 59-60. (August 2, 2016).

⁸ DG 17-048. Order No. 26,122. (April 27, 2018)

⁹ DE 19-064. Order No. 26,376. (June 30, 2020)

Direct Testimony of Larry Blank
NH PUC Docket No. DE 21-030
Page 6

1 diminished as a result of its energy efficiency program offerings. LRAM is limited to
2 projected revenue effects caused by approved energy efficiency programs or net metering
3 programs and, unlike revenue decoupling, does not allow for rate adjustments due to
4 other factors such as weather fluctuations and economic business cycles. As mentioned
5 above, the Commission approved LRAMs for all regulated distribution utilities when it
6 established an energy efficiency resource standard in 2016. This decision effectively
7 reversed an action taken by the Commission in 1998, as part of restructuring, to eliminate
8 the lost revenues portion of its conservation and load management programs under the to-
9 be restructured utility regulatory paradigm.¹⁰ Under the energy efficiency LRAM, the
10 Company recovered \$995,390 of lost revenues from customers for the period of 2017-
11 2020.¹¹ Similarly, the Commission approved an LRAM for the Company's net metering
12 program in Docket No. DE 15-147.¹² Under the net metering LRAM, the Company
13 recovered \$940,400 of lost revenues from customers for the period of 2017-2020. In
14 total, the Company has collected \$1,935,790 in total lost distribution revenues for the
15 period since its last rate case.¹³ In contrast, as shown in Table 1, below, the Company's
16 actual overall kWh sales volumes fell by approximately 0.67% on average annually

¹⁰ DR 96-150. Order No. 22,875 (March 20, 1998) (stating "We also believe that it is appropriate to move as quickly as possible from the payment of lost revenues as part of any DSM program.") See also, Order No. 23,573 (November 1, 2000)(stating "Consistent with Order No. 22,875, we continue to believe that it is appropriate to move as quickly as possible from the payment of lost revenues as part of any energy efficiency programs and will deny recovery of lost revenues on a forward-going basis.")

¹¹ DE 17-136. Unitil Energy Systems, Inc. 2020 Annual Report. Attachment B. Page 1 of 1. Available at: [2020 Annual Report UES LBR.xls \(nh.gov\)](https://www.puc.nh.gov/regulatory/Docketbk/2020/2020-06-17_UES_TESTIMONY_DEBSKI.PDF)

¹² Docket No. DE 15-147. Order No. 25,991 (February 21, 2017).

¹³ Docket No. DE 21-121. Douglas J. Debski Testimony. Page 5 of 7. Available at: https://www.puc.nh.gov/regulatory/Docketbk/2021/21-121/INITIAL%20FILING%20-%20PETITION/21-121_2021-06-17_UES_TESTIMONY_DEBSKI.PDF

during that same period.¹⁴ For non-demand-charge residential and small general service customers, the average annual change was actually positive 1.67% over this period.

Table 1.					
Unitil Distribution Sales Volumes					
Year	2016	2017	2018	2019	2020
Total kWh*	1,191,932,155	1,188,641,108	1,224,436,868	1,162,491,979	1,160,418,601
Annual Change		(3,291,047)	35,795,760	(61,944,889)	(2,073,378)
Percent Annual Change		-0.276%	3.011%	-5.059%	-0.178%
Average Annual Change				-0.775%	-0.626%
Year	2016	2017	2018	2019	2020
Residential - D*	484,321,778	484,341,433	510,593,306	483,929,101	515,968,592
Small General Service - G2*	549,564	502,127	512,615	500,439	438,744
Small General Service - QR WH/SH*	4,832,208	5,112,600	5,612,997	4,942,809	4,483,579
Total Non-Demand kWh	489,705,566	489,958,177	516,720,936	489,374,368	520,892,935
Annual Change		252,611	26,762,759	(27,346,568)	31,518,567
Percent Annual Change		0.05%	5.46%	-5.29%	6.44%
Average Annual Change				0.074%	1.67%
*Source: Unitil response Staff 2-31 Attachment 1.					

Put simply, the LRAMs are supposed to target lost distribution revenues associated with energy efficiency and net metering, but instead *compensates utilities for revenues that they may not have actually lost* because the loss either didn't actually occur, or may be offset by higher sales volumes resulting from weather variations or economic growth. In this sense, it is an asymmetric mechanism, resulting only in surcharges to customers between rate cases. In contrast, decoupling is a symmetrical mechanism, which may result in either a surcharge or a credit, depending on a universe of factors—such as market trends, weather and economic downturns or upswings — which may be beyond the control of either the utility or the ratepayer.

Q. WHAT RELATIONSHIP DOES THE COMPANY'S LOST REVENUE ADJUSTMENT MECHANISM HAVE TO ITS DECOUPLING PROPOSAL?

¹⁴ Company Response to Request DOE 2-31, Attachment 1. Included here as Attachment LB-2.

1 A. When the Company adopts decoupling, it will cease collection of lost revenues associated
2 with both its energy efficiency and net metering programs.

3 **Q. DOES DECOUPLING HAVE ANY DRAWBACKS?**

4 A. Yes, several. As I mentioned, decoupling is a mechanism which may result in both
5 credits and surcharges, depending on a broad universe of factors—such as market trends,
6 weather and economic downturns or upswings — which are beyond the control of the
7 utility and ratepayers. In times of consistent economic growth or state policies that are
8 supportive of electrification, decoupling could, in theory, result in consistent credits to
9 customer bills during years between rate cases. But in times of economic downturn when
10 sales drop sharply, consumers see that downturn in the form of surcharges on their bills,
11 surcharges which allow the Company to consistently collect its approved revenue
12 requirement. In the case of revenue per customer decoupling in particular, the Company
13 will be made whole not just for lost sales volumes, but also for other revenues unrelated
14 to sales that may be less in between rate cases than they were in the test year. For
15 example, during a partial or widespread system outage, the Company’s incentive to
16 restore service quickly will be diminished because the revenue per customer target will
17 not change, and the Company will collect those missing revenues from customers
18 through the decoupling adjustment.

19 **Q. WHAT PURPORTED BENEFITS ARE PROVIDED BY MR. LYONS TO**
20 **JUSTIFY THE DECOUPLING MECHANISM?**

21 A. Mr. Lyons states the following “three primary benefits of the Company’s proposed
22 RDM:”

23 1. It corrects the basic misalignment between utility rates and costs;

2. It supports achievement of certain policy objectives, such as EE and DER initiatives;
and

3. It helps stabilize utility cost recovery as well as customer bills.¹⁵

Q. ARE THESE ISSUES WORTHY OF CONSIDERATION?

A. Yes, I believe these are considerations for the Commission; however, a broader discussion of the potential benefits and drawbacks of decoupling than what the Company has presented should also be considered by the Commission.

Q. IF THE COMMISSION CHOOSES NOT TO APPROVE CHANGES IN RATE DESIGN OR FULL REVENUE DECOUPLING, WILL THESE ISSUES PROVE TO BE FINANCIALLY BURDENSOME FOR THE COMPANY?

A. No. Electric utilities have successfully operated for over 120 years without the need for revenue decoupling. If the Commission chooses to not act on this request, UES can continue to be managed financially well without the proposed RDM. Electric utility investors understand that there will be good years and bad years in terms of revenue and earnings, and proper management of the electric utility includes managing this short-term risk. If the Commission does choose to act on this request, it should be sure to examine the Company's cost of capital in light of the revenue assurance provided by decoupling.¹⁶

Q. HOW DO YOU ADDRESS THE FIRST ISSUE IDENTIFIED BY MR. LYONS, THE BASIC MISALIGNMENT BETWEEN UTILITY RATES AND COSTS?

¹⁵ Lyons Direct Testimony at 7:5-9.

¹⁶ See, DG 17-048. Order No. 26,122 at 1, 42-43. (April 27, 2018) Stating ("In this order, the Commission approves, for the first time in New Hampshire, a decoupling mechanism which allows rate adjustments for weather, energy efficiency, economic effects, and other variables and allows Liberty to earn distribution revenues on a per customer basis, thus eliminating substantial revenue risks. Paired with this innovative decoupling mechanism is a modified rate design that lowers fixed customer charges. The reduction in risk leads to a return on equity of 9.3 percent, which represents a 10 basis point reduction in the return on equity agreed to by Liberty, the OCA, and Staff.")

1 A. The concern here is the heavy reliance on variable energy charges for the recovery of
2 fixed customer-related costs and/or demand- or capacity-related costs. Although the use
3 of volumetric charges for fixed cost recovery has been used successfully for many
4 decades, the proposed RDM fails to realign rate design appropriately and actually distorts
5 cost recovery further by imposing the RDM rate adjustments through the volumetric
6 energy usage. This causes cost-shifting away from those who fail to pay their fair share
7 toward fixed cost recovery onto those who contribute most to fixed cost recovery through
8 their energy usage. Mr. Lyons' statement that "[r]evenue decoupling corrects for this
9 misalignment by adjusting revenues to match the authorized revenue requirements"¹⁷
10 fails to acknowledge the continued misalignment between rate design and fixed cost
11 recovery and the failure of revenue decoupling to match cost recovery with customer
12 beneficiaries who demand greater capacity built into the system.

13 **Q. HOW DO YOU ADDRESS THE SECOND ISSUE RAISED BY MR. LYONS**
14 **WHICH IS THE SUPPORT OF ENERGY EFFICIENCY AND DISTRIBUTED**
15 **ENERGY RESOURCE POLICY INITIATIVES?**

16 First, revenue decoupling does not alter electric utility shareholder incentives toward
17 energy reduction on the customer side of the meter. Shareholder wealth and return are
18 enhanced by asset growth, but energy efficiency ("EE") programs and distributed energy
19 resources ("DER") offset that growth potential. Revenue decoupling does not alter this
20 fact. Revenue decoupling reduces short-term risk associated with variability in short-
21 term revenue between rate cases but does not change the long-term desire to maximize
22 returns to investors, earnings growth potential will be reduced when competition in the

¹⁷ Lyons Direct at 8:7-8.

1 form of EE programs and DER take business away from the utility. While I would agree
2 that decoupling reduces the throughput incentive between rate cases, in the case of
3 restructured utilities that do not own generating assets, such as Unitil, the kWh
4 throughput incentive is already greatly diminished. The more important incentive that
5 drives investment for distribution utilities is the profit incentive to expand their rate base,
6 on which decoupling has no impact.

7 **Q. PLEASE DESCRIBE THE PROFIT INCENTIVE TO EXPAND RATE BASE.**

8 A. Under traditional cost of service ratemaking, utility shareholder profit is enhanced by
9 continued investment in capital assets upon which the Company may earn a rate of
10 return. In practice, this leads companies to seek out capital-intensive technologies and/or
11 take advantage of other opportunities to build rate base. For distribution utilities, one of
12 the largest historical opportunities for rate base growth has been focused on capacity-
13 related investments. Decoupling does nothing to eliminate the Company's incentive to
14 grow demand, because demand growth requires the Company to make capacity-related
15 investments which it then earns a rate of return upon. EE programs and DER have the
16 potential to diminish the need for these investments through their ability to reduce
17 demand growth, especially in the case of energy efficiency measures which are targeted
18 towards an anticipated capacity constraint. Decoupling does nothing to alter this
19 incentive, which would cause utilities to skeptically view targeted EE program, DERs,
20 and any other demand reducing measures that might diminish rate base growth.

21 **Q. HOW DO YOU ADDRESS THE THIRD CLAIM MADE BY MR. LYONS, THE**
22 **STABILIZATION OF COMPANY REVENUE AND CUSTOMER BILLS?**

1 A. On the one hand, revenue decoupling does shield the utility company from revenue
2 variability due to such things as seasonal weather fluctuations, but it actually shifts this
3 risk onto customers who continue to face bill variation each year as well as a revenue
4 decoupling adjustment factor. While this shifting can actually result in credits to a
5 customer bill during times of economic growth or an abnormally warm summer, it may
6 also result in surcharges to a customer bill during times of economic downturn, precisely
7 when customers can least afford to pay such surcharges. Furthermore, there are likely to
8 be years in which the Company is recovering an under-recovery from the prior year(s)
9 during an abnormally cold winter and/or abnormally hot summer thereby causing already
10 high electric bills to be even higher during such years.

11 **Q. DO YOU SEE ANY OTHER GENERAL CONCERNS WITH DECOUPLING?**

12 A. Yes. An additional concern is decoupling is a form of retroactive ratemaking. Another
13 concern is decoupling is piecemeal or single-issue ratemaking.

14 **Q. WHAT IS RETROACTIVE RATEMAKING?**

15 A. Retroactive ratemaking occurs when rate adjustments are made related to events that
16 occurred in the past. In the case of decoupling, rate adjustments will occur based on
17 customer usage or demand in the prior year. The customers have already paid the prior
18 year bills based on the approved rates, but then a decoupling adjustment changes what
19 has already been billed and paid in the prior year. Most Commissions prohibit retroactive
20 ratemaking, but if decoupling is approved, then there is an argument that the Commission
21 is effectively authorizing retroactive ratemaking. On the other hand, there is also an
22 argument that if the decoupling formula is described in the utility tariff, then customers
23 do have advance, rather than retroactive, notice of how their rates will change in the

1 current year responsive to prior year sales. Both of these arguments would be applicable
2 not just to decoupling, but also the existing lost revenue adjustment mechanisms that
3 decoupling would replace.

4 **Q. WHAT IS PIECEMEAL OR SINGLE-ISSUE RATEMAKING?**

5 A. Piecemeal or single-issue ratemaking occurs when rate adjustments only account for one
6 change while ignoring other changes or adjustments that may counter the need for that
7 rate adjustment. In the case of decoupling, rate adjustments will be made based on
8 changes in sales while ignoring other possible changes that may have occurred. Changes
9 in rate base, cost of financial capital, changes in expenses, and changes in class cost of
10 service would normally be accounted for within a general rate case, but with decoupling,
11 these other changes will be ignored in the calculation of the decoupling rate adjustment.
12 Most Commissions disfavor single-issue ratemaking, but if decoupling is approved, then
13 there is an argument that the Commission is effectively authorizing single-issue
14 ratemaking adjustments. Compared to decoupling, the LRAM that decoupling would
15 replace is an even more egregious example of single-issue ratemaking. As described
16 above, the LRAM accounts only for theoretical revenues that would be lost to net
17 metering or energy efficiency if all else remains equal from the test year, and ignores
18 other changes such as sales fluctuations, which actually counteract the need for the
19 LRAM rate adjustment because those revenues were not actually lost.

20 **Q. WHAT IS YOUR RECOMMENDATION FOR THE PROPOSED RDM?**

21 A. Based on my previous explanations, the Company's justifications for its proposed RDM
22 lack merit and leave out other important considerations. The primary benefit of the
23 Company's RDM would be to provide greater revenue certainty for the Company. From

1 a ratepayer perspective, decoupling would eliminate the various lost revenue adjustment
2 mechanisms that compensate the utility for theoretical lost revenues, revenues which may
3 not have actually been lost. It would also potentially reduce the risk to the utility that it
4 would not realize its revenue requirement between rate cases, a risk reduction which the
5 Commission should recognize when it considers the Company's cost of capital. I also
6 have serious concerns about cost shifting, and cost misallocation if the Commission were
7 to adopt the Company's proposed RDM. If the Commission finds merit in approving
8 some form of full decoupling, I offer revisions to the design of the RDM in the next
9 section of my testimony.

10 IV. **DESIGN CONCERNS WITHIN THE PROPOSED REVENUE DECOUPLING**
11 **MECHANISM**

12 **Q. HOW IS THE PROPOSED RDM STRUCTURED?**

13 A. UES has proposed a "Revenue Decoupling Adjustment Clause" ("RDAC") that would
14 apply to six customer classes and adjust rates on an annual basis to reconcile actual base
15 revenues per customer with authorized base revenues per customer as determined in the
16 last rate case. The best place to understand the structure and detailed steps in calculating
17 this adjustment mechanism is by looking at UES's proposed tariff sheets for the RDAC
18 found as Schedule TSL-2 of Mr. Lyons Direct Testimony. Each of the six customer
19 classes would have a revenue decoupling adjustment factor ("RDAF") which would be a
20 rate per kWh. Each RDAF is derived from an aggregate annual revenue variance, which
21 is the sum total of the 12 monthly revenue variances for all six customer classes. This
22 aggregate annual revenue variance plus carrying costs and any balance from the prior
23 year is termed the Revenue Decoupling Adjustment ("RDA"). This aggregate total

company RDA is then allocated to each customer class based on the ratio of each class authorized base revenues divided by total authorized base revenues. The customer class RDA is then divided by forecasted kWh sales to derive the RDAF for that class.

Q. HAS UES ALSO PROPOSED AN ANNUAL CAP ON THE RDA?

A. Yes, UES is proposing an asymmetrical cap of 2.5 percent of total revenues for negative RDAs that result in a positive adjustment to customers in the subsequent year. Any difference between the RDA and this cap then would be added to the reconciliation balance for future recovery in the next annual RDAC calculation.

Q. DO YOU HAVE ANY DESIGN CONCERNS WITH THE PROPOSED RDAC?

A. Yes. My first concern is the aggregation of all the customer classes in the determination of a total company annual RDA, and then reallocation of that total back to the customer classes. Not all customer classes will share equally in the need for an adjustment. Therefore, it is unjust and unreasonable to spread under- or over-recovery across all customer classes. This will result in a deviation from the Commission approved revenue requirements determined for each customer class within the last rate case. Once those customer class revenue requirements are deemed to be just and reasonable by the Commission, there should not be an adjustment mechanism that alters that determination. In some year you may have a customer class in which UES over-recovered revenue but then the other classes had under-recovery. If the under-recovery from the other classes is greater than the over-recovery there will be a positive RDAF for all the classes, which is unjust and unreasonable.

Q. HOW WOULD YOU CORRECT THIS FIRST CONCERN?

1 A. A revenue decoupling mechanism should be designed such that the calculations of over-
2 and under-recovery are independently done within each customer class subject to revenue
3 decoupling. The RDAF for a customer class should be calculated strictly from over- and
4 under-recovery within that class without any aggregation of customer classes. For
5 example, all calculations for residential customers should be independently done
6 separately from any other customer classes with revenue decoupling and any rate
7 adjustment should only apply to that customer class.

8 **Q. DO YOU HAVE A SECOND CONCERN WITH THE PROPOSED RDAC?**

9 A. Yes. It is unclear why UES is proposing decoupling for the large general service
10 (“LGS”) class and regular general service with demand charges. First, these customers
11 have no distribution revenue collection through energy charges. Second, these classes
12 tend to be very diverse in terms of annual and monthly billing and, therefore, the meaning
13 of the per customer revenues used within the proposed RDAC becomes questionable.
14 Third, the diversity within these general service classes implies that some customers
15 within the class have very large monthly bills and some within the class have relatively
16 small bills. A change in the revenue from one large customer will impact the other
17 customers within the class. Such a change could be a large reduction in production
18 activity due to an economic recession or even discontinuance of service by a larger
19 customer, thereby causing a shift in that revenue recovery onto smaller commercial
20 customers. When such substantive changes occur, a general rate case will include
21 corresponding reduction in class demand and reduction in class cost of service. Because
22 decoupling constitutes single-issue ratemaking, as I discussed earlier, the change in class
23 cost of service is not accounted for within the decoupling rate adjustment for the class.

Q. HOW WOULD YOU CORRECT FOR THIS SECOND CONCERN?

A. I recommend that the Commission deny any revenue decoupling for LGS customers and other general service customers with demand charges.

Q. DO YOU ALSO HAVE A CONCERN WITH THE PROPOSED REVENUE DECOUPLING CAP?

A. Yes. The asymmetrical design of the proposed cap in which it only applies to under-recovery and not over-recovery may seem attractive to some. However, because any amounts above the cap are deferred to the next reconciliation period with a carrying charge, it is not really a cap. Although I agree that a cap is reasonable to avoid possibly large adjustments in some years, the carry forward of these amounts should not be allowed.

Q. HOW WOULD YOU CHANGE THE DESIGN OF THE REVENUE DECOUPLING CAP?

A. First, I recommend that a cap be symmetrical in that it applies to both under-recovery and over-recovery each year. Second, I recommend that the revenue decoupling cap be a hard cap without any carry forward for amounts above the cap. For example, it would be reasonable to impose a symmetrical hard cap without carry forward in which any annual adjustment shall not exceed five percent (5%) of base distribution rate revenues. Because the hard cap applies symmetrically to both under- and over-recovery of the target per customer revenue, it is fair to both the customers and the Company, and the hard cap avoids the potential accrual of large deferred balances with an additional carrying charge.

Q. DOES A HARD CAP WITHOUT ANY CARRY FORWARD RETAIN ANY POSITIVE INCENTIVES?

1 A. Yes. Currently the Company has a strong positive incentive to restore service quickly
2 when outages occur. Another concern with decoupling is the possibility that this
3 incentive disappears because the Company recovers revenue lost during the outage. A
4 hard cap without carry forward helps to retain the Company incentive to restore service
5 as quickly as possible albeit maybe not completely depending on the time of year the
6 outage occurs.

7 **Q. ARE THERE ADDITIONAL MEASURES THAT COULD BE ADDED TO**
8 **ENSURE THE COMPANY RETAINS THE INCENTIVE TO RESTORE**
9 **SERVICE QUICKLY WHEN OUTAGES OCCUR?**

10 A. Yes. An additional measure would be to deduct the actual number of customers in the
11 decoupling calculations by the percentage of customer outage hours to total annual
12 customer hours, where customer hours is the number of customers times the number of
13 hours in the year and customer outage hours is the number customers without power
14 times the number of outage hours.¹⁸

15 **Q. HAVE YOU NOTICED ANY OTHER CONCERN WITH THE PROPOSED**
16 **BILLING OF THE REVENUE DECOUPLING ADJUSTMENT CHARGE?**

17 A. Yes. UES is proposing to apply the Revenue Decoupling Adjustment Charge to other
18 customer classes that are not part of the RDA calculations. For example, there is a
19 proposed addition to the Outdoor Lighting Service tariff schedule which states:

20 Revenue Decoupling Adjustment Charge: All energy delivered
21 under this Schedule shall be subject to the Revenue Decoupling
22 Adjustment Charge as provided in Schedule RDAC of the Tariff of
23 which this is a part.

¹⁸ This would implement a suggestion made in RAP (2016) "Revenue Regulation and Decoupling: A Guide to Theory and Application," p. 49.

1 It is unclear why Outdoor Lighting customers who pay fixed monthly charges for
2 distribution service are being asked to contribute toward a decoupling adjustment as if it
3 is some public service program. This seems to be indicative of the Company's attitude
4 that cost shifting within and between rate classes is fine within the context of revenue
5 decoupling, but the reality is it is unjust and unreasonable.

6 **Q. WHAT IS YOUR RECOMMENDATION FOR THE REVENUE DECOUPLING**
7 **ADJUSTMENT CHARGE?**

8 A. Consistent with my recommendation above that all decoupling calculations be done
9 within individual customer classes so must the decoupling adjustment. Other customer
10 classes should not be responsible for revenue requirements approved for a particular
11 customer class.

12 **Q. WOULD YOU LIKE TO SEE ADDITIONAL CLARITY ON ANY OTHER**
13 **PROVISIONS WITHIN THE PROPOSED TARIFF LANGUAGE FOR**
14 **SCHEDULE RDAC?**

15 A. Yes. The definitions for Actual Base Revenues and Authorized Base Revenues states that
16 these include revenues recovered through the Company's customer charge and
17 distribution charges. Additional clarity is needed to state the following: "This only
18 includes base distribution rate revenues recovered from that Customer Class through the
19 Company's customer charge and distribution charges, and excludes rider revenue and any
20 other revenue." It is important that any variation in other revenue not be factored into the
21 decoupling calculations.

22 **V. LED LIGHTING RATES**

23 **Q. HAVE YOU REVIEWED THE PROPOSED LED LIGHTING RATES?**

1 A. Yes, the Company has proposed new LED rates for Outdoor Lighting Service (Schedule
2 OL) which mirror the proposed rates for legacy lighting technology with comparable
3 illumination capabilities.

4 **Q. DO YOU HAVE ANY CONCERNS WITH THE COMPANY'S APPROACH TO**
5 **INTRODUCE NEW LED RATES?**

6 A. Yes. The LED lights impose less demand and less required capacity on the distribution
7 system, however, the use of the comparable lighting rates fails to recognize the lower
8 demand from LED lighting which should translate into less demand-related costs paid by
9 these LED customers.

10 **Q. HAVE YOU COMPUTED THE REDUCTION IN DEMAND?**

11 A. Yes. Based on Schedule RJA-4, unit cost of service results, 12.87% of the costs allocated
12 to Outdoor Lighting are demand related costs. My calculations of the LED demand
13 reductions and demand related costs are provided in Table 2, below.

Direct Testimony of Larry Blank
NH PUC Docket No. DE 21-030
Page 21

Table 2: OL Rates for Company Paid LED Fixture					Demand:	12.87%			
Line No.	Outdoor Lighting LED Type	LED Watts	Sodium Vapor Watts	LED to Sodium Ratio	Sodium Demand Cost	LED Demand Cost	UES Proposed Rate	Revised LED Rate	Percent Reduction
1	STREETLIGHT LED 30W	30	50	60.0%	\$ 1.77	\$ 1.06	\$ 13.73	\$ 13.02	-5.15%
2	STREETLIGHT LED 50W	50	100	50.0%	\$ 2.03	\$ 1.01	\$ 15.73	\$ 14.72	-6.44%
3	STREETLIGHT LED 100W	100	150	66.7%	\$ 2.22	\$ 1.48	\$ 17.25	\$ 16.51	-4.29%
4	STREETLIGHT LED 120W	120	250	48.0%	\$ 2.51	\$ 1.21	\$ 19.53	\$ 18.22	-6.69%
5	STREETLIGHT LED 140W	140	400	35.0%	\$ 3.19	\$ 1.12	\$ 24.78	\$ 22.71	-8.37%
6	STREETLIGHT LED 260W	260	1,000	26.0%	\$ 5.47	\$ 1.42	\$ 42.51	\$ 38.46	-9.52%
7	YARDLIGHT LED 35W	35	50	70.0%	\$ 1.73	\$ 1.21	\$ 13.44	\$ 12.92	-3.86%
8	YARDLIGHT LED 47W	47	100	47.0%	\$ 1.89	\$ 0.89	\$ 14.65	\$ 13.65	-6.82%
9	FLOODLIGHT LED 70W	70	150	46.7%	\$ 2.35	\$ 1.10	\$ 18.25	\$ 17.00	-6.86%
10	FLOODLIGHT LED 90W	90	250	36.0%	\$ 2.78	\$ 1.00	\$ 21.57	\$ 19.80	-8.24%
11	FLOODLIGHT LED 110W	110	400	27.5%	\$ 3.25	\$ 0.89	\$ 25.29	\$ 22.93	-9.33%
12	FLOODLIGHT LED 370W	370	1,000	37.0%	\$ 5.52	\$ 2.04	\$ 42.89	\$ 39.41	-8.11%

1 **Q. DO YOU HAVE ANY OTHER RECOMMENDATIONS REGARDING THE**
2 **COMPANY’S OUTDOOR LIGHTING RATES?**

3 A. Yes. As I understand it, the other two regulated electric distribution utilities in New
4 Hampshire recently redesigned their street lighting rates to include customer contributed
5 LED options. In Docket No. 19-064, the Commission approved a settlement with Liberty
6 Utilities which provides for a customer-contributed LED lighting rate that allows the
7 customer to purchase the fixture from the Company rather than be billed monthly for
8 leasing the fixture, but to also retain title to the fixture so remains non-taxable.¹⁹ It also
9 allowed municipalities, at their option, to take on the maintenance responsibilities of the
10 fixtures so they may fully realize the operational and maintenance savings of the LED
11 fixtures relative to high pressure sodium or other legacy fixtures. The new offering also
12 included language that would allow municipalities to utilize — and be billed according to
13 actual usage resulting from the use of — advanced lighting controls for dimming,
14 trimming, and brightening during any given month. In Docket No. DE 19-057, the
15 Commission approved a settlement providing for very similar revisions to the Eversource
16 street lighting tariff, as well as revised burn hours that more closely match those agreed
17 upon during the Liberty case. Eversource recently filed its proposed tariff in Docket No.
18 DE 21-071.²⁰ I recommend that Unitil adopt these above-described provisions in their
19 street lighting tariff as well.

¹⁹ Docket No. DE 19-064. Settlement Attachment. Bates 238-241. (May 26, 2020) Available at: [19-064_2020-05-26_GSEC_ATT_STIPULATION_SETTLEMENT_AGRMT.PDF](#)

²⁰ Docket No. DE 21-071. Eversource Original Page 86. Available at: [21-071_2021-03-31_EVERSOURCE_STREETLIGHT_TARIFF.PDF](#)

1 **VI. TIME OF USE RATE DESIGN**

2 **Q. PLEASE SUMMARIZE UNITIL'S WHOLE HOME TIME OF USE RATE**
3 **PROPOSAL.**

4 A. Unitil's whole home time of use rate proposal (Domestic TOU Rate) provides for a time-
5 varying transmission and generation components. This rate differs from the separately-
6 metered electric vehicle rate in that the distribution component does not vary according to
7 time of use, and the customer charge is higher.

8 **Q. DO YOU AGREE WITH RECOMMENDATIONS REGARDING RESIDENTIAL**
9 **CUSTOMER CHARGES IN THE TESTIMONY OF WITNESS JASON BALL?**

10 A. Yes, with one qualifier. Witness Ball discusses a recommended customer charge for the
11 residential rate, but does not speak to the appropriate level of customer charge for the
12 domestic TOU rate. There is at least a colorable argument that the domestic TOU rate
13 should vary some from the residential rate, because metering facilities capable of
14 transmitting interval data might be slightly more expensive than the metering facilities a
15 residential customer would otherwise use. However, many in the industry argue that
16 incremental costs associated with interval metering should be classified as demand
17 related costs, rather than customer related costs, and therefore recovered via a volumetric
18 rate rather than through the customer charge.²¹

²¹ See, Regulatory Assistance Project. Smart Rate Design for a Smart Future. Appendix D at D-6; Appendix A at A-6; and Appendix A at A-4. (stating "additional cost of smart [also known as AMI] meters is justified by many benefits beyond the simple measurement of usage . . . and this additional cost is not properly considered customer related."); See also, Rocky Mountain Institute, A Review of Alternative Rate Designs: Industry Experience with Time-Based and Demand Charge Rates for Mass-Market Customers, 54 (2016)(Stating "[i]n some situations, a portion of AMI (and other 6 smart-grid infrastructure) costs may be appropriately recovered through energy or demand charges.")

Q. DO YOU AGREE WITH THE COMPANY'S PROPOSAL TO VARY TRANSMISSION AND GENERATION COMPONENTS BY TIME OF USE, BUT NOT DISTRIBUTION COMPONENTS?

A. I agree with Witness Taylor that as a matter of economic efficiency, fixed system costs should generally be recovered via fixed charges including demand charges. However, in testimony, Witness Taylor states that "the costs associated with the distribution system are fixed in nature. These costs do not vary by time of day and as such have no bearing on the developing a time-of-use rate that is purely cost causative." I disagree with this premise because it focuses entirely on short run costs, and fails to understand that the need for system upgrades are often driven by capacity-related system constraints during a limited number of system peak hours. Sending price signals that shift demand away from peak periods will, in the long run, limit the need for capacity related investments and provide for a better system load factor, spreading the costs of the existing system kW capacity over more kWhs. The rate base investment incentive discussed above provides a bias for regulated electric distribution utilities to avoid the use of such price signals, even when the reduced need for capacity-related upgrades would potentially translate to lower customer rates.

Q. WHAT ARE YOUR RECOMMENDATIONS REGARDING THE WHOLE HOME TIME OF USE RATE?

A. As such, I recommend that Unitil revise its domestic TOU rate to incorporate a customer charge based on the basic customer method identified in the Witness Ball's Testimony. I also recommend that Unitil revise its domestic TOU rate to incorporate a volumetric time

Direct Testimony of Larry Blank
NH PUC Docket No. DE 21-030
Page 25

1 varying distribution component, based upon the methodology the Company has used for
2 its separately metered electric vehicle rate.

3 **Q. DO YOU HAVE ANY RECOMMENDATIONS REGARDING THE**
4 **SEPARATELY METERED ELECTRIC VEHICLE TOU RATES?**

5 A. No. As I understand it, those rates will be resolved in a separate proceeding, Docket No.
6 DE 20-170.

7 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

8 A. Yes.

Larry Blank

Education

Ph.D. in Economics, The University of Tennessee, Knoxville, August 1994.

B.S. in Economics (major), Mathematics (minor), Bemidji State University, Minnesota, May 1989.

Fields of Concentration

Industrial Organization & Public Policy (including utility rates and regulation)

Econometrics

Finance

Professional Experience

Senior Economist and Partner, Transform Consulting, LLC, January 2021 – Present.

Principal Consultant, TAHOEconomics, LLC, August 1999 - Present. Clients have included Government Agencies, Utility Customers, and Utility Companies focusing on most aspects of regulatory policy development and rate regulation for public utilities.

Professor of Economics, Department of Economics, Applied Statistics, & International Business, New Mexico State University (NMSU), August 2021 – Present. Currently teaching graduate-level public utility regulation, business and government, antitrust policy/economics, and applied microeconomics.

Associate Professor of Economics, Department of Economics, Applied Statistics, & International Business, New Mexico State University (NMSU), August 2009 – July 2021.

Associate Director, Center for Public Utilities, NMSU, January 2011 – Present. Electric Utility and Natural Gas Distribution ratemaking training. The Center's training is endorsed by the National Association of Regulatory Utility Commissioners (NARUC).

Senior Associate, Center for Public Utilities, NMSU, August 2003 – December 2010.

Assistant Professor of Economics, Department of Economics & International Business, New Mexico State University (NMSU), August 2003 – July 2009.

Manager of Regulatory Policy and Market Analysis, Regulatory Operations Staff, Public Utilities Commission of Nevada, October 1997 - August 1999.

Responsibilities: Directed a ten-person division with duties covering most aspects of utility regulation and competitive restructuring across all industries (primarily telecommunications, electric, and natural gas); implementation of the Telecommunications Act of 1996; division management of all rates and tariffs; lead management of staff's electric and natural gas restructuring activities. Close coordination with legal division in litigated case preparation including lead negotiation experience.

Supervising Economist, Regulatory Operations Staff, Public Service Commission of Nevada, March 1996 - October 1997. Duties similar to those above.

Research Economist, National Regulatory Research Institute, The Ohio State University and the National Association of Regulatory Utility Commissioners (NARUC), September 1994 - March 1996.

Lecturer, School of Public Policy and Management, The Ohio State University (taught Graduate Public Finance).

Published Papers and Reports

“Do Residential Net Metering Customers Pay Their Fair Share of Electricity Costs? Evidence from New Mexico Utilities,” *Utilities Policy Journal*, Volume 61, (December 2019).

“An Enhanced Two-Part Tariff Methodology When Demand Charges Are Not Used,” (with Doug Gegax). *The Electricity Journal*, Volume 29, No. 3 (2016).

“Residential Winners and Losers behind the Energy versus Customer Charge Debate,” (with Doug Gegax). *The Electricity Journal*, Vol. 27, No. 4 (2014).

“Benchmarking Electric Distribution Utilities in the Philippines,” (with Doug Gegax and Ben Widner). *Asian Social Science*, Vol. 8, No. 3 (2012).

“Objectively Designing Shared Savings Incentive Mechanisms: An Opportunity Cost Model for Electric Utility Efficiency Programs,” (with Doug Gegax). *The Electricity Journal*, Vol. 24, No. 9 (2011), pp. 31-40.

“Endogenous Regulatory Constraints and The Emergence of Hybrid Regulation,” (with John Mayo). *Review of Industrial Organization*, Vol. 35 (2009), pp. 233-255.

“Promotions as Coopetition in the Soft Drink Industry,” (with Mike Hyman and Michael Meade). *Academy of Marketing Studies Journal*, September, 2009.

“A Dynamic Model of Insurgency: The Case of the War in Iraq,” (with C.E. Enomoto, D. Gegax, T. McGuckin, and C. Simmons), *Peace Economics, Peace Science and Public Policy*, Vol. 14, No. 2, 2008.

“The Role of Regulation in Expanding Access to Electricity: Reform in the Philippines,” (with Mk Shean), *Energy Update*, Issue No. 4, 2005.

“Open Entry and Local Telephone Rates: The Economics of IntraLATA Toll Competition,” (with David Kaserman, John Mayo, and Simran Kahai), *Review of Industrial Organization*, Vol. 14, No. 4, June 2000, pp. 303-319.

“Dominant Firm Pricing with Competitive Entry and Regulation: The Case of IntraLATA Toll,” (with David Kaserman and John Mayo), *Journal of Regulatory Economics*, Vol. 14, 1998, pp. 35-53.

“Concavity Assumptions in Regulatory Models and the Capital Waste Controversy,” *Journal of Regulatory Economics*, Vol. 9, 1996, pp. 95-100.

“Key Antitrust Pricing Issues for Regulated Industries with Emerging Competition,” *NRR*

Quarterly Bulletin, Vol. 17, No. 2, 1996, pp. 279-298.

"Telephone Vouchers: Experiences in Other Markets," *NRRI Quarterly Bulletin*, Vol. 16, No. 4, 1995, pp. 537-547.

Selected Reports:

Telecommunications Service Quality (with V.W. Davis, D. Landsbergen, R.W. Lawton, N. Zearfoss, and J. Hoag), National Regulatory Research Institute, The Ohio State University, Columbus, March 1996.

Telecommunication Infrastructure Investments and State Regulatory Reform: A Preliminary Look at the Data (with Vivian Davis and Catherine Reed), The National Regulatory Research Institute, The Ohio State University, Columbus, December 1994.

Considerations in Preparing and Reviewing Socioeconomic Impact Assessments for Low-Level Waste Disposal Facilities (with Mary English, Matthew Murray, and Zoe Hoyle), for the U.S. Department of Energy. National Low-Level Waste Management Program, EG&G Idaho, Inc., Idaho Falls, Idaho: August 1992.

Economic Impact of Chem-Nuclear Systems, Inc. on Barnwell County, South Carolina (with Matthew Murray), for the U.S. Department of Energy. Energy, Environment and Resources Center, The University of Tennessee, Knoxville, November 1990.

Grants

U.S. Department of Energy, Technical Assistance to the Energy Regulatory Commission of the Philippines, January 2002 – January 2005.

U.S. Department of Energy, Sustainable Energy Development Program (Philippines), January 2005 – August 2005. Completed the Open Access Distribution Service Rules governing 140 electric distribution utilities.

Presentations and Conference Participation

"ERCOT and the week of February 14, 2021," technical presentation to the Lubbock Economics Council, March 4, 2021.

Lead speaker at the Edison Electric Institute's Advanced Ratemaking Course, University of Wisconsin, every July since 2011.

"Statistically Determining Proper Recovery of Demand-Related Costs through the Energy Charge," and Discussant: *CRRI University Advanced Workshop in Regulation and Competition*, Monterey, CA, June 2013.

“The FERC’s Vintage and Original Purpose Doctrine for Transmission Pricing: Distorted Economics and Economic Distortions,” and Discussant: *CRRRI University Advanced Workshop in Regulation and Competition*, Monterey, CA, June 2012.

“Objectively Designing Shared Savings Incentive Mechanisms: An Opportunity Cost Model for Electric Utility Efficiency Programs,” and Discussant: *CRRRI Rutgers University Advanced Workshop in Regulation and Competition*, Sky Top, PA, May 2011.

Presentation: **“Can Regulators Stop the Tax Bleeding of the Universal Service Fund?”** and Discussant: *CRRRI Rutgers University Advanced Workshop in Regulation and Competition*, Sky Top, PA, May 2008.

Presentation: **“Endogenous Regulatory Constraints and the Emergence of Hybrid Regulation,”** *Western Economic Association Meetings*, Seattle, WA, July 2007.

Presentation: **“PUHCA Uncertainty...States,”** *Western Governors’ Association Energy Summit*, Albuquerque, NM, April 15, 2004.

Discussant, *Advanced Workshop in Regulation and Competition*, Monterey, CA, July 6, 2000.

Presentation: **“Nevada Electric Restructuring,”** *Western Risk Management & Claims Workshop*, Western Electric Power Institute, San Diego, CA, July 8, 1999.

Discussant, *Advanced Workshop in Regulation and Competition*, San Diego, CA, July 7-9, 1999.

Participant, *Danish Ministry Workshop on Telecommunications Interconnection*, Special invitation by the Danish Ministry of Research and Information Technology, London, UK, December 14-15, 1998.

Presentation: **“Regulatory Choice: Constraints and Inefficiency,”** *Advanced Workshop in Regulation and Competition*, Monterey, CA, July 10, 1998.

Presentation: **“Regulatory Choice: Constraints and Inefficiency,”** *The 73rd Annual Western Economic Association Conference*, June 29, 1998.

Discussant, *The 25th Annual Telecommunications Policy Research Conference (TPRC)*, Alexandria, VA, September 27-29, 1997.

Presentation: **“Electricity Restructuring Issues,”** two presentations before the *Nevada State Senate Committee on Commerce and Labor*, February 1997.

Presentation: **“Regulating Market Penetration: A Higher-Powered Incentive Scheme for Local Exchange Companies,”** *The Tenth NARUC Biennial Regulatory Information Conference*, Hosted by the National Regulatory Research Institute at The Ohio State University, Columbus, September 11,

1996.

Presentation: **"Regulating Market Penetration: A Higher-Powered Incentive Scheme for Local Telephone Companies,"** *The Advanced Workshop in Regulation and Public Utility Economics*, Hosted by the Center for Research in Regulated Industries at Rutgers University, Lake George, NY, May 30, 1996.

Presentation: **"Balancing Seemingly Conflicting Goals through a Minimum Subscribership Plan: Economic Efficiency and the Risks Borne by Regulators,"** *The 27th Annual Conference of the Institute of Public Utilities*, Williamsburg, VA, December 12, 1995.

Presentation: **"The Minimum Subscribership Plan (MSP): Quality, Prices, and Current Policy,"** *The 23rd Annual Telecommunications Policy Research Conference (TPRC)*, Solomons, MD, October 2, 1995.

Presentation: **"A Positive Theory of Price-Cap and Rate-of-Return Regulation: Substitutes or Complements?"** *Southern Economic Association Meetings*, Orlando, FL, November 22, 1994.

Journal Referee

Peace Economics, Peace Science and Public Policy, July 2011.

The American Economic Review, April 1995.

Case Participation

Electricity:

TX PUC Docket No. 52195, "Application of El Paso Electric Company to Change Rates." Expert witness testimony on behalf of the U.S. Department of Defense, 2021.

TX PUC, Docket No. 51802, "Application of Southwestern Public Service Company for Authority to Change Rates." Expert witness testimony on behalf of the Federal Executive Agencies and Orion Engineered Carbons, 2021.

CO PUC, Proceeding No. 20-AL-0432E, "In the matter of Advice Letter...by Public Service Company of Colorado to revise its Colorado Electric Tariff," Phase II cost allocation and rate design expert witness testimony on behalf of the Federal Executive Agencies (DOE), 2021.

DE PSC, Docket No. 20-0149, "In the matter of the Application of Delmarva Power & Light Company for an Increase in Electric Base Rates." Expert witness testimony on behalf of the Public Service Commission Staff, 2020-21.

NM PRC Case No. 20-00222-UT, "In the matter of the Joint Application of Avangrid, Inc, Avangrid Networks, Inc, NM Green Holdings, Inc, Public Service Company of New Mexico

and PNM Resources, Inc. for approval of the Merger..." Expert Witness testimony on behalf of the City of Albuquerque, 2021.

NM PRC Case No. 20-00237-UT, "In the matter of Public Service Company of New Mexico's Application for Approval of its 2022-2023 Transportation Electrification Program." Expert witness testimony on behalf of the City of Albuquerque, 2021.

NM PRC, Docket No. 20-00121-UT, "In the matter of the Petition of Public Service Company of New Mexico, Pursuant to the Efficient Use of Energy Act and the Public Utility Act, for Approval of a Rate Adjustment Mechanism to Remove Regulatory Disincentives and Original Rider No. 5." Expert witness testimony on behalf of the City of Albuquerque, 2020.

AR PSC, Docket No. 16-036-FR, "In the matter of the Formula Rate Plan filings of Entergy Arkansas, Inc. pursuant to APSC Docket No. 15-015-U." Expert witness testimony on behalf of the Hospitals and Higher Education Group, 2020.

NV PUC, Docket No. 20-06003, "Nevada Power Application to adjust revenue requirement." Expert witness testimony on behalf of the Southern Nevada Gaming Group, 2020.

TX PUC, Docket No. 49831, "Application of Southwestern Public Service Company for Authority to Change Rates." Expert witness testimony on behalf of the United States Department of Energy, 2020.

AZ CC, Docket No. E-01933A-19-0028, "In the matter of the Application of Tucson Electric Power Company for the Establishment of Just and Reasonable Rates..." Expert witness testimony on behalf of the United States Department of Defense and all other Federal Executive Agencies, 2020.

GA PSC, Docket No. 42516, "In RE: Georgia Power Company's 2019 Rate Case." Expert witness testimony on behalf of the United States Department of Defense and all other Federal Executive Agencies, 2019.

DE PSC, Docket 17-0977, "In the matter of the Application of Delmarva Power & Light Company for an Increase in Electric Base Rates." Expert witness testimony on behalf of the Public Service Commission Staff, 2019 (Phase II- State Jurisdictional Allocation).

NM PRC, Case No. 19-00158-UT, "In the matter of the Application of Public Service Company of New Mexico for Approval of PNM Solar Direct Voluntary Renewable Energy Program, Power Purchase Agreement, and Advice Notice Nos. 560 and 561." Expert witness testimony on behalf of the City of Albuquerque, 2019.

AR PSC, Docket No. 19-008-U, "In the matter of the Application of Southwestern Electric Power Company for Approval of a General Change in Rates and Tariff." Expert witness testimony on behalf of the Board of Trustees of the University of Arkansas, 2019.

NM PRC, Case No. 18-00383-UT, “In the matter of the filing of Advice Notice No. 69 by Socorro Electric Cooperative, Inc..” Expert witness testimony on behalf of the City of Socorro and New Mexico Institute of Mining and Technology, 2019.

AR PSC, Docket No. 16-036-FR, “In the matter of the Formula Rate Plan filings of Entergy Arkansas, Inc. pursuant to APSC Docket No. 15-015-U.” Expert witness testimony on behalf of the Hospitals and Higher Education Group, 2018.

NM PRC, Case No. 17-00255-UT, “In the matter of Southwestern Public Service Company’s Application for revision of its Retail Electric Rates under Advice Notice No. 272.” Expert witness testimony on behalf of the City of Albuquerque, 2018.

KS CC, Docket No. 18-WSEE-328-RTS, “In the matter of the Joint Application of Westar Energy, Inc. and Kansas Gas and Electric Company for Approval to make certain changes to their Charges for Electric Service.” Expert witness testimony on behalf of the United States Department of Defense and all other Federal Executive Agencies, 2018.

DE PSC, Docket 17-0977, “In the matter of the Application of Delmarva Power & Light Company for an Increase in Electric Base Rates.” Expert witness testimony on behalf of the Public Service Commission Staff, 2018.

AK RCA, Docket No. U-17-008, “In the Matter of the Tariff Revision Designated as TA326-121 Filed by the Municipality of Anchorage D/B/A Municipal Light and Power Department.” Expert witness testimony on behalf of the Federal Executive Agencies, Dec. 2017.

NM PRC, Case No. 16-00276-UT, “In the matter of the Application of Public Service Company of NM for revision of its Retail Electric Rates.” Expert witness testimony on behalf of the City of Albuquerque, 2017.

OK Corporation Commission, Cause No. PUD 201700151, “In the matter of Public Service Company of OK Application for Adjustment in Rates.” Expert witness testimony on behalf of the Department of Defense, 2017.

AR PSC, Docket 16-052-U, “In the matter of the Application of Oklahoma Gas and Electric Company for a General Change in Rates, Charges and Tariffs.” Expert witness testimony on behalf of the Arkansas River Valley Energy Consumers, 2017.

DE PSC, Docket 16-0649, “In the matter of the Application of Delmarva Power & Light Company for an Increase in Electric Base Rates.” Expert witness testimony on behalf of the Public Service Commission Staff, 2016.

OK Corporation Commission, Cause No. PUD 201500208, “In the matter of Public Service Company of OK Application for Adjustment in Rates.” Expert witness testimony on behalf of the Department of Defense, 2015.

AR PSC, Docket 15-015-U, “In the Matter of the Application of Entergy Arkansas, Inc. for Approval of Changes in Rates for Retail Electric Service.” Expert witness testimony on behalf of the Hospitals and Higher Education Group, 2015.

CO PUC, Docket 14AL-0660E, “In the Matter of Advice Letter NO 1672-Electric Filed by Public Service Company of Colorado PUC No. 7-Electric Tariff to Implement a General Rate Schedule Adjustment and Other Rate Changes Effective July 18, 2014.” Expert witness testimony on behalf of the Federal Executive Agencies, November 2014.

AK RCA, Docket No. U-13-184, “In the Matter of the Tariff Revision Designated as TA332-121 Filed by the Municipality of Anchorage D/B/A Municipal Light and Power Department.” Expert witness testimony on behalf of the Federal Executive Agencies, May 2014.

AK RCA, Docket No. U-13-006, “In the Matter of the Tariff Revision Designated as TA326-121 Filed by the Municipality of Anchorage D/B/A Municipal Light and Power Department.” Expert witness testimony on behalf of the Federal Executive Agencies, October 2013.

AR PSC, Docket No. 13-028-U, “In the matter of the application of Entergy Arkansas, Inc. for approval of changes in rates for retail electric service,” expert witness testimony on behalf of Hospitals and Higher Education Group, August 2013.

AZ ACC, Docket No. E-01345A-11-0224, “In the matter of the application of Arizona Public Service Company for a hearing to determine the fair value of the utility property of the company for ratemaking purposes, to fix a just and reasonable rate of return thereon, to approve rate schedules designed to develop such return,” expert witness testimony on behalf of the Federal Executive Agencies, January 2012.

NM PRC, Case No. 11-00265-UT, “In the matter of Public Service Company of NM’s Renewable Energy Portfolio Procurement Plan for 2012,” direct and rebuttal testimony on renewable cost threshold and related matters, on behalf of Public Service Company of New Mexico, October 2011.

AK RCA, Docket No. U-10-31, “In the Matter of the Revenue Requirement and Cost-of-Service Studies Designated as TA304-121 and the Tariff Filing Designated as TA306-121 and TA309-121 Filed by the MUNICIPALITY OF ANCHORAGE D/B/A MUNICIPAL LIGHT AND POWER,” expert witness testimony on behalf of the Federal Executive Agencies, prepared December 2010.

AR PSC, Docket No. 08-137-U, “In the Matter of the Consideration of Innovative Approaches to Ratebase Rate of Return Ratemaking Including, but not Limited to, Annual Earnings Reviews, Formula Rates, and Incentive Rates for Jurisdictional Electric and Natural Gas Utilities,” expert witness testimony responding to the mechanisms related to this docket, 2010.

CO PSC, Docket No. 10M-245E, “In the Matter of Commission Consideration of Public Service Company of Colorado Plan in Compliance with House Bill 10-1365, ‘Clean Air-Clean Jobs Act’,”

expert witness testimony responding to the fundamental ratemaking issues regarding compliance with the Clean Air-Clean Jobs Act, September 2010.

AR PSC, Docket No. 09-084-U, “In the Matter of the Application of Entergy Arkansas, Inc. for Approval of Changes in Rates for Retail Electric Service,” expert witness testimony responding to certain aspects of revenue requirement, cost-of-service, and rate design. Also, responding to the proposed Formula Rate Plan, Lost Contributions to Fixed Costs, and the Shared Savings mechanism, 2010.

CO PSC, Docket No. 09AL-299E, “In the Matter of Advice Letter No. 1535 by Public Service Company of Colorado to Revise Its Colorado PUC No. 7 Electric Tariff to Reflect Revised Rates and Rate Schedules to be Effective on June 5, 2009,” expert witness testimony responding to the Phase II issues contained in the revised rate design on behalf of the Federal Executive Agencies, December 2009.

CO PSC, Docket No. 09AL-299E, “In the Matter of Advice Letter No. 1535 by Public Service Company of Colorado to Revise Its Colorado PUC No. 7 Electric Tariff to Reflect Revised Rates and Rate Schedules to be Effective on June 5, 2009,” expert witness testimony responding to the Phase I issues contained in the proposed revenue requirements on behalf of the Federal Executive Agencies, September 2009.

NV PUC, Docket No. 08-12002, “Application of Nevada Power Company for authority to increase its annual revenue requirement for general rates charged to all classes of customers to recover costs of acquiring the Bighorn Power Plant, constructing the Clark Peak, environmental retrofits, and other generating, transmission, and distribution plant additions; to reflect changes in cost of service; and for relief properly related thereto,” expert witness testimony responding to certain aspects of the cost of service and rate design on behalf of The Board of Regents of the Nevada System of Higher Education, April 2009.

AZ ACC, Docket No. E-01345A-08-0172, “In the Matter of the Application of Arizona Public Service Company for a Hearing to Determine the Fair Value of the Utility Property of the Company for Ratemaking Purposes, to Fix a Just and Reasonable Rate of Return Thereon, to Approve Rate Schedules Designed to Develop Such Return,” expert witness testimony responding to certain aspects of the cost of service and rate design on behalf of the Federal Executive Agencies, January 2009.

FERC, Docket No. EL07-101-000, expert witness testimony assessing transmission rate design on behalf of American Electric Power Service Corporation, August 2007.

MD PSC, Case No. 9092, “In the Matter of the Application of PEPCO for Authority to Revise Rates,” conducted training and provided advisory services to the Maryland Commissioners and advisory staff (2007).

AR PSC, Docket No. 06-101-U, “In the Matter of the Application of Entergy Arkansas, Inc. for Approval of Changes in Rates for Retail Electric Service,” expert witness surrebuttal testimony

responding to the cost of service study used by EAI, Staff, and interveners on behalf of the Federal Executive Agencies, March 2007.

Vermont Department of Public Service, Cost of Service analysis related to Green Mountain Power Corp.

Philippines ERC, design of Open Access Distribution Services Rules, 2005.

Philippines Energy Regulatory Commission, Project Director and key advisor for over three years on policy development related to industry restructuring and over 140 rate unbundling cases, 2001-2005.

Philippines Department of Energy and Energy Regulatory Board, Electricity Ratemaking Training and Rulemaking for Restructured Wholesale and Retail Electricity Industry (July 2000 – February 2001).

TX PUC, Docket No. 22349, Application of TX-NM Power Company for approval of unbundled cost of service rates (testimony filed). 1999-2000.

NV PUC, Docket No. 99-10049, Petition for Advisory Opinion, Rules that may or may not apply to master-metered mobile home parks after restructuring of electric and natural gas markets, (testimony), 1999.

NV PUC, Docket No. 99-4019, Utility.com, Inc., Application for Licensing as an Alternative Seller (testimony), 1999.

NV PUC, Docket No.s 98-12007 and 12009, Sierra Pacific Power Co. And Nevada Power Co. Applications for authorization to provide potentially competitive services through affiliates (testimony), 1998.

NV PUC, Docket No. 98-7023, Sierra Pacific Power Company and Nevada Power Company, Joint Application for Approval of Merger (testimony), 1998.

NV PUC, Docket No. 98-9038, Regulatory Operations Staff, Application to Designate Unbundled Services as Potentially Competitive (testimony), 1998.

NV PUC, Docket No. 98-8034, Nevada Power Company, Application to Designate Unbundled Services as Potentially Competitive (testimony), 1998.

NV PUC, Docket No. 97-10004, Nevada Power Company's Green Power Tariff (testimony), 1997.

NV PUC, Docket Nos. 97-11018 and 97-11028, Proposed Unbundling Methodologies of Sierra Pacific Power Co. and Nevada Power Co. (testimonies), 1997.

NV PUC, Docket No. 97-8001, Investigation of issues to be considered as a result of restructuring of

electric industry (extensive comments and testimony on all restructuring issues including the development of new regulations), 1997 - 1999.

NV PUC, Docket No. 97-6008, Nevada Power Company's Resource Plan (evaluation of load forecasting), 1997.

NV PUC, Docket No. 97-5034, Rulemaking to establish standards of conduct and related requirements for distribution companies and affiliates, 1997.

NV PUC, Docket No. 96-7020, Nevada Power Company Deferred Energy Case (testimony), 1996.

NV PUC, Docket No. 96-6013 and 96-6014, Sierra Pacific Power Company tariff filing to allow negotiated contracts (testimony), 1996.

NV PUC, Docket No. 95-9022, Nevada Electric Restructuring Investigation (several extensive comments), 1996.

Natural Gas and Water Distribution:

NM PRC, Case No. 18-00124-UT, "In the Matter of the Petition by EPCOR Water New Mexico Inc. for Adjustment of Water Rates for its Clovis District." Expert witness work on behalf of the City of Clovis, 2019.

AR PSC, Docket No. 15-098-U, "In the Matter of the Application of Centerpoint Energy Resources Corp., d/b/a Centerpoint Energy Arkansas Gas, for a General Change or Modification in its Rates, Charges and Tariffs." Expert witness testimony on behalf of the University of Arkansas, 2015-16.

AR PSC, Docket No. 15-011-U, "In the Matter of the Application of SourceGas Arkansas, Inc. for Approval of a General Change in Rates and Tariffs." Expert witness testimony on behalf of the University of Arkansas, 2015.

AR PSC, Docket No. 13-079-U, "In the Matter of the Application of SourceGas Arkansas Inc. for Approval of a General Change in Rates." Expert witness testimony on behalf of the University of Arkansas, May 2014.

NV PUC, Docket No. 12-11010, "Investigation and rulemaking to address a recovery mechanism for the accelerated replacement of gas infrastructure." Expert witness testimony on behalf of the Federal Executive Agencies, December 2012.

NM PRC, Case No. 11-00196-UT, "In the matter of the petition by New Mexico-American Water Co. for adjustment of water rates for its Clovis District." Expert witness testimony on behalf of the City of Clovis, November 2011.

NM PRC, Case Nos. 11-00085-UT and 11-00293-UT, Acquisition and financing of NM American

Water Co. by EPCOR, Inc. Expert witness testimony on financing and customer hold-harmless on behalf of the City of Clovis, July-August 2011.

NM PRC, Case No. 08-00134-UT, “In the Matter of the Petition by New Mexico-American Water Company, Inc. for Adjustment of Water Rates for Its Clovis District,” expert witness testimony responding to revenue requirements and rate design in the petition to adjust water rates on behalf of the City of Clovis, December 2008.

NM PRC, Case No. 08-00321-UT, “In the Matter of the Petition by New Mexico-American Water Company, Inc. for a Certificate of Convenience and Necessity and Other Authorizations Related to an Exploratory Test Well into the Lower Dockum Formation to Serve the Clovis District,” expert witness testimony assessing accounting and regulatory treatment of the project costs associated with the proposed exploratory test well into the lower Dockum Formation to serve the Clovis district of New Mexico-American Water Company, Inc. (“NMAW” or “Company”) on behalf of the City of Clovis, March 2009.

NV PUC, Docket No. 97-8002, Investigation into alternative forms of regulation for natural gas local distribution companies and alternative sellers of natural gas, and related matters (extensive comments and testimony on all restructuring issues including the development of new regulations), 1997.

NV PUC, Docket No. 97-5034, Rulemaking to establish standards of conduct and related requirements for distribution companies and affiliates, 1997.

Telecommunications:

NM PRC, Case No. 18-00295-UT, “In the Matter of the Petition of CenturyLink QC Regarding Effective Competition for Retail Residential Services.” Expert witness testimony on behalf of the City of Albuquerque, 2019.

MT PSC, Docket No. D2005.6.105, Investigation on Use of Federal Universal Service Funds (testimony filed on behalf of PSC advocacy staff), 2005.

NM PRC, Case No. 05-00094-UT, Qwest Corporation’s Amended Alternative Form of Regulation Plan, (testimony filed on behalf of Qwest regarding computation and appropriateness of refund), 2005.

Line Extension Policy and Contribution in Aid of Construction, expert witness work on behalf of 3 Rivers Telephone Cooperative, before the Montana Eighteenth Judicial District Court, Cause No. DV-04-731, March 2006.

NV PUC, Docket No. 00-7012, Nevada Bell Petition for order commencing a proceeding to determine new costs and rates for unbundled network elements (testimony filed on behalf of wholesale customers), 2000.

FCC CC Docket No. 00-247, Petition for Arbitration, Developed Unbundled Costs and Interconnection Agreement on behalf of Virtual Hipster Corp., December 2000.

Case No. CV771923, Superior Court of the State of California (Santa Clara), Worldcom v. Co-net Communications, Oral Expert Witness Testimony on potential service development including cost and revenue estimates, damage estimate, standard of care in circuit disconnect, and other circuit contractual issues (deposition and oral testimony), April 2000.

NV PUC, Docket Nos. 98-10015 and 99-11007, Nevada Bell Arbitrations on the issue of reciprocal compensation and Internet service provider traffic, 1998.

NV PUC, Review of Interconnection and Resale Agreements between Incumbent Local Exchange Carriers and Competitors for approval in Nevada.

NV PUC, Docket No. 98-6005, Sprint of Nevada, Unbundled Network Element Costs (testimony), 1998.

NV PUC, Docket No. 98-6004, Nevada Bell, Unbundled Network Element Costs (testimony), 1998.

NV PUC, Docket No. 97-11017, Virtual Hipster Corp., Petition to terminate rural exemption of Churchill County Telephone Company (testimony), 1997.

NV PUC, Docket No. 96-8035, GTE, Depreciation Filing (testimony), 1997.

NV PUC, Docket No. 97-5027, Central Telephone Company-Nevada, tariff filing requesting an increase in directory assistance rates (testimony and cost analysis), 1997.

NV PUC, Docket No. 97-5018, Investigation into the impact of the Telecommunications Act of 1996 on Universal Service in Nevada (comments), 1997.

NV PUC, Docket No. 96-4041, Nevada Bell Petition on Confidential Nature of Telecommunications Cost Studies (testimony filed), 1996.

NV PUC, Docket No. 96-9035, Investigation into Procedures and Methodologies to Develop Costs for Bundled or Unbundled Telephone Services (comments, testimony and cost analysis), 1996.

NV PUC, Docket Nos. 96-3002 and 96-3003, Nevada Bell's Entry into a Plan of Alternative Regulation (testimony), 1996.

Unitil Energy Systems, Inc.
Docket No. DE 21-030
NHPUC Staff Data Requests – Set 2

Date Request Received: 06/02/2021

Date of Response: 06/16/2021

Request No. Staff 2-31

Witness: C. Goulding & D. Nawazelski

REQUEST:

Please provide the Company's kWh distribution sales volumes, by customer class, for each of the last five years. Please also explain how the Company determined the sales volumes for the purpose of determining the revenue requirement shortfall.

RESPONSE:

Please refer to Staff 2-31 Attachment 1 for kWh distribution sales volumes, by customer class, for each of the last five years. The Company used actual test year sales volumes for the purpose of determining the revenue requirement shortfall.

UNITIL ENERGY SYSTEMS, INC.
DISTRIBUTION SALES VOLUMES, BY CUSTOMER CLASS FOR 2016-2020

Docket DE 21-030
Staff 2-31 Attachment 1
Page 1 of 1

	(1)	(2)	(3)	(4)	(5)	(6)
Line No.	Description	2016	2017	Billed kWh Sales 2018	2019	2020
1	Residential - D	484,321,778	484,341,433	510,593,306	483,929,101	515,968,592
2	Small General Service - G2 kWh	549,564	502,127	512,615	500,439	438,744
3	Small General Service - G2 QR WH /SH	4,832,208	5,112,600	5,612,997	4,942,809	4,483,579
4	Small General Service - G2 Demand	339,597,625	339,008,038	350,227,041	337,338,818	312,134,498
5	Large General Service - G1	354,467,481	351,603,664	349,430,148	327,838,600	319,767,459
6	Street Lighting - OL	8,163,498	8,073,245	8,060,761	7,942,212	7,625,729
7	Total Billed kWh Sales	1,191,932,155	1,188,641,108	1,224,436,868	1,162,491,979	1,160,418,601