

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF COLORADO**

IN THE MATTER OF ADVICE NO. 1835-)
ELECTRIC OF PUBLIC SERVICE)
COMPANY OF COLORADO TO REVISE)
ITS COLORADO P.U.C. NO. 8 - ELECTRIC)
TARIFF ELIMINATE THE CURRENTLY)
EFFECTIVE GENERAL RATE SCHEDULE)
ADJUSTMENTS (“GRSA”) AND GENERAL)
RATE SCHEDULE ADJUSTMENT --)
ENERGY (“GRSA-E”), AND PLACE INTO)
EFFECT REVISED BASE RATES AND)
OTHER AFFECTED CHARGES FOR ALL)
ELECTRIC RATE SCHEDULES IN THE)
COMPANY’S ELECTRIC TARIFF,)
INCLUDING UPDATED ELECTRIC)
AFFORDABILITY PROGRAM (“EAP”),)
LOAD METER, AND PRODUCTION METER)
CHARGES TO BECOME EFFECTIVE)
NOVEMBER 19, 2020.)

PROCEEDING NO. 20AL-0432E

HEARING EXHIBIT NO. 702

ANSWER TESTIMONY AND ATTACHMENTS OF

MELISSA WHITED

ON BEHALF OF

ENERGY OUTREACH COLORADO

March 8, 2021

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1 **I. INTRODUCTION AND QUALIFICATIONS**

2 **Q PLEASE STATE YOUR NAME, TITLE, AND EMPLOYER.**

3 A My name is Melissa Whited. I am a Principal Associate at Synapse Energy
4 Economics, located at 485 Massachusetts Avenue, Cambridge, MA 02139.

5 **Q PLEASE DESCRIBE SYNAPSE ENERGY ECONOMICS.**

6 A Synapse Energy Economics (Synapse) is a research and consulting firm
7 specializing in electricity and gas industry regulation, planning, and analysis. Our
8 work covers a range of issues, including economic and technical assessments of
9 demand-side and supply-side energy resources; energy efficiency policies and
10 programs; integrated resource planning; electricity market modeling and
11 assessment; renewable resource technologies and policies; and climate change
12 strategies. Synapse works for a wide range of clients, including attorneys general,
13 offices of consumer advocates, public utility commissions, environmental
14 advocates, the U.S. Environmental Protection Agency, U.S. Department of
15 Energy, U.S. Department of Justice, the Federal Trade Commission, and the
16 National Association of Regulatory Utility Commissioners. Synapse has over 30
17 professional staff with extensive experience in the electricity industry. Please
18 summarize your professional and educational experience.

19 I have 12 years of experience in economic research and consulting. At Synapse, I
20 have worked extensively on issues related to utility regulatory models and rate
21 design. I have been an invited speaker in numerous industry conferences, including
22 as a panelist for the National Association of Regulatory Utility Commissioners
23 (NARUC) Subcommittee on Rate Design at the 2021 Winter Policy Summit and
24 the 2018 Annual Meeting. I have sponsored testimony before the Georgia Public
25 Service Commission, the Rhode Island Public Utilities Commission, the
26 Massachusetts Department of Public Utilities, the Maine Public Utilities
27 Commission, the California Public Utilities Commission, the Hawaii Public

1 Utilities Commission, the Public Service Commission of Utah, the Public Utility
2 Commission of Texas, the Virginia State Corporation Commission, the
3 Newfoundland and Labrador Board of Commissioners of Public Utilities, the Nova
4 Scotia Utility and Review Board, and the Federal Energy Regulatory Commission.

5 In addition, I worked closely with Synapse's Senior Vice President, Tim Woolf,
6 when he served as an expert witness on behalf of Energy Outreach Colorado
7 (“EOC”) previously in cases involving Public Service Company of Colorado
8 (“PSCo” or the “Company”) before the Colorado Public Utilities Commission (the
9 “Commission”), in Proceeding Nos. 16AL-0048E (Phase II rate review case) and
10 19AL-0687E (Time-of-Use case).

11 I hold a Master of Arts in Agricultural and Applied Economics and a Master of
12 Science in Environment and Resources, both from the University of Wisconsin-
13 Madison. My resume is attached as **Attachment MW-1**.

14 **Q ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS CASE?**

15 A I am testifying on behalf of EOC, an independent, non-profit organization in
16 Colorado that works to help limited-income Coloradans afford home energy.

17 **Q WHY IS EOC INTERVENING IN THIS DOCKET?**

18 A EOC is a Colorado nonprofit corporation whose mission is to ensure that low-
19 income Colorado households can meet their home energy needs.¹ EOC provides
20 bill assistance and funds energy efficiency measures for income-qualified
21 customers to this end. EOC is intervening in this docket to address PSCo’s proposal
22 to eliminate inclining-block rate (IBR) options for its residential customers, as well
23 as to significantly increase residential customers’ rates. EOC policy witness

¹ In my testimony, I will use the term “income-qualified” rather than “low-income” whenever possible.

1 Andrew Bennett provides an overview of EOC's concerns with the Company's
2 filing.

3 **Q WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

4 A In my testimony, I demonstrate that IBR is an efficient, fair, and time-tested rate
5 structure and a key option that the Company should continue to offer to its
6 customers. I further explain the critical role that IBR plays for income-qualified
7 customers, and how the rate helps to advance Colorado's energy conservation
8 goals. Finally, I explore the benefits of offering a menu of rate options for
9 customers.

10 *Summary of Conclusions and Recommendations*

11 **Q PLEASE SUMMARIZE YOUR PRIMARY CONCLUSIONS.**

12 A Inclining-block rates have been successful as the default rate design for residential
13 customers in PSCo's territory for more than ten years. IBR conforms to key rate
14 design principles because it accurately reflects the lower costs that, on average,
15 lower-use customers impose on the system. IBR also encourages conservation and
16 protects income-qualified ratepayers by maintaining lower rates for lower-use
17 customers – both of which are key policy goals for Colorado. Finally, maintaining
18 IBR as one choice among a menu of different rates can help to provide customers
19 with choice, stability, and control, which are core priorities for any rate design
20 regime. In contrast, eliminating IBR while including other rate options that can
21 be harmful to customers, like a flat rate or a residential demand charge, is not a
22 reasonable outcome.

23 I conclude that PSCo's proposal to eliminate the residential inclining-block rate
24 structure and migrate customers to a flat rate would not serve the public interest for
25 the following reasons:

- 1 • IBR is a sound rate design that promotes energy efficiency and conservation,
2 and IBR is more cost-reflective than the Company’s proposed flat rate.
- 3 • Transitioning customers from IBR to a flat rate would disproportionately harm
4 income-qualified customers.
- 5 • Migrating residential customers onto a new rate in advance of their scheduled
6 transition to the time-of-use (TOU) rate would create needless confusion and is
7 not a reasonable “stepping stone” to TOU.
- 8 • Beneficial electrification can be promoted through offering a flat rate, but this
9 should not come at the expense of income-qualified customers and energy
10 efficiency.

11 Instead, the Commission should maintain the IBR structure for Schedule R, and it
12 should ensure that the Company continues to offer IBR to its customers even after the
13 transition to the TOU rate has been completed.

14 **Q PLEASE SUMMARIZE YOUR RECOMMENDATIONS.**

15 A I recommend that the Commission do the following:

- 16 1. Prior to the transition to TOU rates, the Company should maintain Schedule R
17 as an inclining block rate, but also offer an optional flat rate alternative.
- 18 2. Following the transition to TOU rates, IBR should remain an opt out rate option
19 alternative to Schedule R-OO.

1 **II. THE COMPANY'S RESIDENTIAL RATE DESIGN PROPOSAL**

2 **Q PLEASE SUMMARIZE PSCO'S RESIDENTIAL RATE DESIGN**
3 **PROPOSAL.**

4 A The Company is proposing to eliminate the current IBR structure of Schedule R
5 and replace it with a seasonally differentiated flat rate, identical to the structure of
6 the residential general service opt-out rate ("Schedule R-OO").² The Company is
7 also recommending that Schedule RD-TDR become a permanent rate option and is
8 proposing a Flat Bill Payment Offering ("Flat Bill").³

9 **Q WHAT IS THE CONTEXT FOR THE COMPANY'S PROPOSAL TO**
10 **ELIMINATE SCHEDULE R AND REPLACE IT WITH A FLAT RATE?**

11 A According to the terms of the settlement for proceeding No. 19AL-0687E, PSCo
12 was required to propose for consideration a flat rate to replace Schedule R, with all
13 parties reserving the right to take any position on the Company's proposal.⁴ While
14 the settlement expressly permitted the Company to propose other alternative
15 structures for Schedule R, PSCo has only advanced the single flat rate proposal,
16 which is identical to Schedule R-OO except in how riders are calculated.⁵

17 **Q DID THE COMMISSION DECIDE IN PROCEEDING NO. 19AL-0687E ON**
18 **WHETHER A FLAT RATE STRUCTURE WAS PREFERABLE TO IBR**
19 **FOR SCHEDULE R?**

20 A No, the Commission did not decide on whether a flat rate structure was preferable
21 to IBR for Schedule R, or whether the Company should cease to offer an IBR option

² Direct Testimony of PSCo Witness Wishart, Proceeding No. 20AL-0432E, October 19, 2020, ("Wishart Direct Testimony") at 10 and 28.

³ Wishart Direct Testimony at 11.

⁴ CO PUC Proceeding No. 19AL-0687E, Decision R20-0642 at 55; Unanimous and Comprehensive Stipulation and Settlement Agreement at 17 (hereinafter "TOU Settlement").

⁵ Wishart Direct Testimony at 28.

1 to its customers. EOC staunchly objected to modifying Schedule R to a flat rate.⁶
2 This issue was ultimately left to be decided in a future proceeding.

3 **Q WHO WOULD BE AFFECTED BY THE PROPOSED CHANGES TO**
4 **SCHEDULE R?**

5 A The vast majority of residential customers are on Schedule R, and Schedule R will
6 remain the default rate for all residential customers until they are transitioned onto
7 Modified RE-TOU. Since the transition to the new time-varying rate is to occur on
8 a staged basis, some customers are expected to remain on Schedule R until 2024, if
9 not later due to meter roll out delays.⁷ The proposed change would therefore
10 transition the majority of residential customers in PSCo’s territory onto a flat rate
11 well in advance of the transition to the TOU rate.

12 **Q ARE RESIDENTIAL CUSTOMERS REQUIRED TO TAKE SERVICE ON**
13 **THE TOU RATE SCHEDULE?**

14 A No. Even though Modified RE-TOU has been approved as the default rate for
15 PSCo’s residential class, customers may opt out of this new rate. Under the
16 settlement, Schedule R-OO will serve as the default opt-out rate for customers,
17 although customers may elect “another Schedule as may be available to the
18 Customer at the time under the Company’s Tariff.”⁸ Here, the Company also
19 proposes to make the pilot RD-TDR rate a permanent option for customers, which
20 would thus be available as an opt-out rate.⁹ Once customers reach their respective
21 transition dates, however, they will no longer be eligible for Schedule R.

⁶ CO PUC Proceeding No. 19AL-0687E, Cross-Answer Testimony of EOC Witness Andrew Bennett at 5-16.

⁷ CO PUC Proceeding No. 19AL-0687E, Decision R20-0642 at 36.

⁸ TOU Settlement at 10.

⁹ Wishart Direct Testimony at 11.

1 **Q DOES EOC SUPPORT A FLAT RATE OPTION?**

2 A EOC supports offering customers multiple rate options, *including* a flat rate option.
3 However, EOC does *not* support eliminating IBR or defaulting customers onto a
4 flat rate ahead of their transition to TOU. As I will explain further in my testimony,
5 IBR remains a critical option for income-qualified customers. EOC concluded in
6 the previous case, and we continue to conclude, that the adverse impacts of RE-
7 TOU on income-qualified customers could be avoided if these customers were
8 permitted to remain on IBR rather than being forced onto a TOU rate.

9 **Q WHY DO YOU RECOMMEND THAT THE COMPANY MAINTAIN THE**
10 **IBR STRUCTURE FOR SCHEDULE R AND CONTINUE TO OFFER AN**
11 **IBR OPTION FOLLOWING THE TRANSITION TO TOU?**

12 A There are three primary reasons why PSCo should be required to maintain Schedule
13 R as an inclining block rate and continue to offer it as an option following the
14 transition to TOU rates:

15 1. IBR is a superior rate design to a flat rate, as it better promotes energy
16 efficiency and conservation and is more cost-reflective than a flat rate.

17 2. Transitioning customers from IBR to a flat rate would disproportionately
18 harm income-qualified customers.

19 3. Migrating residential customers onto a new rate in advance of their
20 scheduled transition to the TOU rate would create needless confusion.

21 I address each of these points in my testimony below.

1 **III. IBR IS SUPERIOR TO A FLAT RATE.**

2 **A. *IBR is More Cost-Reflective than a Flat Rate.***

3 **Q WHY DO YOU CLAIM THAT IBR IS MORE COST-REFLECTIVE THAN A**
4 **FLAT RATE?**

5 The Company's corrected analysis and additional analysis that I performed show
6 that lower-usage customers consume more of their electricity during lower cost
7 hours than do higher-usage customers. Because of this, the lower-priced first tier of
8 IBR more accurately reflects the lower cost imposed by low-usage customers than
9 a flat rate.

10 **Q WHY DOES MR. WISHART CLAIM THAT "TIERED RATE**
11 **STRUCTURES ARE NOT COST BASED"?¹⁰**

12 **A** Mr. Wishart's claim was based on a flawed analysis, which he subsequently
13 corrected. In his direct testimony, Mr. Wishart testified that "there is a mild
14 correlation between the level of usage and the relative proportion of usage that
15 occurs off peak," and that this implies that the "average cost to serve a high use
16 customer may be a bit *lower* than the cost to serve a lower use customer."¹¹
17 However, the Company later discovered an error in its analysis and admitted,
18 "[a]fter correcting the data, the analysis indicates off-peak energy usage decreases
19 slightly for customers with higher levels of usage."¹²

20 **Q WHAT IS THE IMPLICATION OF THE CORRECTION OF THIS ERROR?**

21 **A** The implication is that lower-usage customers consume proportionately more
22 during *off-peak* hours than higher-usage customers. In other words, lower usage

¹⁰ Wishart Direct Testimony at 29.

¹¹ *Id.*.

¹² PSCo Response to Discovery Request EOC2-1, attached as **Attachment MW-2**.

1 customers are actually *less costly* to serve than higher usage customers, based on
2 when they tend to consume energy.

3 **Q DID YOU PERFORM ANY ADDITIONAL ANALYSIS?**

4 A The Company's analysis focused on the hours defined as "on-peak" during the
5 entire year. However, PSCo's system is largely constructed to serve summer
6 peaks. Thus, I analyzed customer usage during summer on-peak hours using the
7 same underlying customer data.¹³ This data set consists of hourly consumption
8 information for a sample of more than 3000 residential customers for the entirety
9 of the 2018 calendar year.

10 **Q HOW DIFFERENT ARE HIGHER USE CUSTOMERS THAN LOWER**
11 **USE CUSTOMERS IN THEIR RELATIVE USAGE DURING SUMMER**
12 **ON-PEAK HOURS?**

13 A To get a handle on the difference between higher and lower use customers, I
14 sorted the sample of residential customers into two groups – those with an
15 average monthly consumption of 500 kWh or less, and those whose monthly
16 averages exceeded 500 kWh. These groupings correspond to the usage tiers under
17 the current Schedule R. I found that low usage customers consume 5.5% of their
18 annual energy during summer peak periods, while higher usage customers
19 consume 6.1% of their annual energy during the summer on-peak period. In other
20 words, customers with usage that falls into Tier 2 use about 11 percent more of
21 their energy during summer peak hours than do lower-use customers – a
22 meaningful difference. These results are presented below in Table MW-1.

¹³ The confidential data was produced in response to Discovery Request EOC2-1.

1 *Table MW-1. Energy Consumed During Summer On-Peak Hours as*
 2 *Percentage of Total Annual Consumption for Tier 1 and Tier 2 Customers*

Average Use (kWh/month)	Consumption During Summer Peak Period (% of annual kWh)
Lower Use (Tier 1, ≤500 kWh)	5.5%
Higher Use (Tier 2, >500 kWh)	6.1%

3
 4 This relationship is even stronger when looking only at consumption during the
 5 summer period. Higher use customers who, on average, pay Tier 2 rates during
 6 the summer season also consume much more of their energy during the summer
 7 on-peak hours than lower-use customers – almost 18 percent more.

8 *Table MW-2. Energy Consumed During Summer On-Peak Hours as*
 9 *Percentage of Total Summer Consumption for Tier 1 and Tier 2 Customers*

Average Summer Use (kWh/month)	Consumption During Summer Peak Period (% of summer kWh)
Lower Use (Tier 1, ≤500 kWh)	13.3%
Higher Use (Tier 2, >500 kWh)	15.8%

10

11 **Q WHAT DOES THIS MEAN FOR THE COST BASIS OF RATE DESIGN?**

12 A Because lower usage customers consume proportionately less electricity during the
 13 peak period, IBR better reflects the lower cost to serve these customers than a flat
 14 rate.

15 **Q ARE THERE OTHER REASONS WHY LOWER-USAGE CUSTOMERS**
 16 **MAY BE LESS COSTLY TO SERVE?**

17 A Yes. Residents of multi-unit buildings generally have lower usage than customers
 18 in single family houses, and are also less costly to serve because they share certain
 19 key pieces of infrastructure. Specifically, while single-family customers have their

1 own service drop and may share a transformer with a few other houses, a single
2 service drop and transformer may serve 100 or more multifamily customers.
3 Treating these customers the same as single-family customers overstates their
4 customer-related costs.¹⁴

5 **Q IS THIS ALSO THE CASE IN COLORADO?**

6 A Yes. In Colorado specifically, residents of multi-unit buildings have been shown to
7 use one-third less energy on average, compared to single-family homes.¹⁵ Yet those
8 in multi-unit dwellings that are not served by a single meter still pay the same S&F
9 charge, effectively subsidizing those in single-family homes. Functionally, this
10 represents a subsidy from lower energy consumers to higher energy consumers.

11 **B. *IBR Promotes More Efficient Energy Choices than a Flat Rate.***

12 **Q HOW DOES IBR PROMOTE EFFICIENT BEHAVIOR?**

13 A Increasing energy consumption may result in the need for additional investment in
14 system capacity – with costs that are borne by all ratepayers. By pricing energy
15 above a certain threshold at a higher rate, IBR effectively signals to customers that
16 greater levels of consumption may precipitate the need for costly capacity
17 expansion. By more accurately reflecting the system’s long-run marginal costs,
18 including the cost of adding new capacity, IBR equips customers to make welfare-
19 maximizing decisions. In other words, IBR better supports efficient energy
20 decisions than a flat rate.

¹⁴ Jim Lazar, Paul Chernick, and William Marcus, “Electric Cost Allocation for a New Era: A Manual,”
2020, 155. Available at: <https://www.raonline.org/knowledge-center/electric-cost-allocation-new-era/>.

¹⁵ LeBlanc, Bill, Cooper, Rachel, Reeves, Aleana. 2012. Residential Energy-Use and Savings Potential
Study for the Governor’s Energy Office. Available at:
<https://www.colorado.gov/pacific/sites/default/files/atoms/files/Residential%20Energy-Use%20and%20Savings%20Potential%20Study.pdf>. 7.

1 **Q HAS THE COMMISSION RECOGNIZED IBR AS AN EFFICIENT RATE?**

2 A Yes. In its 2010 order that approved IBR for PSCo's residential class, the
3 Commission found that IBR could be used to effectively reflect the long-run
4 marginal cost of electricity.¹⁶

5 **Q HAVE OTHER JURISDICTIONS RECOGNIZED IBR RATES TO BE**
6 **EFFICIENT?**

7 A Yes. To cite one recent example, in its decision approving IBR for Kansas City
8 Power & Light Company, the Missouri Public Utilities Commission found the
9 Company's previous combination of a declining block rate and flat rate to be
10 inferior to IBR. The Commission wrote that declining block rates provided "poorer
11 efficiency signals" and the signal from the flat rate was "slightly better," but that
12 inclining block rates provide "the best efficiency-inducing price signals."¹⁷
13 Specifically, the Commission noted "Inclining block rates can not only be used to
14 recover short-run "fixed" costs, but signal to customers that higher usage spurs
15 greater investment in future plant; this signal will reduce future rate increases and
16 provide benefits to all customers."¹⁸

17 **C. *IBR Promotes Energy Efficiency and Conservation.***

18 **Q HOW DOES IBR PROMOTE ENERGY EFFICIENCY AND**
19 **CONSERVATION?**

20 A Under IBR, customers are provided with an additional incentive to reduce energy
21 consumption above that of a flat rate, since the volumetric energy rate increases

¹⁶ CO PUC Proceeding No. 09AL-299E, Decision No. C10-0286 at 31.

¹⁷ Missouri Public Utilities Commission, File No. ER-2016-0285, Report and Order, May 3, 2017, at 53, available at <https://www.efis.psc.mo.gov/mpsc/commoncomponents/viewdocument.asp?DocId=936083174>.

¹⁸ Missouri Public Utilities Commission, File No. ER-2016-0285, Report and Order, May 3, 2017, at 54, available at <https://www.efis.psc.mo.gov/mpsc/commoncomponents/viewdocument.asp?DocId=936083174>.

1 with energy consumption. By effectively promoting energy efficiency and
2 conservation, IBR also helps to advance PSCo's goal of reducing system CO₂
3 emissions.¹⁹

4 **Q DOES THE COMPANY ACKNOWLEDGE THE IMPORTANCE OF**
5 **PROMOTING ENERGY EFFICIENCY AND CONSERVATION IN**
6 **SETTING RATES?**

7 A Yes. In this case, the Company expressly highlights the importance of promoting
8 conservation with rate design with respect to its Flat Bill. In its proposed Flat Bill
9 offering, the Company is proposing quarterly incentives for customers who
10 consume less than 95 percent of their forecasted energy.²⁰

11 **Q WILL THE COMPANY'S PROPOSED FLAT BILL OPTION PROMOTE**
12 **CONSERVATION?**

13 A Not to the same extent. While the Company's proposed flat bill offering includes
14 an explicit conservation incentive,²¹ the signal provided through that design is less
15 transparent and less actionable. Customers on the flat bill are insulated from
16 concern about their consumption by the assurance of a flat bill. Furthermore, the
17 flat bill conservation incentive is binary – a customer either earns it or does not.
18 Thus, I do not believe that the Company's flat bill proposal is an effective
19 approach to promoting conservation.

20 In contrast, IBR provides a continuous incentive to conserve, since each
21 incremental energy unit consumed above the first tier is higher-priced.

¹⁹ Wishart Direct Testimony at 16.

²⁰ Direct Testimony of PSCo Witness Daniel King, Proceeding No. 20AL-0432E, October 9, 2020,
(hereinafter "King Direct Testimony") at 8, 9, 17.

²¹ King Direct Testimony at 17.

1 **Q TO YOUR KNOWLEDGE, DO ENERGY EFFICIENCY MEASURES**
2 **REDUCE PEAK SUMMER DEMANDS, AND WHY WOULD THAT**
3 **MATTER?**

4 A Yes, the Company provided in its direct testimony that accumulated savings from
5 residential DSM programs through 2019 reduced summer peak demands by 7.8
6 percent.²² Without such reductions, more capacity would eventually be needed to
7 meet demand. Accordingly, promoting energy efficiency has the potential to
8 reduce system costs.

9 **Q HAVE OTHER COMMISSIONS RECOGNIZED THE CONSERVATION**
10 **BENEFITS OF IBR?**

11 A Yes, in Minnesota, for example, where state statute requires the Commission to “set
12 rates to encourage energy conservation,”²³ the Commission has repeatedly found
13 that IBR is an appropriate approach to meeting this imperative.²⁴

14 **Q DO ANY OF THE COMPANY’S OTHER RESIDENTIAL RATES, EITHER**
15 **PROPOSED OR ALREADY APPROVED, PROVIDE COMPARABLE**
16 **ENERGY EFFICIENCY AND CONSERVATION INCENTIVES?**

17 A No. None of the Company’s other rates include as strong an incentive to reduce
18 consumption as IBR. While greater consumption will result in higher bills on all
19 rates, none of the other rates – the flat rate, Schedule R-OO; the TOU rate, Modified
20 RE-TOU; or the proposed demand rate, RD-TDR – prices higher levels of
21 consumption more steeply.

²² Direct Testimony of PSCo Witness Mario Martinez, October 19, 2020, at 30:7-8.

²³ Minn. Stat. 216B.03.

²⁴ For example, the Commission stated that IBR “is designed to reduce electric bills for those with the lowest energy consumption while also providing an incentive for conservation by those with high rates of consumption.” MN PUC Docket No. E-015/GR-09-1151, Findings of Fact, Conclusions, and Order, November 2, 2010, at 66. Available at <https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={FC1F9567-279D-46CA-B183-532B28254C3D}&documentTitle=201011-56128-01>

1 **D. *Rate Design and Beneficial Electrification***

2 **Q WOULD MAINTAINING IBR HINDER BENEFICIAL**
3 **ELECTRIFICATION?**

4 A No. The choice between supporting energy efficiency and beneficial electrification
5 is a false one. By offering a menu of rate options, multiple policy goals can be
6 served. While a customer with an electric vehicle may prefer to take service on a
7 flat rate, taking service under IBR may be preferred by customers who have
8 invested in energy efficiency or income-qualified customers who have lower usage.
9 While EOC is supportive of beneficial electrification, the promotion of this policy
10 goal should not come at the expense of energy efficiency and income-qualified
11 customers.

12 **IV. ELIMINATING IBR WOULD DISPROPORTIONATELY IMPACT**
13 **INCOME-QUALIFIED CUSTOMERS.**

14 **Q WHY WOULD DISCONTINUING RESIDENTIAL IBR HARM INCOME-**
15 **QUALIFIED CUSTOMERS?**

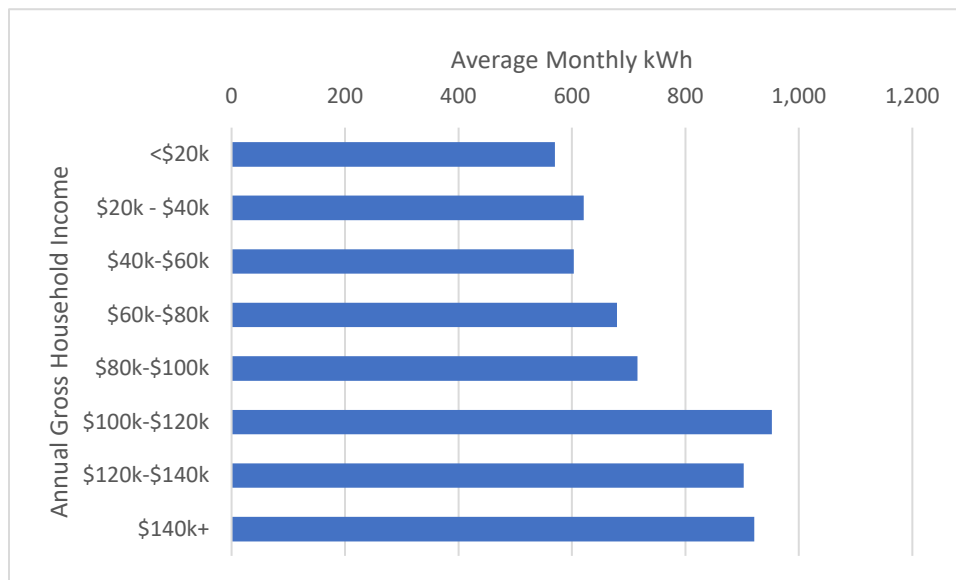
16 A Income-qualified customers tend to consume less energy than non-income qualified
17 customers. Discontinuing IBR will force income-qualified customers onto one of
18 PSCo's other rates and result in bill increases for the vast majority of income-
19 qualified customers.

20 **Q WHAT EVIDENCE SUPPORTS YOUR CONCLUSION THAT INCOME-**
21 **QUALIFIED CUSTOMERS TEND TO USE LESS ELECTRICITY?**

22 A Ample research demonstrates that, in general, electricity use tends to increase
23 with household income. For example, data from the Energy Information

1 Administration²⁵ shows that electricity consumption in the region²⁶ is highly
2 correlated with income, as shown in the figure below. Indeed, this data indicates
3 that customers earning less than \$60,000 per year use an average of 600 kWh
4 monthly, while customers earning more than \$100,000 consume 929 kWh
5 monthly – 55 percent more.

6 ***Table MW-3. Average Electricity Consumption by Annual Gross Household***
7 ***Income Level***



8
9 Additional data from PSCo’s service territory affirm this relationship. For
10 example, low-income customers in the Company’s RE-TOU trial used 12 percent
11 less electricity during the summer and 7 percent less during the winter than the
12 general population.²⁷ This data is summarized in the table below.

²⁵ U.S. Energy Information Administration, 2015 Residential Electricity Consumption Survey microdata, available at <https://www.eia.gov/consumption/residential/data/2015/index.php?view=microdata>

²⁶ Data shown for the “Mountain North” division, which includes Colorado, Idaho, Montana, Utah, and Wyoming.

²⁷ Navigant Consulting, Residential Energy Time-of-Use (RE-TOU) Trial Evaluation Report 1, Prepared for Xcel Energy – Colorado, February 4, 2019, page 28. Available at https://www.xcelenergy.com/staticfiles/xcelenergy/2019/02/28/Residential_Energy_Time_of_Use_Trial_Evaluation_Report_1.pdf

1 *Table MW-4. Average Pre-Enrollment Monthly Energy Consumption Reported*
 2 *in RE-TOU Pilot*

	Summer	Winter	Annual
General Population	701	549	651
Low Income	620	508	583
Difference	-12%	-7%	-10%

3 In addition, Mr. Wishart’s direct testimony included an analysis of EAP-qualified
 4 customers (identified through the state’s Low-Income Energy Assistance Program
 5 – LEAP). While the EAP-qualified group is likely a poor proxy for all low-income
 6 customers,²⁸ the EAP-qualified group is shown to use less energy year-round and
 7 also proportionately less energy during the summer season than the overall class
 8 average, as shown in Mr. Wishart’s corrected table SWW-D-3.²⁹

[responsive/Company/Rates%20&%20Regulations/Regulatory%20Filings/TOU/19AL-XXXXE Attachment%20BAT-2 RE-TOU%20Evaluation%20Report%201%20Final%20February%202019.pdf](#)

²⁸ As noted in EOC Answer Testimony of Andrew Bennett, First, EAP participants must be both (1) LEAP qualified and (2) have household income lower than 185% FPL, which is a lower income level than LEAP requires. Second, not all income-qualified customers have qualified for LEAP for myriad reasons unrelated to income. Additionally, the LEAP season runs only from November through April, meaning that some customers who would otherwise qualify during non-LEAP months must wait until the LEAP season begins again to qualify.

²⁹ Wishart Direct Testimony at 37-38 and corrected Table SWW-D-3, as provided in response to PSCo’s Response to Discovery Request OCC7-4.

1 *Table MW-5. Comparison of Average Usage Levels (Wishart Corrected Table*
 2 *SWW-D-3)*

	All Residential	EAP Qualified	Difference	
Summer	703 kWh	624 kWh	-79 kWh	-11.2%
Winter	574 kWh	582 kWh	8 kWh	1.4%
Annual	617 kWh	596 kWh	-21 kWh	-3.4%

3

4 **Q WHAT IMPACTS ARE EXPECTED FROM SHIFTING INCOME-**
 5 **QUALIFIED CUSTOMERS FROM IBR TO THE PROPOSED FLAT RATE?**

6 A The direct testimony and workpapers of Mr. Wishart show that if PSCo’s lower
 7 usage customers were to be transitioned onto a flat rate, they would experience bill
 8 increases on average, with some bill increases reaching nearly 8 percent.³⁰ This is
 9 shown in the table below, with customers sorted based on whether they consume
 10 more or less than 500 kWh per month, on average.

11 *Table MW-6. Bill Impacts from Transition to Flat Rate*

Average Monthly kWh			
Usage	Average	Median	Maximum
<500 kWh	4.0%	4.3%	7.7%
500+ kWh	-0.9%	-0.6%	4.8%

12

13 In fact, more than 76 percent of EAP-qualified customers can expect to see bill
 14 increases on being transitioned from IBR to the flat rate, according to the
 15 Company’s workpapers.³¹ The median EAP customer will see a monthly bill
 16 increase of 3.1 percent while the median residential customer will see a bill increase
 17 of 2.2 percent.³² Thus, while the majority of residential customers would see bill

³⁰ Analysis of the Company’s workpapers, “Wishart_WP_CONFIDENTIAL_Workpaper - Impact of Tiered Rates Scatter Plot.xlsx.”

³¹ Analysis of the Company’s workpapers, “Wishart_WP_CONFIDENTIAL_Workpaper - Impact of Tiered Rates Scatter Plot - EAP Qualified.”

³² *Id.*

1 increases from the transition from IBR to flat rates, income-qualified customers
2 would be disproportionately harmed by the transition.

3 **Q HOW DOES THE COMPANY FRAME THE BILL INCREASES THAT ARE**
4 **EXPECTED FOR LOW USE CUSTOMERS ON SWITCHING FROM IBR TO**
5 **THE FLAT RATE?**

6 A Mr. Wishart states that “While bill increases for some customers are not desirable,
7 it is essentially the opposite of the bill impacts that were created in 2010 when tiered
8 rates were implemented.”³³ Unfortunately, the bill increases on low-use customers
9 that are anticipated do not rectify a past asymmetry in cost recovery but rather
10 introduce a new cost shift, with low-usage customers, many of whom are also low-
11 income, subsidizing their higher-use peers.

12 **Q WHY SHOULD THE COMMISSION BE CONCERNED ABOUT IMPACTS**
13 **ON LOW-INCOME RESIDENTIAL CUSTOMERS?**

14 A The recently enacted SB 20-030 requires that the Commission ensure that rate
15 designs do not “disproportionately negatively” affect income-qualified customers.
16 EOC witness Andrew Bennett discusses this requirement further in his testimony.
17 It is well established that low-income customers tend to have higher energy
18 burdens, and as such are less able to bear bill increases than are customers with
19 greater financial means.³⁴

20 **Q HAVE OTHER JURISDICTIONS RECOGNIZED THE BENEFITS OF IBR**
21 **FOR LOW-INCOME CUSTOMERS?**

22 A Yes. For example, in Minnesota Power’s 2009 General Rate Case, the Commission
23 recognized that expanding the existing IBR structure to include additional blocks
24 would benefit low-income customers. Minnesota statute require the Commission to

³³ Wishart Direct Testimony at 36.

³⁴ ACEEE. 2020. How High Are Household Energy Burdens. 14.
<https://www.aceee.org/sites/default/files/pdfs/u2006.pdf>

1 “consider ability to pay as a factor in setting utility rates.”³⁵ In approving the
2 proposed five-block IBR structure, the Commission noted that it would “reduce
3 electric bills for those with the lowest energy consumption.”³⁶

4 **V. THE COMPANY’S PROPOSAL WOULD INTRODUCE NEEDLESS**
5 **CUSTOMER CONFUSION.**

6 **Q ARE THERE ANY OTHER REASONS WHY YOU OPPOSE THE**
7 **COMPANY’S PROPOSAL TO ELIMINATE IBR AND REPLACE IT WITH**
8 **A FLAT RATE?**

9 A Yes. I believe that it is undesirable and not in the public interest to subject
10 customers to two drastic rate design changes over a relatively short period of time
11 and could result in needless customer confusion. While I am not opposed to
12 providing customers with the option of switching to an alternative flat rate in
13 advance of their respective TOU transition dates, I do not support a wholesale
14 transition of the residential class to a flat rate, only to have the same customers
15 defaulted soon thereafter onto the novel Modified RE-TOU.

16 **VI. CUSTOMERS SHOULD BE EMPOWERED TO MANAGE THEIR**
17 **ENERGY USAGE THROUGH A MENU OF RATE OPTIONS.**

18 **Q WHY IS IT IMPORTANT FOR THE COMPANY’S CUSTOMERS TO BE**
19 **PROVIDED WITH CHOICE IN RATES?**

20 A As I have suggested above, providing customers with the opportunity to choose
21 among a menu of rates can help to ensure that customers are not unduly
22 disadvantaged through being compelled to take service on unsuitable rates.
23 Allowing customers to choose may also help to promote efficient behavior and

³⁵ MN PUC. Docket No. E-015/GR-09-1151. Direct Testimony and Exhibits of Energy CENTS Coalition
Witness Pam Marshall. 24. Citing to Minn. Stat. 216B.16, subd. 15.

³⁶ MN PUC. Docket No. E-015/GR-09-1151. Findings of Fact, Conclusions, and Order. 66.

1 result in more optimal levels of overall energy consumption by allowing customers
2 to respond according to their ability.

3 For example, some customers may be able to shift load from on-peak hours to off-
4 peak hours and would therefore be attracted to the benefits offered by a TOU rate.
5 Other customers may not have flexibility in terms of when they use energy but may
6 be willing to purchase energy efficient appliances to reduce their overall
7 consumption. IBR would be an effective means of motivating this latter group of
8 customers to reduce their energy consumption.

9 While I have paid particular attention to the case of income-qualified customers in
10 my argument for rate diversity, the benefits of maintaining a menu of alternative
11 rates will be enjoyed by all customers. Indeed, the Company is itself proposing to
12 maintain a menu of rate options by also offering RD-TDR and a Flat Bill option.

13 **Q IS RATE CHOICE CONSISTENT WITH BEST PRACTICES IN RATE**
14 **DESIGN?**

15 A Yes. For guidance, I refer to the seminal work of Professor James Bonbright,
16 *Principles of Public Utility Rates*, and specifically to Professor Bonbright's eight
17 key criteria for a sound rate structure.³⁷ I find that several of his principles support
18 a diversity of rate options, including IBR, for PSCo's residential customers.

19 **Q ARE THESE PRINCIPLES WIDELY RECOGNIZED AND USED BY**
20 **COMMISSIONS?**

21 A Yes. Bonbright's principles have been recognized for many years across the nation,
22 including in Colorado. Indeed, they were cited by former Commission Chair

³⁷ James Bonbright's *Principles of Public Utility Rates*. Included as **Attachment MW-3**.

1 Ackermann in the Colorado Commission’s decision rejecting the Black Hills
2 Energy TOU pilot.³⁸

3 **Q HOW IS PROVIDING CUSTOMERS WITH CHOICE IN RATES AND THE**
4 **CONTINUATION OF IBR CONSISTENT WITH BONBRIGHT’S FIRST**
5 **PRINCIPLE?**

6 A Professor Bonbright’s first principle requires that rate design reflect “The related,
7 ‘practical’ attributes of simplicity, understandability, public acceptability, and
8 feasibility of application.”³⁹ Providing rate choice helps to ensure that customers
9 can select rates that are understandable to them. Choice also helps to promote
10 acceptability of the overall rate regime, since it reduces the chances that customers
11 will end up on rates that they find unsuitable. In contrast, forcing two default rate
12 changes over the course of just a few years is likely to cause confusion and a sense
13 of displeasure among many customers.

14 **Q HOW IS PROVIDING CUSTOMERS WITH CHOICE IN RATES AND THE**
15 **CONTINUATION OF IBR CONSISTENT BONBRIGHT’S FIFTH**
16 **PRINCIPLE?**

17 A Professor Bonbright’s fifth principle notes the importance of the “Stability of the
18 rates themselves, with a minimum of unexpected changes seriously adverse to
19 existing customers.”⁴⁰ Maintaining a portfolio of different rate offerings, including
20 IBR, will avoid unexpected adverse impacts on low-usage customers. In addition,
21 continuing IBR as the default Schedule R, with rate options, ensures rate stability
22 for the majority of residential customers.

³⁸ CO PUC Proceeding No. 18A-0676E, Decision No. C19-0590, Special Concurrence of Chairman Jeffery P. Ackermann. 12-13.

³⁹ James Bonbright’s *Principles of Public Utility Rates*. Included as Attachment MW-3.

⁴⁰ *Id.*

1 **Q HOW IS PROVIDING CUSTOMERS WITH CHOICE IN RATES AND THE**
2 **CONTINUATION OF IBR CONSISTENT BONBRIGHT'S SIXTH**
3 **PRINCIPLE?**

4 A Professor Bonbright's sixth principle requires "Fairness of the specific rates in the
5 appointment of total costs of service among the different customers." Maintaining
6 IBR in the menu of rate offerings helps preserve cost-reflectivity of rates, which
7 promotes fairness by allowing low usage customers who impose lower costs on
8 the system to take service on a rate that reflects this. Fairness also dictates that
9 the needs of some customers within a class should not be prioritized over another,
10 for example those customers who purchase EVs or adopt beneficial electrification
11 should not benefit substantially more under the available rate structures than
12 customers who have invested in energy efficiency or who utilize less electricity as
13 a means to control their bills. EOC witness Andrew Bennett also discusses a
14 concept related to fairness – equity – as an important ratemaking consideration for
15 which the Company's proposal fails to account.

16 **Q HOW IS PROVIDING CUSTOMERS WITH CHOICE IN RATES AND THE**
17 **CONTINUATION OF IBR CONSISTENT BONBRIGHT'S EIGHTH**
18 **PRINCIPLE?**

19 A Professor Bonbright's eighth principle calls for "Efficiency of the rate classes and
20 rate blocks in discouraging wasteful use of service while promoting all justified
21 types and amounts of use." IBR is superior to a flat rate in discouraging wasteful
22 usage by pricing higher usage more steeply. Customers who opt out of the TOU
23 rate should have the option of enrolling in a rate that provides price signals that
24 encourage energy efficiency and conservation.

1 **Q DOES HAVING MULTIPLE RATES VIOLATE THE UTILITY’S ABILITY**
2 **TO YIELD ITS TOTAL REVENUE REQUIREMENTS, AS SPECIFIC IN**
3 **BONBRIGHT’S THIRD PRINCIPLE?**

4 A No. PSCo operates under revenue decoupling. If the Company’s revenues fall
5 short of allowed revenues as a result of rate design changes, the Company will be
6 made whole through a subsequent decoupling adjustment.

7 **Q HAVE OTHER JURISDICTIONS RECOGNIZED THE IMPORTANCE OF**
8 **OFFERING CUSTOMERS MULTIPLE RATE OPTIONS?**

9 A Yes. I offer several examples of recent regulatory developments from across the
10 country that support customer choice:

- 11 ▪ Michigan adopted a “Customer Engagement” objective in its “MI
12 Power Grid” docket, setting as priority the development of “Innovative
13 rate offerings, including the development, review, and promotion of
14 new pricing models to allow a broader range of options for
15 customers...”⁴¹
- 16
- 17 ▪ In Hawaii, the Commission recognized that the benefits of grid
18 modernization investments would include “[d]eployment of residential
19 pricing programs to offer customers choice in their consumption and use
20 of electricity...”⁴²
- 21
- 22 ▪ In New York, the Commission included among its rate design
23 principles, “Customer-orientation: The customer experience should be
24 practical, understandable, and promote customer choice.”⁴³

⁴¹ MI PSC. Case No. U-20645. Order Establishing MI Power Grid. 6.

⁴² HI PUC. Decision and Order 34884. 22.

⁴³ NY PSC. Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision, Case 14-M-0101. Order Adopting a Ratemaking and Utility Revenue Model Policy Framework, May 19, 2016, Appendix A.

1 **VII. IBR SHOULD BE OFFERED AS AN ALTERNATIVE OPT-OUT RATE.**

2 **Q SHOULD PSCO OPEN A NEW IBR RATE FOR CUSTOMERS WHO HAVE**
3 **REACHED THEIR TOU TRANSITION DATE?**

4 A Yes. The Company should continue to offer IBR to its customers even after the
5 transition to Modified RE-TOU has been completed. Since Decision R20-0642
6 indicates that Schedule R is only to be available to customers prior to their transition
7 date, however, it may be necessary for the Company to open a new IBR rate for
8 customers who decide to opt-out of Modified RE-TOU.

9 **Q UNDER YOUR PROPOSAL, WOULD SCHEDULE R-OO STILL BE THE**
10 **DEFAULT OPT-OUT RATE?**

11 A Yes. Schedule R-OO would still remain the default opt-out rate per the Settlement
12 Agreement in the TOU case, but this does not preclude offering alternative
13 options.⁴⁴ I recommend that customers who opt-out of Modified RE-TOU be
14 presented with the opportunity to choose between the range of rate offerings,
15 including Schedule R-OO and Schedule R-IBR. Those who decline to choose a
16 specific rate should be enrolled onto Schedule R-OO.

17 **Q WOULD THE SAME LIMITATIONS ABOUT OPTING OUT OF TOU**
18 **APPLY IF A CUSTOMER ELECTED SCHEDULE R-IBR?**

19 A Yes. Per the Settlement Agreement, “If a customer opts out of the Modified
20 Schedule RE-TOU rate but then decides to opt back in, they must then stay on the
21 Modified Schedule RE-TOU rate for at least 12 consecutive months before being

⁴⁴ The TOU Settlement Agreement provides, “A customer opting out of Modified Schedule RE-TOU cannot return to Schedule R and receive service under the seasonally-differentiated opt-out flat rate (Schedule R-OO) ... unless the Customer elects another Schedule as may be available to the Customer at that time under the Company’s Tariff.” TOU Settlement Agreement at 10.

1 eligible to opt out.”⁴⁵ These same conditions would apply if a customer opted out
2 to Schedule R-IBR.

3 **VIII. SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS**

4 **Q PLEASE SUMMARIZE YOUR CONCLUSIONS.**

5 A The Commission should reject PSCo’s proposal to eliminate the residential
6 inclining-block rate (IBR) structure and migrate customers to a flat rate for
7 several reasons:

- 8 • IBR is a sound rate design that promotes energy efficiency and conservation,
9 and IBR is more cost-reflective than the Company’s proposed flat rate.
- 10 • Transitioning customers from IBR to a flat rate would disproportionately harm
11 income-qualified customers.
- 12 • Migrating residential customers onto a new rate in advance of their scheduled
13 transition to the TOU rate would create needless confusion.
- 14 • Beneficial electrification can be promoted through offering a flat rate, but this
15 should not come at the expense of income-qualified customers and energy
16 efficiency.

17 Instead, the Commission should maintain the IBR structure for Schedule R, and it
18 should ensure that the Company continues to offer IBR to its customers even after the
19 transition to the TOU rate has been completed.

⁴⁵ TOU Settlement Agreement at 11.

1 **Q PLEASE SUMMARIZE YOUR RECOMMENDATIONS.**

2 A I recommend that the Commission do the following:

3 • Prior to the transition to TOU rates, the Company should maintain
4 Schedule R as an inclining block rate, but also offer an optional flat rate
5 alternative.

6 • Following the transition to TOU rates, customers should be able to opt onto
7 a flat rate, an inclining block rate, or any other rate options that are available
8 at that time.

9 **Q DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

10 Yes, it does.