

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

\* \* \* \* \*

IN THE MATTER OF ADVICE NO. 1814- )  
ELECTRIC OF PUBLIC SERVICE )  
COMPANY OF COLORADO TO REVISE )  
ITS COLORADO P.U.C. NO. 8 - )  
ELECTRIC TARIFF TO REFLECT A ) PROCEEDING NO. 19AL-\_\_\_\_\_ E  
MODIFIED SCHEDULE RE-TOU AND )  
RELATED TARIFF CHANGES TO BE )  
EFFECTIVE ON THIRTY-DAYS' NOTICE. )

**DIRECT TESTIMONY AND ATTACHMENTS OF BROOKE A. TRAMMELL**

**ON**

**BEHALF OF**

**PUBLIC SERVICE COMPANY OF COLORADO**

**December 2, 2019**

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Attachment BAT-5	Electric Affordability Program Tariff Excerpt

**GLOSSARY OF ACRONYMS AND DEFINED TERMS**

<b><u>Acronym/Defined Term</u></b>	<b><u>Meaning</u></b>
2016 Electric Phase II	2016 Electric Phase II rate case, Proceeding No. 16AL-0048E
Advanced Meter	Advanced Metering Infrastructure (“AMI”) Meter Deployment
AGIS	Advanced Grid Intelligence and Security
AMI	Advanced Metering Infrastructure
C&I	Commercial and Industrial
C&I TOU	Commercial and Industrial Time of Use
Commission	Colorado Public Utilities Commission
EP	Electric Affordability Program
EV	Electric Vehicle
IVVO	Integrated Volt-VAr Optimization
kWh	Kilowatt Hour
LEAP	Low-Income Energy Assistance Program
Navigant	Navigant Consulting, Inc.
Navigant Reports	Final Interim Reports Prepared by Navigant Consulting, Inc.
Public Service or the Company	Public Service Company of Colorado
RD-TDR	Residential Demand Time Differentiated Rate
RE-TOU or Trial	Residential Energy Time of Use
Schedule MEP	Medical Exemption Program
Schedule R	Residential General Service – Schedule R
Schedule SPVTOU	Rate for Secondary Voltage C&I Customers with Net Metered Solar Systems
Three Case Settlement or Settlement	2016 Non-Unanimous Comprehensive Settlement in Consolidated Proceedings 16AL-0048E, 16A-0139E, and 16A-0055E
TOU	Time of Use
Xcel Energy	Xcel Energy Inc.
XES	Xcel Energy Services Inc.

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ITS COLORADO P.U.C. NO. 8 - ELECTRIC )  
TARIFF TO REFLECT A MODIFIED ) PROCEEDING NO. 19AL-\_\_\_\_\_E  
SCHEDULE RE-TOU AND RELATED )  
TARIFF CHANGES TO BE EFFECTIVE ON )  
THIRTY-DAYS' NOTICE. )

1 I. **INTRODUCTION, QUALIFICATIONS, PURPOSE OF TESTIMONY, AND**  
2 **COMPANY WITNESS PRESENTATION**

3 Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

4 A. My name is Brooke A. Trammell. My business address is 1800 Larimer Street,  
5 Denver, Colorado 80202.

6 Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT POSITION?

7 A. I am employed by Xcel Energy Services Inc. ("XES") as Regional Vice President,  
8 Rates and Regulatory Affairs. XES is a wholly owned subsidiary of Xcel Energy  
9 Inc. ("Xcel Energy"), and provides an array of support services to Public Service  
10 Company of Colorado ("Public Service" or the "Company") and the other utility  
11 operating company subsidiaries of Xcel Energy on a coordinated basis.

12 Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THE PROCEEDING?

13 A. I am testifying on behalf of Public Service.

1 **Q. PLEASE SUMMARIZE YOUR RESPONSIBILITIES AND QUALIFICATIONS.**

2 A. As Regional Vice President, Rates and Regulatory Affairs, I am responsible for  
3 providing leadership, direction, and technical expertise related to regulatory  
4 processes and functions for Public Service. My duties include the design and  
5 implementation of Public Service's regulatory strategy and programs, as well as  
6 the direction and supervision of Public Service's regulatory activities, including  
7 oversight of rate filings, administration of regulatory tariffs, rules and forms,  
8 regulatory case direction and administration, compliance reporting, and complaint  
9 responses. I have previously testified as a policy witness on behalf of Public  
10 Service in several proceedings, including Proceeding Nos. 17AL-0363G, 18M-  
11 0401E, 18A-0905E, 19AL-0309G, and 19AL-0268E. A more detailed description  
12 of my qualifications, duties, and responsibilities is set forth in my Statement of  
13 Qualifications at the conclusion of my Direct Testimony.

14 **Q. ARE YOU SPONSORING ANY ATTACHMENTS AS PART OF YOUR DIRECT**  
15 **TESTIMONY?**

16 A. Yes. I am sponsoring five attachments, Attachments BAT-1 through BAT-5,  
17 which were prepared by me or under my direct supervision, or prepared by  
18 outside consultants as part of the Residential Energy Time-of-Use Trial  
19 ("RE-TOU Trial" or "Trial"). The attachments are as follows:

- 20 • Attachment BAT-1 (Service Territory Map);
- 21 • Attachment BAT-2 (Navigant RE-TOU Trial Evaluation Report 1 (Findings  
22 from June 2017 to September 2018));

- 1 • Attachment BAT-3 (Navigant RE-TOU Trial Evaluation Report 2 (Findings  
2 from October 2018 through September 2019));
- 3 • Attachment BAT-4 (Navigant November 18, 2019 Presentation to  
4 Stakeholders); and
- 5 • Attachment BAT-5 (Electric Affordability Program Tariff Excerpt).

6 **Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?**

7 A. As approved by the Colorado Public Utilities Commission (“Commission”), since  
8 2017, the Company has been conducting a large-scale trial for a voluntary time  
9 of use (“TOU”) service rate called Residential Energy Time-of-Use.<sup>1</sup> With the  
10 RE-TOU Trial drawing to a close, the purpose of my Direct Testimony is to  
11 provide procedural context and policy support for the Company’s proposal to  
12 implement a modified TOU rate (“Modified Schedule RE-TOU”) as the default  
13 rate schedule for all of its residential customers, as Advanced Metering  
14 Infrastructure (“AMI”) meter deployment (referred to as “Advanced Meter”) is  
15 completed in their area. As noted in the Commission decision approving the  
16 Settlement in the Company’s 2016 Electric Phase II rate case, Proceeding No.  
17 16AL-0048E (“2016 Electric Phase II”),<sup>2</sup> the Settlement requires Public Service to  
18 file an advice letter in order for Schedule RE-TOU to become a permanent and  
19 mandatory rate for all residential customers.<sup>3</sup> This filing fulfills that requirement

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<sup>1</sup> Residential Energy Time-of-Use Service – Schedule RE-TOU (“Schedule RE-TOU” or “Trial Schedule RE-TOU”).

<sup>2</sup> See Non-unanimous Settlement Agreement in Consolidated Proceeding Nos. 16AL-0048E Phase II Electric Rate Case; 16A-0055E, the Renewable\*Connect Proceeding; and 16A-0139E, the 2017-2019 Renewable Energy Compliance Plan Proceeding (“Three Case Settlement” or “Settlement”).

<sup>3</sup> Decision No. C16-1075 at ¶44.

1 and is intended to inform the Commission that the Company proposes  
2 modifications to the tariff based on the results of the RE-TOU Trial.

3 In support of that request, I provide background on the Company and its  
4 strategic initiatives, provide a high-level overview of the Company's proposed  
5 Modified Schedule RE-TOU, and describe how the proposal aligns not only with  
6 the Company's strategic initiatives, but also with energy policy goals in Colorado  
7 and the preferences of our customers. Next, I discuss rate modernization efforts  
8 to date in Colorado. I then review the regulatory context of the Company's  
9 proposal and its relation to the settlement in the Company's most recent Electric  
10 Phase II rate case and other proceedings. I follow with a discussion of the RE-  
11 TOU Trial and its results. In addition to requesting deferred accounting for  
12 system changes and customer education and outreach costs related to the  
13 implementation of TOU rates for all residential customers, the remainder of my  
14 Direct Testimony provides policy support for the proposed Modified Schedule  
15 RE-TOU. This includes a discussion of the low income customer topics, and how  
16 the new TOU rate structure will work for low income customers in conjunction  
17 with existing low income programs.

18 **Q. PLEASE INTRODUCE THE OTHER PUBLIC SERVICE WITNESSES WHO**  
19 **ARE TESTIFYING ON PUBLIC SERVICE'S BEHALF, AND THE TOPICS ON**  
20 **WHICH THEY TESTIFY.**

21 A. In addition to my Direct Testimony, Public Service is presenting direct testimony  
22 of the following three witnesses in support of its direct case:



Witness	Area of Direct Testimony
Steven W. Wishart	<ul style="list-style-type: none"> <li>• Describes the details of the Company’s proposed Modified Schedule RE-TOU, which the Company proposes to make the default rate for all residential customers;</li> <li>• Discusses the modifications to the current Schedule RE-TOU needed to implement the Modified Schedule RE-TOU, and how they were developed;</li> <li>• Presents the potential bill impacts associated with the Modified Schedule RE-TOU for customers, including low income customers;</li> <li>• Presents and supports the proposed tariff changes associated with the Company’s modification of TOU rates, including changes to Residential General Service - Schedule R (“Schedule R”), Schedule RE-TOU, Medical Exemption Program (“Schedule MEP”) and the electric rate riders; and</li> <li>• Discusses the RE-TOU Trial that was conducted from 2017 through 2019, specifically focusing on the design of the Trial rate and the subsequent bill impacts observed in the Trial.</li> </ul>
Stacey L. Simms	<ul style="list-style-type: none"> <li>• Describes program management for the RE-TOU Trial, particularly as it involved customer recruitment, enrollment, and education;</li> <li>• Details the Company’s stakeholder engagement and outreach efforts throughout the RE-TOU Trial; and</li> <li>• Addresses some of the key learnings from the Navigant<sup>4</sup> customer surveys conducted during various phases of the Trial regarding participants’ adjustment of their energy usage behaviors while on the Trial rate, their satisfaction with those rates, and their understanding of the rate structure.</li> </ul>
Jennifer B. Wozniak	<ul style="list-style-type: none"> <li>• Presents the overall approach for educating customers on the Modified Schedule RE-TOU,</li> </ul>

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<sup>4</sup> Navigant was awarded the Measurement & Verification (“M&V”) contract for the RE-TOU Trial and Residential Demand-Time Differentiated Rates (“RD-TDR”) Pilot through the Company’s request for proposal (“RFP”) process.

	<p>and how that will be incorporated into the Customer Education and Communication Plan Public Service developed to educate customers on Advanced Meters and the Company's grid modernization effort;</p> <ul style="list-style-type: none"><li>• Discusses customer interest and preferences based on Navigant's initial evaluations of the Company's RE-TOU Trial; and</li><li>• Addresses additional considerations associated with the Customer Education and Communication Plan and how the Company plans to mitigate the potential for confusion to optimize customer education and behavior adoption.</li></ul>
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1                                    **II.     OVERVIEW OF PUBLIC SERVICE**

2   **Q.     PLEASE GENERALLY DESCRIBE PUBLIC SERVICE’S RETAIL SERVICES**  
3   **IN COLORADO.**

4   A.     Public Service is a combination electric, gas, and steam utility. Public Service’s  
5     electric department serves approximately 1.5 million retail customers in 25  
6     counties. The majority of Public Service’s residential electric sales (roughly 90.4  
7     percent in 2018) are within the Front Range region and eastern Colorado,  
8     including the Denver metropolitan area. Other populous regions served within  
9     Public Service’s jurisdictional territory are Grand Junction and Alamosa. A map  
10    of Public Service’s retail electric service territory is provided as Attachment  
11    BAT-1 to my Direct Testimony.

12   **Q.     WHAT ARE THE CHARACTERISTICS OF PUBLIC SERVICE’S RETAIL**  
13   **ELECTRIC CUSTOMER BASE?**

14   A.     The Company is the largest electric utility in the state, providing electric service  
15     to more than half of the Colorado population. Public Service provides almost all  
16     of its electric service under five service schedules: Residential Service, Small  
17     Commercial, Secondary General, Primary General, and Transmission General.  
18     Residential customers constitute a significant percentage of the Company’s total  
19     customer base, about 85 percent in 2018. The Residential class also accounted  
20     for about 32 percent of overall retail customer energy usage in 2018.

1 **Q. PLEASE DESCRIBE THE STRATEGIC GOALS OF THE COMPANY.**

2 A. The strategic priorities of Xcel Energy are to lead the clean energy transition,  
3 enhance the customer experience, and keep customer bills low. These priorities  
4 manifest themselves in this filing and everything we do here in Colorado. We  
5 want to be responsive to the needs and desires of our customers by continually  
6 evolving and improving the customer experience, increasing clean energy, and  
7 reducing carbon emissions without losing sight of our core competency – safely  
8 delivering reliable and affordable energy to customers.

9 **Q. CAN YOU ELABORATE ON THE COMPANY'S GOAL TO AFFORDABLY**  
10 **REDUCE CARBON EMISSIONS?**

11 A. Beginning more than a decade ago, Public Service began preparing for the future  
12 by shaping its generation fleet to meet the changing needs of customers and  
13 transitioning to cleaner sources of energy, while maintaining the system reliability  
14 customers expect from their electric provider and ensuring affordability of the  
15 service the Company provides. Since that time, the Company has transitioned  
16 its fleet through a series of initiatives, with the passage of the Clean Air Clean  
17 Jobs Act in 2010, the Our Energy Future initiative beginning in 2015, and the  
18 Colorado Energy Plan beginning in 2017. These initiatives culminated in the  
19 December 4, 2018 announcement that Xcel Energy, across all of its operating  
20 companies, would seek to reduce carbon emissions by 80 percent from 2005  
21 levels by 2030 and 100 percent from 2005 levels by 2050.

1           The State of Colorado and many of our stakeholders share our vision to  
2           lead the way in carbon reduction. Senate Bill 19-236 demonstrates this  
3           alignment. On May 3, 2019, the Bill was passed by the Colorado General  
4           Assembly and on May 30, 2019 it was signed by Governor Polis and became  
5           part of the Colorado Public Utilities Law. This landmark legislation provides a  
6           pathway for the Company to work with interested stakeholders, under the  
7           oversight of the Commission in robust administrative processes, to deliver on the  
8           promise of a lower carbon future, all while retaining affordability of our rates and  
9           reliability of our system and service. As I discuss further in my Direct Testimony,  
10          the Modified Schedule RE-TOU proposal made by the Company in this case can  
11          further these carbon reduction priorities.

1       **III.     OVERVIEW OF PROCEEDING AND REQUESTS OF THE COMPANY**

2       **Q.     PLEASE SUMMARIZE THE BASIS FOR THE COMPANY’S FILING.**

3       A.     As mentioned above, the purpose of this proceeding is to adjust Schedule RE-  
4       TOU, the optional TOU rate used in the RE-TOU Trial, in order to implement  
5       default TOU rates for all of Public Service’s residential customers, based on what  
6       the Company has learned from the RE-TOU Trial. The specific changes the  
7       Company is proposing in its Modified Schedule RE-TOU, which I discuss in more  
8       detail in Section VII of my Direct Testimony, and which Company witness Mr.  
9       Steven W. Wishart discusses in his Direct Testimony, are designed to encourage  
10      residential customers to shift their summer energy usage away from periods  
11      when electricity demand is greatest, which is also when system costs as well as  
12      fossil generation and associated carbon dioxide emissions are at their highest.  
13      The benefits of the Modified Schedule RE-TOU are tangible for individual  
14      customers and the Public Service system. In addition to creating the opportunity  
15      for customers to reduce their bills by moving their energy usage to off-peak  
16      periods, reductions in load as a result of changes in customer behavior in  
17      response to the price signals established in the Modified Schedule RE-TOU can  
18      help reduce carbon emissions on Public Service’s system. Implementing the  
19      proposed Modified Schedule RE-TOU as the default rate for all residential  
20      customers is another means by which carbon reductions can be realized as the  
21      Company leads the clean energy transition in Colorado.

1           Along with TOU pricing, as the Advanced Meter deployment to residential  
2 customers in Public Service's territory is completed, customers will gain further  
3 insight to their energy usage. The customer education program in association  
4 with the Modified Schedule RE-TOU proposal will also further enable residential  
5 customers to understand, and share in the benefits, of TOU pricing.

6 **Q. WHEN DOES THE COMPANY PROPOSE TO TRANSITION RESIDENTIAL**  
7 **CUSTOMERS TO THE MODIFIED SCHEDULE RE-TOU?**

8 A. Public Service proposes to transition customers to the Modified Schedule RE-  
9 TOU as the deployment of Advanced Meters is completed in their area. The  
10 Company plans to start deployment in the second quarter of 2021 and complete  
11 deployment of Advanced Meters by the end of 2024, therefore all residential  
12 customers are expected to be migrated to the Modified Schedule RE-TOU by  
13 that time. When the transition is complete, the Company expects to make an  
14 appropriate filing to cancel Schedule R. Customers receiving service on  
15 Schedule RE-TOU as it now exists for the RE-TOU Trial would migrate to  
16 Modified Schedule RE-TOU when it becomes effective, which is proposed to be  
17 January 1, 2021.

18 **Q. WHY IS THE COMPANY RECOMMENDING THAT THE MODIFIED**  
19 **SCHEDULE RE-TOU BECOME THE DEFAULT RATE FOR ALL**  
20 **RESIDENTIAL CUSTOMERS?**

21 A. The Company is recommending that the Modified Schedule RE-TOU become the  
22 default rate for its residential customers for three main reasons. First,

1 establishing the Modified Schedule RE-TOU as the default Residential rate will  
2 maximize the total system benefits of TOU rates. Modified Schedule RE-TOU  
3 will provide clear price signals to all residential customers encouraging the class  
4 as a whole, which constitutes over a third of the Company's energy usage, to  
5 reduce electric consumption during periods when generation costs and  
6 associated carbon emissions are at their peak.

7 Second, experience with the RE-TOU Trial demonstrates that relying on  
8 voluntary participation in a TOU rate to achieve material load reductions at the  
9 class level is improbable. As discussed by Company witness Ms. Stacey L.  
10 Simms in her Direct Testimony, given how challenging and resource-intensive it  
11 was for Public Service to recruit a small percentage of its residential customers to  
12 voluntarily enroll in the RE-TOU Trial, there is significant concern that Public  
13 Service would not be able to realize maximized system peak emissions reduction  
14 benefits through reliance on voluntary participation.

15 Third, TOU pricing is a more precise rate design tool than the Company's  
16 current summer tiered rate structure for residential customers. The current  
17 Schedule R inclining cent per kilowatt hour ("kWh") summer tiered rate focuses  
18 pricing on the amount of energy customers use, regardless of what time of the  
19 day that energy is used. The Modified Schedule RE-TOU can assist in informing  
20 customers that at certain times of the day it costs more or less to deliver the  
21 energy they are using. For example, to meet peak load on the system, a variety  
22 of generation resources are required from baseload units to peaking units and



1 from renewable sources to fossil generation. Information on when generation  
2 costs are the highest can be shared with Public Service's residential customers  
3 through TOU pricing whereas this capability is not available with tiered rates.  
4 These periods of highest customer demand generally correspond to the highest  
5 level of carbon emissions. Inclining summer tiered rates were traditionally  
6 implemented to encourage energy conservation; irrespective of considerations  
7 like peak demand, cost of energy production, and the linkage between time of  
8 usage and carbon contribution; by contrast, the Modified Schedule RE-TOU  
9 encourages customers to instead align usage with low cost energy, which in turn  
10 results in more efficient use of the system. Further, given the association  
11 between generation dispatch and carbon emissions on the Public Service  
12 system, encouraging customers to adjust behavior in response to TOU price  
13 signals can result in reducing carbon emissions and keeping energy costs low, a  
14 connection tiered rates cannot provide. As the default Residential rate, the  
15 Company's proposed Modified Schedule RE-TOU still encourages energy  
16 conservation but does so during the periods in which usage reductions can be  
17 the most beneficial from a de-carbonization and system perspective.  
18 Additionally, once implemented, TOU rate designs like the Modified Schedule  
19 RE-TOU are more agile and can be adjusted over time to reflect changing  
20 system characteristics, energy costs, and the Company's emissions profile as  
21 compared to more basic rate designs.

1           Therefore, in order to maximize the system and customer benefits of peak  
2 demand reductions, support widespread adoption of the TOU rate structure, and  
3 introduce a more precise rate design tool than the current Residential tiered rate  
4 structure, the Company recommends that the Modified Schedule RE-TOU  
5 become the default rate for its residential customers.

6 **Q. ARE THERE OTHER REASONS TO HAVE TIME OF USE RATES BE THE**  
7 **DEFAULT RATE FOR ALL RESIDENTIAL CUSTOMERS?**

8 A. Yes, tiered rates may become a barrier to beneficial electrification in the future,  
9 particularly electrification of transportation and electric vehicle (“EV”) adoption.  
10 Currently, under tiered rates, customers may pay as much as 13.5 cents per kWh  
11 to charge their vehicles in the summer as higher overall usage translates to  
12 higher overall costs in the tiered structure. With tiered rates, customers are not  
13 incentivized to charge their EVs during off-peak periods (*i.e.*, at night), a behavior  
14 that would be beneficial because it shifts load away from the Company’s system  
15 peak. The Modified Schedule RE-TOU encourages this type of behavior through  
16 different on-peak versus off-peak pricing. As proposed, the off-peak rate of the  
17 Modified Schedule RE-TOU would charge EV customers only 8.9 cents, a 40  
18 percent reduction in the cost to charge EVs at home and equivalent to \$0.66 per  
19 gallon of gasoline. In this example, reducing usage isn’t the only way customers  
20 can save money; they can also save by focusing their energy usage during a  
21 different time period. This is a good illustration of how the Modified Schedule  
22 RE-TOU enhances our customers’ experience by offering more control over

1 individual energy costs through greater insight into how the timing of their energy  
2 usage is tied to their bill.

3 **Q. WHAT WOULD BE THE RESULT IF THE MODIFIED SCHEDULE RE-TOU**  
4 **WAS INSTEAD IMPLEMENTED AS AN OPT-IN RATE OPTION?**

5 A. Public Service expects an opt-in program would lack sufficient participation to  
6 achieve meaningful load reductions and associated system and customer  
7 benefits. This expectation is supported by information recently presented to the  
8 Commission as well as evidence from opt-in rate pilots around the country and  
9 the Company's RE-TOU Trial.

10 In the October 21, 2019 Commissioners' Information Meeting on TOU  
11 rates, Peter Cappers of Lawrence Berkeley National Laboratory presented an  
12 analysis on participation in these types of programs. His analysis showed that  
13 approximately 80 percent of customers can be described as "complacent"  
14 meaning that they would not actively opt in to a voluntary TOU rate, but would  
15 also not actively opt out if TOU was the default rate.

16 Additionally, the results from other opt-in rate pilots around the country  
17 indicate that optional rate programs usually result in minimal participation.<sup>5</sup> Two  
18 exceptions appear to be Arizona Public Service and Oklahoma Gas and Electric,

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<sup>5</sup> A 2017 study by the Brattle Group estimated that where time of use rates are available, only three percent of customers are enrolled in those rates and that 60 percent of utilities offering time of use rates have enrollment rates of less than one percent. See "The National Landscape of Residential TOU Rates," November 2017 at [http://files.brattle.com/files/12658\\_the\\_national\\_landscape\\_of\\_residential\\_tou\\_rates\\_a\\_preliminary\\_summary.pdf](http://files.brattle.com/files/12658_the_national_landscape_of_residential_tou_rates_a_preliminary_summary.pdf).

1 but only based on the particular circumstances of those programs. Arizona  
2 Public Service did eventually achieve high levels of voluntary participation in their  
3 TOU programs, but only after many years of advertising. Oklahoma Gas and  
4 Electric achieved a substantial level of participation in a shorter period of time by  
5 offering free thermostats to customers and by designing the TOU rates to be  
6 lower than standard rates. As explained by Ms. Simms, as of November 1, 2019,  
7 there were only 5,838 participants on the RE-TOU Trial rate and 3,162  
8 participants in the control group.

9 **Q. WILL RESIDENTIAL CUSTOMERS HAVE ALTERNATIVES TO MODIFIED**  
10 **SCHEDULE RE-TOU?**

11 A. With the implementation of TOU pricing and the deployment of Advanced Meters,  
12 the Company plans to investigate additional rate design innovations, potentially  
13 including additional optional Residential rates in the future. Such proposals  
14 would be brought before the Commission and interested stakeholders in a Phase  
15 II or other rate filing made by the Company. Additionally, the RD-TDR Pilot rate  
16 will remain available until January 1, 2022.

17 **Q. WHAT IS THE TIMING ASSOCIATED WITH THE COMPANY'S REQUESTS IN**  
18 **THIS PROCEEDING AND THE PROPOSED EFFECTIVE DATE OF NEW**  
19 **RATES?**

20 A. Consistent with Commission Rules and Colorado Statutes, the effective date for  
21 the changed tariffs accompanying this advice letter is January 2, 2020. The  
22 Company understands the Commission is likely to suspend the tariffs to allow for

1 a hearing and associated processes. As a result, the Company affirmatively  
2 requests that the Commission suspend the tariffs for the maximum suspension  
3 period, which expires on September 8, 2020, and set a hearing on the proposed  
4 rates and tariff changes. As the Modified Schedule RE-TOU will become the  
5 new default rate for residential customers, the Company requests that the tariff  
6 changes and rates to go into effect at the beginning of the calendar year, or  
7 January 1, 2021. However, as explained above, at that time only the residential  
8 customers participating in the RE-TOU Trial will migrate to the new rates, with  
9 remaining residential customers changing to that rate over time as Advanced  
10 Meter deployment is completed in their area.

11 **Q. HOW WILL THE PROPOSED MODIFIED SCHEDULE RE-TOU RATE AND**  
12 **THIS PROCEEDING INTERACT WITH OTHER PHASE II PROCEEDINGS THE**  
13 **COMPANY FILES BEFORE, OR AFTER, THIS PROCEEDING IS COMPLETE?**

14 A. If the Commission approves the proposed Modified Schedule RE-TOU before the  
15 Company files a Phase II proceeding, we would maintain the structure approved  
16 but modify as appropriate to reflect updated class cost allocation and any new  
17 data on the distribution between on-peak, shoulder, and off-peak periods.

18 If the Commission has not issued a decision on the proposed Modified  
19 Schedule RE-TOU before the Company files a Phase II proceeding, the  
20 Company would maintain the structure proposed in this proceeding until such  
21 time that it would be appropriate to reflect the Commission's decision in the  
22 subsequent Phase II filing.

1 **Q. WHAT APPROVALS IS THE COMPANY REQUESTING IN THIS**  
2 **PROCEEDING?**

3 A. Public Service requests that the Commission approve the following:

- 4 1) Implementation of the Modified Schedule RE-TOU as the default rate  
5 structure for all residential customers, with customers transitioning to the  
6 Modified Schedule RE-TOU over time beginning January 1, 2021,  
7 generally as Advanced Meter deployment is completed in their area;
- 8 2) The Company's proposed rate design set forth in Modified Schedule RE-  
9 TOU;
- 10 3) Revisions of the Company's tariff, to be effective January 1, 2021, in order  
11 to implement the Modified Schedule RE-TOU rate. These changes, which  
12 are explained more by Mr. Wishart, include revision of the existing  
13 Schedule R and Schedule RE-TOU to incorporate the Modified Schedule  
14 RE-TOU and transition. They also include changes to Schedule MEP to  
15 reflect the Modified Schedule RE-TOU, and changes to the applicable rate  
16 riders to allow those rate riders to be applied based on a percentage of  
17 base energy charges for Schedule RE-TOU customers, to better align  
18 these rate riders with Modified Schedule RE-TOU's rate design; and
- 19 4) Deferred accounting for incremental additional costs for software changes  
20 and customer education and outreach, which the Company will present for  
21 recovery in a future proceeding.

22 **Q. WHAT DOES THE COMPANY PROPOSE TO HELP THE COMMISSION AND**  
23 **STAKEHOLDERS ASSESS WHETHER THE MODIFIED SCHEDULE RE-TOU**  
24 **IS OPERATING APPROPRIATELY TO HELP ACHIEVE THE GOALS THAT**  
25 **YOU HAVE IDENTIFIED?**

26 A. As I previously noted, the Modified Schedule RE-TOU rates are designed to help  
27 the Company and its customers achieve important carbon reduction goals, along  
28 with other objectives like reducing system peak stress, and incentivizing  
29 residential customers to better understand, and better manage, their energy

1 consumption, thereby giving customers more control of their overall energy costs.  
2 When customers are able to shift usage from on-peak hours, it helps achieve  
3 these goals. As Mr. Wishart describes, the Modified Schedule RE-TOU has  
4 been designed to achieve revenue neutrality, based on expectations about the  
5 degree to which customers will adjust their energy consumption in response to  
6 the signals TOU pricing will provide. The Company understands that the  
7 Commission and stakeholders will want to confirm that the proposed Modified  
8 Schedule RE-TOU rates are having the desired effect. It is important to the  
9 Company to confirm this as well.

10 For this reason, the Company commits to provide follow-on data in this  
11 proceeding, for informational purposes only, to help the Commission and  
12 stakeholders understand and evaluate the actual results being delivered by the  
13 residential TOU rates. The Company will also want to evaluate how the Modified  
14 Schedule RE-TOU rates are working specifically for low income customers.  
15 Because Advanced Meter deployment will not commence until the second  
16 quarter of 2021 the Company will likely not have meaningful data to review until  
17 late 2022. Public Service would propose to file this informational data in this  
18 proceeding by March 1, 2023.

1 **IV. RATE MODERNIZATION**

2 **Q. HOW DOES THE MODIFIED SCHEDULE RE-TOU PROPOSAL FIT WITH**  
3 **HOW THE COMPANY HAS PREVIOUSLY ARTICULATED ITS VISION FOR**  
4 **RATE MODERNIZATION?**

5 A. In the Company's 2016 Electric Phase II, Company witness Ms. Alice K. Jackson  
6 provided a strategic vision for the longer-term rate design for Public Service. She  
7 noted the need to better align the rates charged to customers with the costs  
8 those customers impose on the system. By modernizing rate structures,  
9 customers will have more control over their monthly energy bills, will be  
10 encouraged to use the grid more efficiently, and more accurate price signals can  
11 be sent to distributed energy resources that interact with the Public Service  
12 system. Ms. Jackson noted that the final solution for modern rate design would  
13 not be identified in the 2016 proceeding, but that subsequent filings would  
14 support what she described as the longer-term rate design for customers.

15 The Company is continuing to implement this vision first laid out in 2016.  
16 Since that time Public Service has received approval of its Advanced Grid  
17 Intelligence and Security ("AGIS") initiative,<sup>6</sup> which includes the deployment of  
18 Advanced Meters for all residential customers, collected data and analyzed the  
19 performance of experimental residential and commercial rate designs, such as  
20 the RE-TOU Trial, and proposed sweeping changes to the Public Service  
21 generation fleet through the Colorado Energy Plan. This filing is the next step in

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<sup>6</sup> Proceeding No. 16A-0588E.



1 implementing the rate modernization vision expressed in 2016, as the Company  
2 proposes to establish a more sophisticated, time differentiated rate design for all  
3 residential customers. In the coming years, the proposed Modified Schedule RE-  
4 TOU will utilize the Company's advanced grid technology, recognize the ability of  
5 TOU pricing, and subsequent changes in customer behavior, to contribute to  
6 beneficial carbon emissions reductions, and allow the Company to better  
7 measure an individual customer's impact on the system, ensuring that those that  
8 demand more of the system will be appropriately billed.

9 **Q. HAS PUBLIC SERVICE PREVIOUSLY TAKEN STEPS TO MODERNIZE ITS**  
10 **RETAIL ELECTRIC RATES?**

11 A. Yes. The Company has conducted several rate pilots to test new rate designs,  
12 implemented permanent changes to existing rates, and created new rate options  
13 over the past several years.

14 **Q. WHAT RATE STRUCTURES HAS PUBLIC SERVICE PREVIOUSLY TESTED**  
15 **AS PILOTS?**

16 A. Even before the current RE-TOU Trial, the Company had previously tested new  
17 rate structures for residential customers. In 2006 and 2007, the Company  
18 enrolled about 3,700 residential customers in one of three pilot rates: 1) TOU; 2)  
19 critical peak pricing; or 3) TOU with critical peak pricing. The results showed that  
20 customers on all three rate options responded to established price signals by  
21 reducing their consumption during on-peak periods.

1           In 2011, the Company conducted another pilot where approximately 4,000  
2 residential customers were enrolled in one of three rates: 1) TOU; 2) critical  
3 peak pricing; or 3) peak time rebate. The results of the pilot again showed  
4 significant reductions in customer usage. TOU customers were observed to  
5 have reductions in on-peak usage ranging from 1.6 percent to 5.7 percent.<sup>7</sup>

6           More recently, the Company has conducted TOU and critical peak pricing  
7 pilots for commercial and industrial (“C&I”) customers. The Commission  
8 approved the creation of the C&I TOU pilot in Decision No. C10-0286 issued in  
9 Proceeding No. 09AL-299E. The participation in this pilot was capped at 20  
10 megawatts of load and this limit was quickly filled by just four customers. The  
11 C&I TOU pilot rates are scheduled to be discontinued on January 1, 2023. The  
12 C&I critical peak pricing pilot was launched in 2017 and the Company recently  
13 requested approval to extend this pilot through 2022.<sup>8</sup>

14 **Q. WHAT MODIFICATIONS TO EXISTING RATES HAS THE COMPANY**  
15 **RECENTLY MADE?**

16 A. In the 2016 Electric Phase II, the Company proposed to introduce time  
17 differentiated demand charges for C&I customers served at transmission and  
18 primary distribution voltages. The Company noted that some system costs are  
19 driven by coincident peak loads while others are driven by non-coincident peak  
20 loads. In that proceeding, Company witness Mr. Scott Brockett discussed the

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<sup>7</sup> See Proceeding No. 09AL-796E, Public Service Company of Colorado Annual Pricing Pilot Program Status Report (December 23, 2011).

<sup>8</sup> See Proceeding No. 19AL-0672E.

1 proposal to assess generation and transmission charges to transmission and  
2 primary distribution C&I customers only, on weekdays from 2 p.m. to 6 p.m.  
3 Generation and transmission costs are driven by coincident peak demand and  
4 the modification aligns the C&I rate structures with the time periods that drove  
5 costs in 2016.

6 **Q. WHAT NEW RATES HAS THE COMPANY DEVELOPED RECENTLY?**

7 A. In 2010, the Company created a separate rate for secondary voltage C&I  
8 customers with net metered solar systems, Schedule SPVTOU. This rate  
9 combined TOU energy charges with demand charges to recover the cost of the  
10 distribution system. The TOU energy charges allowed C&I customers to more  
11 cost effectively deploy net metered solar systems at their businesses, while the  
12 distribution demand charge more fairly assesses the costs of grid services that  
13 those customers use. Schedule SPVTOU has been successfully used by over  
14 100 businesses and was recently supplemented with a modified version of the  
15 rate, Schedule SPVTOU-B. In addition, the Company recently received  
16 Commission approval to implement an innovative EV rate for fleet charging and  
17 fast public charging stations for EVs, which the Company believes will further  
18 facilitate EV adoption in Colorado. The Schedule S-EV rate also incorporates  
19 TOU pricing, including on-peak, off-peak, and critical peak pricing components.<sup>9</sup>

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<sup>9</sup> See Proceeding No. 19AL-0290E.

1 **Q. HOW DOES THE CURRENT PROPOSAL FOR RESIDENTIAL TOU RATES**  
2 **FIT WITHIN THE COMPANY’S RATE MODERNIZATION STRATEGY?**

3 A. All of the Company’s rate modernization efforts include an aspect of time  
4 differentiation. It has long been recognized that the costs of delivered electricity  
5 changes throughout the day and throughout the year. With the deployment of  
6 Advanced Meters, Public Service will have the ability to better reflect these time  
7 varying costs within its rate structures and provide customers with more tools to  
8 be able to manage their consumption. The proposed time of use rates in the  
9 Modified Schedule RE-TOU are the first step in the modernization of Residential  
10 rates.

11 **Q. IS THE COMPANY’S VISION FOR RATE MODERNIZATION SHARED BY**  
12 **OTHER UTILITIES ACROSS THE COUNTRY?**

13 A. Yes. There are numerous utilities that have conducted TOU pilots, have optional  
14 TOU rates, or have implemented default TOU rates. A 2017 study by The Brattle  
15 Group<sup>10</sup> provided a national overview of residential TOU rates. In that study  
16 Brattle estimated that 14 percent of all utilities in their database offered  
17 residential TOU rates.

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<sup>10</sup> “The National Landscape of Residential TOU Rates,” November 2017 at [http://files.brattle.com/files/12658\\_the\\_national\\_landscape\\_of\\_residential\\_tou\\_rates\\_a\\_preliminary\\_summary.pdf](http://files.brattle.com/files/12658_the_national_landscape_of_residential_tou_rates_a_preliminary_summary.pdf).

1 **Q. HOW WILL THE COMPANY CONTINUE TO MODERNIZE ITS ELECTRIC**  
2 **RATES IN THE FUTURE?**

3 A. The Company believes that time differentiated rates are an important step  
4 forward and appropriate for most customers on the Public Service system. With  
5 TOU rates as the basic rate for customers, the Company believes customers and  
6 the Company will be able to explore further dynamic rates in the future. Dynamic  
7 rates, such as the Company's critical peak pricing pilots, adjust rates daily  
8 depending on forecasted system conditions. Dynamic rates in the future may be  
9 able to more accurately reflect periods of abundant renewable energy as well as  
10 periods of maximum fossil fuel generation. Any future rate changes would of  
11 course be brought through the Commission for evaluation and consideration prior  
12 to implementation.

1           **V.    REGULATORY CONTEXT AND PROCEDURAL BACKGROUND**  
2           **SUPPORTING TOU RATES FOR PUBLIC SERVICE’S RESIDENTIAL CUSTOMERS**

3           **Q.    WHAT IS THE PURPOSE OF THIS SECTION OF YOUR DIRECT**  
4           **TESTIMONY?**

5           A.    In this section of my Direct Testimony, I provide the regulatory context for the  
6           requests made in this proceeding. This includes a discussion of the Company’s  
7           2016 Electric Phase II rate case, which established the RE-TOU Trial, and other  
8           proceedings, past, pending, and future, that relate to or impact the  
9           recommendations made in this case.

10          **A.    2016 Electric Phase II**

11          **Q.    DID THE COMPANY PROPOSE A TIME-OF-USE RATE STRUCTURE AS**  
12          **PART OF ITS 2016 ELECTRIC PHASE II?**

13          A.    Yes. On January 25, 2016, Public Service filed Advice Letter No. 1712-Electric  
14          with tariff sheets and supporting testimony as a Phase II rate proceeding.<sup>11</sup> The  
15          Company proposed to replace its then currently effective General Rate Schedule  
16          Adjustment (“GRSA”) with revised base rates for all electric rate schedules; to  
17          introduce several new rate schedules for customers; and to revise existing rate  
18          schedules consistent with its intention of developing a common rate design  
19          platform that included time-of-use rates and a demand charge for the majority of  
20          its customers.

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<sup>11</sup> Also in early 2016, the Company filed Proceeding No. 16A-0139E, its 2017-2019 RES Compliance Plan, as well as Proceeding No. 16A-0055E, which sought approval of its Solar\*Connect Program (collectively, the “2016 RES and Solar Proceedings”).

1 **Q. HOW WERE THE COMPANY'S PROPOSALS RESOLVED?**

2 A. On August 15, 2016, Public Service filed a Non-Unanimous Comprehensive  
3 Settlement (referred to as the "Three Case Settlement") resolving issues in the  
4 2016 Electric Phase II as well as in the 2016 RES and Solar Proceedings.<sup>12</sup> The  
5 Three Case Settlement allowed Public Service to implement a pilot for a  
6 voluntary service rate called the Residential Demand Time Differentiated Rate  
7 ("Schedule RD-TDR") and a larger-scale trial for another voluntary service rate  
8 called Residential Energy Time-of-Use (previously defined as Schedule RE-  
9 TOU). The RD-TDR Pilot and the RE-TOU Trial, as proposed in the Three Case  
10 Settlement, were approved by the Commission in Decision No. C16-1075, mailed  
11 on November 23, 2016.<sup>13</sup>

12 **Q. PLEASE SUMMARIZE THE APPROVED RD-TDR PILOT.**

13 A. Pursuant to the Three Case Settlement, and as approved by the Commission,  
14 under the RD-TDR Pilot, Public Service would, at a customer's request, replace  
15 the customer's electric meter and put that customer on a three-part electrical  
16 service rate that includes a monthly demand charge, a TOU energy charge, and  
17 a service and facilities charge. The Company intended to enroll up to 10,000

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<sup>12</sup> The following were Settling Parties of the Settlement Agreement for the 2016 Electric Phase II: Staff of the Colorado Public Utilities Commission, Office of Consumer Counsel (with a special provision for Decoupling), City of Boulder, Colorado Communications and Utility Alliance, CF&I Steel, L.P., Climax Molybdenum Company, Colorado Energy Consumers, Colorado Energy Office, Colorado Solar Energy Industries Association, City and County of Denver, Energy Freedom Coalition of America, Energy Outreach Colorado, Solar Energy Industries Association, Sunrun, Inc., SunShare, Vote Solar, and Western Resource Advocates. The following were Opposing Parties of the Settlement Agreement for the Phase II: Southwest Energy Efficiency Project. The following are Non-Opposing Parties of the Settlement Agreement for the Phase II: Vail Summit Resorts and Walmart Stores, Inc. and Sam's West, Inc..

<sup>13</sup> The Commission's decision on these issues was not altered in the subsequent decision on rehearing, Decision No. C16-1165.

1 customers in 2017, to add 4,000 customers in 2018, and add an additional 4,000  
2 customers in 2019. The Pilot is intended to monitor customer loads in order to  
3 better understand the impacts of demand charges on customer behavior and  
4 energy choices. As approved, the RD-TDR Pilot started in 2017, and is  
5 scheduled to terminate on January 1, 2022. The ongoing RD-TDR Pilot is  
6 separate from the RE-TOU Trial, and will not be addressed in this proceeding.

7 **Q. PLEASE SUMMARIZE THE APPROVED RE-TOU TRIAL AND ASSOCIATED**  
8 **FILING REQUIREMENT.**

9 A. While I discuss the RE-TOU Trial itself in more detail in the next section of my  
10 Direct Testimony, I provide a brief summary of what was approved here. The  
11 Commission approved the implementation of the RE-TOU Trial to study and  
12 analyze whether residential energy-based TOU rates should be implemented for  
13 all residential customers. For the RE-TOU Trial, also starting in 2017, customers  
14 electing to participate had their meters replaced with meters capable of tracking  
15 the customer's energy usage in regular intervals (referred to as "bridge" meters).  
16 Public Service proposed to enroll up to 10,000 customers in the RE-TOU Trial in  
17 2017 and to have a cap of no more than 30,000 participants in 2019, including up  
18 to 500 low income customers.

19 Procedurally, among other things, the Three Case Settlement requires  
20 Public Service to file an advice letter no later than December 2, 2019 including  
21 the results of its analysis regarding participation in the RE-TOU Trial, along with  
22 all underlying data. As I testified earlier, the Company is fulfilling that



1 requirement through this filing. The Three Case Settlement further explains the  
2 purpose of this filing at Page 33, Section 7:<sup>14</sup>

3 This final Advice Letter is intended to inform the Commission  
4 whether Schedule RE-TOU requires modification prior to  
5 implementing the final RE-TOU rate design for all Residential  
6 customers, whether Schedule RE-TOU is working well as originally  
7 implemented, or whether it should be discontinued. The Advice  
8 Letter will specifically address the evaluation of the impact of  
9 Schedule RE-TOU on low-income participants.

10 Importantly, all parties reserved their rights to take any position in this  
11 proceeding. Additionally, parties may offer other recommendations as related to  
12 this filing, including but not limited to: discontinuing Schedule RE-TOU, modifying  
13 the Schedule RE-TOU, grandfathering of RE-TOU rate designs for RE-TOU Trial  
14 participants, and implementing a net metering offset credit approach for those  
15 trial participants that are net metered.<sup>15</sup>

16 **Q. WHEN APPROVING THE SETTLEMENT AGREEMENT, DID THE**  
17 **COMMISSION IMPOSE ANY OTHER FILING REQUIREMENTS RELATING TO**  
18 **THE RE-TOU TRIAL?**

19 A. Yes. In Decision No. C16-1075, the Commission indicated that, by a separate  
20 decision, it would be opening a new proceeding to serve as a repository for  
21 information related to both the RD-TDR Pilot and the RE-TOU Trial rates. In  
22 particular, the Commission stated as follows:<sup>16</sup>

23 Public Service will file in that proceeding the reports, studies, and  
24 data provided to the Pilot and Trial Program Stakeholder Group.

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<sup>14</sup> See *also* Three Case Settlement, p. 30.

<sup>15</sup> Three Case Settlement, p. 33 § 7.

<sup>16</sup> Decision No. C16-1075 at paragraph 122.

1 Staff will be directed to participate in that stakeholder group and will  
2 assist the Commission in its review of the materials in the new  
3 proceeding to ensure the Commission is well positioned to address  
4 the Final Schedule RE-TOU Advice Letter Filing and to decide  
5 “whether Schedule RE-TOU requires modification prior to  
6 implementing the final RE-TOU rate design for all Residential  
7 customers, whether Schedule RE-TOU is working well as originally  
8 implemented, or whether it should be discontinued.”

9 **B. Miscellaneous Proceeding on Trial and Pilot Rate Programs.**

10 **Q. DID THE COMMISSION OPEN THE MISCELLANEOUS PROCEEDING YOU**  
11 **DISCUSS ABOVE?**

12 A. Yes.<sup>17</sup> The purpose of this non-adjudicatory proceeding was to serve as a  
13 repository for data and information related to the RD-TDR Pilot and the RE-TOU  
14 Trial to provide the Commission with “the information and analysis that it will  
15 need to evaluate whether a demand rate or a time-of-use rate for residential or  
16 small commercial customers is in the public interest.”<sup>18</sup>

17 **Q. DID PUBLIC SERVICE FILE MATERIALS IN THE TOU M PROCEEDING**  
18 **RELATED TO THE RE-TOU TRIAL?**

19 A. Yes. The Company filed a significant number of materials in the miscellaneous  
20 proceeding as related to the RE-TOU Trial. As I mentioned earlier, as part of the  
21 instant filing, the Company is required to provide the results of its analysis  
22 regarding participation in the RE-TOU Trial, along with all underlying data, which

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<sup>17</sup> See Proceeding No. 17M-0204E, *In the Matter of the Commission’s Review of the Residential Time-of-Use Trial and Demand Rate Pilot Implemented by Public Service Company of Colorado*, Decision No. C17-0257 (mailed April 3, 2017) (the “TOU M Proceeding”).

<sup>18</sup> Decision No. C17-0257, ¶¶1, 9.

1 will be made available as workpapers.<sup>19</sup> The Company does not interpret this to  
2 require the Company to provide all information it filed in the miscellaneous  
3 proceeding, but is including Attachments BAT-2 (“Navigant Report 1”) and BAT-3  
4 (“Navigant Report 2”) to my Direct Testimony, which are the final interim reports  
5 prepared by Navigant Consulting, Inc., the evaluator responsible for performing  
6 the Measurement & Verification Study for the Trial.<sup>20</sup> These will be collectively  
7 referred to in my Direct Testimony as the “Navigant Reports.” I am also including  
8 the Navigant November 18, 2019 Presentation to Stakeholders as Attachment  
9 BAT-4 (“November Stakeholder Presentation”).

10 **C. Other Past, Pending, and Future Proceedings.**

11 **Q. WHAT OTHER PROCEEDINGS, PAST, PENDING, AND FUTURE, RELATE**  
12 **TO THE RE-TOU TRIAL AND THE PROPOSALS IN THIS CASE?**

13 A. There are several other proceedings that relate to the RE-TOU Trial, as well as  
14 the proposals being made by the Company in this proceeding. These include the  
15 AGIS Application in Proceeding No. 16A-0588E (“AGIS Proceeding”), the  
16 Company’s currently pending Phase I rate review, Proceeding No. 19AL-0268E  
17 (“2019 Phase Electric Phase I”), and the Company’s next Phase II rate design  
18 proceeding, which we have committed to filing no later than August 1, 2020, as I  
19 discuss below.

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<sup>19</sup> Three Case Settlement, p. 33 § 7.

<sup>20</sup> Mr. Wishart further addresses these requirements in his Direct Testimony.

1        **D.    AGIS Proceeding**

2        **Q.    WHAT IS THE AGIS PROCEEDING AND HOW DOES DEPLOYMENT OF**  
3        **ADVANCED METERS RELATE TO THE PROPOSALS IN THIS CASE?**

4        A.    Public Service made a filing, the Advanced Grid Intelligence and Security  
5        Application (“AGIS Application”), in Proceeding No. 16A-0588E, to implement  
6        AMI in its service territory. As part of the settlement of the AGIS Application  
7        proceeding,<sup>21</sup> Public Service agreed to a full deployment of Advanced Meters  
8        beginning in 2020 and concluding in 2024. In addition to updating and advancing  
9        Public Service’s electric distribution grid to meet increasing reliability and security  
10       standards, and allowing the Company to offer additional customer choice and  
11       control over energy usage, implement new rate structures and support new  
12       distributed energy resources on its system, Advanced Meters are needed for the  
13       Company’s residential customers to maximize the opportunities and potential  
14       benefits of utilizing a TOU rate design. The Company recently announced that it  
15       has executed a final contract with a meter vendor, Itron, for the deployment of  
16       meters with enhanced processing and other capabilities starting in the second  
17       quarter of 2021 rather than 2020.<sup>22</sup> This updated AMI deployment schedule  
18       does not begin until approximately nine months after conclusion of this  
19       proceeding.

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<sup>21</sup> On May 8, 2017, Public Service filed a Joint Motion to Approve the Unopposed Comprehensive Settlement Agreement in Proceeding No. 16A-0588E (“AGIS Settlement”).

<sup>22</sup> The Company will still complete deployment by 2024 consistent with the AGIS Settlement.

1 **Q. DOES THE AGIS SETTLEMENT REQUIRE CERTAIN INFORMATION TO BE**  
2 **PROVIDED AS PART OF THIS CASE?**

3 A. Yes. On page 16 of the AGIS Settlement, at Section B, the settling parties  
4 agreed as follows:

5 B. The Company agrees to present estimated bill impacts for  
6 customers following the full AMI meter deployment. This will occur in  
7 the earlier of either the Company's (1) next Phase II portion of a rate  
8 case, or (2) the Schedule Residential Energy Time Of Use ("RE-TOU")  
9 rate design Advice Letter to be filed on or before December 2, 2019.  
10 The Settling Parties recognize and acknowledge this will be an  
11 imperfect analysis because the underlying assumption will necessarily  
12 be that the base from which to compare is the most recently approved  
13 base rate determination and any other offsetting cost variables will not  
14 be taken into account.

15 As the Company has not yet filed an Electric Phase II rate case, the referenced  
16 estimated bill impacts will be provided in this proceeding. Importantly, the  
17 Company will be providing these AMI deployment bill impacts for informational  
18 purposes only, in compliance with the AGIS Settlement, as they do not relate to,  
19 or have any impact on the Company's Modified Schedule RE-TOU proposal. As  
20 of the date of filing, the Company's 2019 Electric Phase I Rate Review is pending  
21 before the Commission. In order to present bill impacts based on the Company's  
22 most current rates, at an appropriate time after a final decision is made in the  
23 2019 Electric Phase I Rate Review, the Company will make a notice filing in this  
24 proceeding with the referenced estimated bill impacts in order to satisfy this filing  
25 requirement from the AGIS Settlement.

1 **Q. ARE THERE ANY OTHER AGIS SETTLEMENT PROVISIONS RELATING TO**  
2 **THIS FILING?**

3 A. Yes. The AGIS Settlement, starting at page 18, states:

4 F. RE-TOU Rate for Customers Prior to 2019 RE-TOU Advice Letter  
5 Decision

- 6  
7 1. Pursuant to the Non-Unanimous Comprehensive Settlement  
8 Agreement approved by the Commission in Consolidated  
9 Proceeding No. 16AL-0048E, customers who receive AMI  
10 meters prior to a decision in the final Schedule RE-TOU Advice  
11 Letter will automatically be placed on the RE-TOU rate  
12 schedule, and will remain on that tariff pending a decision in the  
13 RE-TOU Advice Letter proceeding, with the option to opt-out  
14 during the first six (6) billing cycles and prior to the end of the  
15 seventh (7th) billing cycle. The Company shall use its best  
16 efforts to educate all such customers concerning the shift in rate  
17 design, the bill impacts of the RE-TOU rate specific to that  
18 customer, the option to opt-out of the rate design, and the  
19 availability of tools to manage energy use. Customers who  
20 receive one of the approximately 13,000 advanced meters in  
21 2019 as sensors for IVVO will not be placed on the RE-TOU  
22 rate until such meters are fully functional AMI meters with the  
23 necessary FAN connectivity.  
24
- 25 2. In order to minimize any negative impacts of this rate design on  
26 low-income customers, the Company shall automatically extend  
27 the hold harmless provision that applies to low-income RE-TOU  
28 trial participants, as set forth in the Non-Unanimous  
29 Comprehensive Settlement Agreement approved by the  
30 Commission in Consolidated Proceeding No. 16AL-0048E to all  
31 low-income customers enrolled in Low-Income Energy  
32 Assistance Program ("LEAP") or that received EOC bill  
33 assistance payments within the preceding twelve months that  
34 are subsequently placed on the RE-TOU rate prior to the RE-  
35 TOU Advice Letter Decision.

36 Excluding the IVVO meters deployed in 2019, the deployment of Advanced  
37 Meters is now scheduled to start in 2021, after this proceeding is concluded. In  
38 the meantime, the Company is not closing Schedule RE-TOU and will allow it to

1 continue to operate, inclusive of the existing hold harmless provision that applies  
2 to low income RE-TOU Trial participants, until the proposed January 1, 2021  
3 effective date of Modified Schedule RE-TOU. Beginning January 1, 2021, the  
4 Company proposes that residential customers transition to the new Modified  
5 Schedule RE-TOU as outlined in my Direct Testimony. In the meantime, to the  
6 extent customers receive one of the approximately 13,000 advanced meters as  
7 sensors for Integrated Volt-VAr Optimization before that date, they will not be  
8 placed on TOU rates until such meters are fully functional Advanced Meters with  
9 the necessary Field Area Network connectivity. At that time, these customers  
10 would be transitioned to the Modified Schedule RE-TOU as Advanced Meter  
11 deployment in their area is completed.

12 **G. 2019 Electric Phase I Rate Review**

13 **Q. WILL THE OUTCOME OF THE COMPANY'S CURRENTLY PENDING 2019**  
14 **ELECTRIC PHASE I RATE REVIEW IMPACT THE COMPANY'S MODIFIED**  
15 **TOU RATES PROPOSAL?**

16 A. While the outcome of the 2019 Electric Phase I Rate Review is not expected to  
17 impact the Company's Modified Schedule RE-TOU proposal, a final decision has  
18 not yet been issued in that proceeding. I would note, however, that any general  
19 rate schedule adjustments that are approved through the 2019 Electric Phase I  
20 Rate Review will apply to the Modified Schedule RE-TOU. In addition, the final  
21 approved revenue requirement in that case will need to be allocated to customer  
22 classes through a Phase II proceeding.

1 **Q. DID THE COMPANY COMMIT TO FILE A PHASE II RATE REVIEW IN 2020?**

2 A. Yes. In the Rebuttal Testimony of Ms. Jackson filed in the 2019 Electric Phase I  
3 Rate Review, the Company committed to file a Phase II cost allocation and rate  
4 design case, or a combined Phase I and Phase II rate review, on or before  
5 August 1, 2020. I discuss the interrelation of that commitment with the proposals  
6 in this case, below. Note, however, that the Commission has not yet issued a  
7 final decision in the 2019 Electric Phase I Rate Review and, thus, it is as of this  
8 date unknown whether this commitment will be accepted by the Commission.

9 **Q. DID THE COMPANY USE DATA FROM THE COMPANY'S CURRENTLY**  
10 **PENDING 2019 ELECTRIC PHASE I RATE REVIEW IN FORMULATING THE**  
11 **MODIFIED SCHEDULE RE-TOU PROPOSAL?**

12 A. Yes. As explained more by Mr. Wishart in his Direct Testimony, Residential  
13 class billing volumes from the Company's rebuttal case, as the most recent data  
14 available, were used to calculate total revenue under the current residential rates  
15 so that the Modified Schedule RE-TOU rates can be calibrated to recover that  
16 same amount.



1       **H.     2020 Electric Phase II Rate Review**

2       **Q.     BASED ON THE COMPANY'S COMMITMENT IN THE 2019 ELECTRIC**  
3       **PHASE I RATE REVIEW, THIS PROCEEDING WILL NOT BE CONCLUDED**  
4       **AT THE TIME THE COMPANY FILES ITS 2020 ELECTRIC PHASE II RATE**  
5       **REVIEW. HOW WILL THE COMPANY'S MODIFIED TOU RATES PROPOSAL**  
6       **BE IMPACTED BY THAT CASE?**

7       A.     The procedural timing of these two proceedings is not ideal as the 2020 Electric  
8       Phase II will be filed before the Commission issues a final decision in this  
9       proceeding addressing the Company's Modified Schedule RE-TOU.  
10      Nevertheless, as noted earlier in my Direct Testimony, the Company currently  
11      expects that it would maintain the proposed Modified Schedule RE-TOU in the  
12      2020 Electric Phase II, but modify the rate as appropriate to reflect updated class  
13      cost allocation and any new data on the distribution between on-peak, shoulder,  
14      and off-peak periods.

1                   **VI. OVERVIEW OF THE RE-TOU TRIAL AND RESULTS**

2 **Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR DIRECT**  
3 **TESTIMONY?**

4 A. In this section of my Direct Testimony, I provide a high-level overview of the RE-  
5 TOU Trial, as well as the RE-TOU Trial's results. In addition to the information  
6 contained in the Navigant Reports as well as the November Stakeholder  
7 Presentation, Mr. Wishart and Ms. Simms provide additional detail on these  
8 topics in their direct testimonies.

9 **A. Overview of the RE-TOU Trial**

10 **Q. WHAT WERE THE OBJECTIVES OF THE RE-TOU TRIAL?**

11 A. Consistent with Section 1.1 of the Navigant Reports, the overarching goals of the  
12 Trial include the following:

- 13                   • Quantify the relative impacts of the RE-TOU rates on customers' bills as  
14                    compared to the current Schedule R rate;
- 15                   • Assess how various customer groups within the Residential class change  
16                    their consumption behavior in response to the proposed rates. In  
17                    particular, to understand how their energy use and peak demands change,  
18                    particularly during summer peak periods;
- 19                   • Attempt to understand with statistical significance how these rates affect  
20                    targeted population segments; specifically low income, seniors (65 years  
21                    of age or older), renters in multi-family buildings, and those with end-use  
22                    technologies such as solar, electric vehicles, and smart thermostats; and
- 23                   • Determine participating customer demographics, major household  
24                    appliances, energy use patterns and other behavioral changes, and  
25                    technologies adopted to help reduce or shift energy use / bill costs and  
26                    how these characteristics potentially impact the efficacy of the trial rates.

1 **Q. PLEASE PROVIDE AN OVERVIEW OF THE RE-TOU TRIAL.**

2 A. The RE-TOU Trial, which started in March 2017, is a voluntary, opt-in program  
3 offered to Colorado residential customers with a seasonally adjusted, time  
4 varying rate that has three daily time periods with different kWh rates. While, as  
5 discussed above, the Trial Schedule RE-TOU will remain in effect and available  
6 to customers pending the conclusion of this case, the Trial itself commenced in  
7 March 2017 and the collection of data for evaluation of the Trial will conclude  
8 before the end of December 2019. During the RE-TOU Trial, the Company has  
9 collected interval data from participants' meters, and the participating customers  
10 completed surveys regarding their adjustment of their energy usage behaviors  
11 while on the rate, their satisfaction with the rate, and their understanding of the  
12 rate structure. The RE-TOU Trial included both a treatment group, and a  
13 randomly assigned control group to study the various objectives of the RE-TOU  
14 Trial.

15 **Q. PLEASE PROVIDE MORE DETAIL ON THE STRUCTURE OF THE TRIAL**  
16 **AND ITS RATES.**

17 A. As mentioned above, the Trial Schedule RE-TOU was designed with a  
18 seasonally adjusted, time varying rate that has three daily time periods with  
19 different kilowatt hour rates. Table BAT-D-1 below provides more detail on this  
20 structure and the fluctuating energy charges, as reflected in the RE-TOU Trial  
21 tariff.

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**TABLE BAT-D-1  
 TRIAL SCHEDULE RE-TOU BASE RATE ENERGY CHARGES**

<b>Billing Period</b>	<b>On-Peak</b> (Weekdays except Holidays 2 p.m.-6 p.m.)	<b>Shoulder</b> (Weekdays except Holidays between 2 p.m. and 6 p.m. and Weekends and Holidays between 9 a.m. and 9 p.m.)	<b>Off-Peak</b> (Daily between 9 p.m. and 9 a.m.)
<b>Summer</b> (June 1 – Sept. 30) Base Rate Energy Charge per kWh	\$0.13814	\$0.08420	\$0.04440
<b>Winter</b> (Oct. 1 through May 31) Base Rate Energy Charge per kWh	\$0.08880	\$0.05413	\$0.04440

4

The Trial Schedule RE-TOU is subject to all applicable Electric Rate Adjustments on file and in effect in the Company’s Electric Tariff. In addition, Customers are billed the Time-of-Use Electric Commodity Adjustment (“ECA”) for Secondary Voltage, RE-TOU.

**9 Q. WHAT CUSTOMERS WERE ELIGIBLE TO PARTICIPATE IN THE TRIAL?**

10 A. Residential electric customers, in good standing with Public Service and not  
 11 enrolled in average monthly payments, were made aware of the rate options,  
 12 provided education on the rates, and encouraged to enroll voluntarily.  
 13 Participating customers were required to have a bridge meter that the Company  
 14 could use to measure energy usage.

1 **Q. DID THE COMPANY HAVE TARGETED PARTICIPANTS?**

2 A. Yes. In addition to seeking voluntary participants from a diverse and  
3 representative sample of the population (across geographic regions and varying  
4 levels of energy usage), the Company also sought to actively enroll participants  
5 in the low income segment, solar customers, customers with smart thermostats,  
6 EV owners, and senior citizens (65 years of age or older), and renters.

7 **Q. DID THE RE-TOU TRIAL INCLUDE SPECIAL PROVISIONS FOR LOW**  
8 **INCOME CUSTOMERS?**

9 A. Yes. Up to 500 low income residential customers were allowed to participate,  
10 which provided an opportunity to understand how this rate design works for these  
11 customers. To protect low income customers, a hold harmless provision was  
12 included in the RE-TOU Trial, which allowed the low income participant to pay  
13 the lower of their monthly bills determined under Schedule R and Trial Schedule  
14 RE-TOU. If a low income customer's bill under Schedule R was less than the bill  
15 under Trial Schedule RE-TOU, then the dollar difference between the two bills is  
16 deferred, to be collected later through residential rates from the entire Residential  
17 class. A low income customer is charged the Trial Schedule RE-TOU rate, but  
18 receives a bill credit on the current or subsequent bill for any amount that  
19 exceeded what would have been charged under Schedule R.

20 **Q. WHAT WERE THE RE-TOU TRIAL'S PARTICIPATION GOALS?**

21 A. The participation goals and caps for the RE-TOU Trial are cumulative, and are  
22 summarized below:

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**TABLE BAT-D-2**  
**TRIAL SCHEDULE RE-TOU PARTICIPATION PARAMETERS**

<b>RE-TOU</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Participation Goal	10,000	14,000	18,000
Participation Cap	10,000	20,000	30,000

3

Note that some customers who volunteered for the RE-TOU Trial were randomly assigned to a control group, as explained more in the Navigant Reports.

4

5 **Q. WERE STAKEHOLDERS KEPT AWARE OF THE RE-TOU TRIAL AND**  
6 **ALLOWED TO REVIEW INFORMATION REGARDING THEIR**  
7 **PARTICIPATION?**

8

A. Yes. Generally, stakeholders received information on, among other things, customer participation, customer feedback, survey and focus group results, Company progress on implementation, and metrics to evaluate success. Stakeholder communications are discussed in more detail by Ms. Simms in her Direct Testimony and the most recent stakeholder presentation is attached to my Direct Testimony as Attachment BAT-4.

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**B. Current Results of the RE-TOU Trial**

**Q. PLEASE PROVIDE AN OVERVIEW OF THE CURRENT RESULTS OF THE RE-TOU TRIAL.**

A. The to-date results of the RE-TOU Trial are reflected in the Navigant Reports, and Mr. Wishart and Ms. Simms discuss the results in more detail. However, the 2019 RE-TOU findings as reflected on page three of the November Stakeholder Presentation (replicated below), summarize the most recent participant data, as well as demand, energy, and bill impacts.

**TABLE BAT-D-3  
 PARTICIPATION DATA AND IMPACTS**

<b>Participant Data</b>	<ul style="list-style-type: none"> <li>• 5,713 non-solar RE-TOU participants and 2,943 RE-TOU control group customers</li> <li>• 929 solar RE-TOU participants and 641 RE-TOU matched control group customers</li> </ul>
<b>Demand Impacts</b>	<ul style="list-style-type: none"> <li>- 3.2% average Summer reduction in on-peak demand for non-solar participants without EV</li> <li>- 3.1% average Winter reduction in on-peak demand for non-solar participants without EV</li> <li>- 35% average Summer reduction in <u>gross</u> on-peak demand for solar participants</li> <li>- 30% average Winter reduction in <u>gross</u> on-peak demand for solar participants</li> </ul>
<b>Energy Impacts</b>	<ul style="list-style-type: none"> <li>- 1.2% increase in Summer average monthly energy consumption for non-solar participants without EV</li> <li>- 0.3% increase in Winter average monthly energy consumption for non-solar participants without EV</li> <li>- 5.7% decrease in Summer average gross monthly net energy consumption for solar participants</li> <li>- 13.5% increase in Winter average gross monthly energy consumption for solar participants</li> </ul>
<b>Bill Impacts</b>	<ul style="list-style-type: none"> <li>• Average non-solar (non-EV) participant's annual bill is increasing 2.2% (or \$18.07)</li> <li>• Average solar participant's annual bill is decreasing 13% (or -\$129.28)</li> </ul>

In addition, the findings related to customer satisfaction, communications, customer knowledge, engagement, and thermostats and PEVs (Plug-in Electric Vehicles), as found on page 29 of that same presentation, are replicated below for convenience.

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2

**TABLE BAT-D-4  
 CUSTOMER SATISFACTION AND ENGAGEMENT**

<b>Satisfaction &amp; Perceptions</b>	Satisfaction is high. 84% of customers are likely to recommend the TOU rate to family/friends and 65% indicated a high likelihood to recommend. Perceptions are positive. Most customers report bills are in line with or lower than expected (68%) and that they have more control over their bill (74%).
<b>Information &amp; Communications</b>	Electronic communications favored by most but no one-size-fits-all approach. Customers are most likely to use information resources provided MyAccount (84%) and via email (81%) and least likely to find the Call Center a helpful source of information (57%). Stickers & website highly valued by subset of customers.
<b>Customer Knowledge</b>	Customer knowledge appears to increase with experience. A large majority of customers (86%) report at least a basic understanding of the bill while the proportion of customers with a "fairly complete" or "complete" understanding has increased from 34% in Wave 1 to 49% in Wave 3.
<b>Engagement &amp; Behaviors</b>	Customers' behavioral responses leave opportunities for enhanced savings. Most customers are shifting appliance use (93%), some are turning off their AC during peak (26%) or changing thermostat settings (12%); however the difference in average reported temperature during peak and shoulder is <1 degree.
<b>Thermostats &amp; PEVs</b>	Customers increasingly embracing technologies. End of trial findings show a larger proportion of customers have a smart or programmable thermostat (70%), a plug-in electric vehicle (16%), or solar panels (20%) as compared to the post-enrollment period.

3 **Q. PLEASE SUMMARIZE THE RESULTS OF THE NAVIGANT STUDY AS**  
 4 **RELATED TO LOW INCOME PARTICIPANTS.**

5 A. Mr. Wishart addresses the impact of the RE-TOU Trial on participating low  
 6 income customers. There are, however, a few other findings relating to low  
 7 income that I would like to point out. For example, with respect to low income  
 8 customer reductions in energy consumption from the on-peak period of the RE-  
 9 TOU rate, Navigant Report 2 states:<sup>23</sup>

- 10 • Low income customers have the smallest impact estimates during  
 11 the summer and are the only segment without a statistically  
 12 significant reduction in on-peak consumption during either season.  
 13 This may be due to low income customers being held harmless

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<sup>23</sup> Attachment BAT-3 at page xi.



1                   from bill increases and were not motivated by the possibility of  
2                   paying a higher bill.

3                   Navigant goes on to note that low income customers did reduce monthly  
4                   consumption during the winter,<sup>24</sup> and had an overall annual bill impact of 2.0  
5                   percent, or \$15.30.<sup>25</sup> This equates to approximately \$1.28 per month.

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<sup>24</sup> Navigant Report 2, Attachment BAT-3, p. 26.

<sup>25</sup> Navigant Report 2, Attachment BAT-3, Figure B-3, p. B-2.

1                                   **VII. MODIFIED SCHEDULE RE-TOU PROPOSAL**

2 **Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR DIRECT**  
3 **TESTIMONY?**

4 A. Earlier in Section III of my Direct Testimony, I provided a high-level overview of  
5 our Modified Schedule RE-TOU proposal. While also addressed in detail by Mr.  
6 Wishart in his Direct Testimony, in this Section I provide certain specifics  
7 regarding the operation of the new TOU rates, and the implementation schedule  
8 for the new rate. I then turn to customer considerations associated with the new  
9 rate, addressing first low income customers, then turning to our customer  
10 education and outreach plan.

11 **Q. PLEASE SUMMARIZE THE SPECIFICS OF THE COMPANY'S PROPOSED**  
12 **MODIFIED SCHEDULE RE-TOU.**

13 A. As I previously mentioned, the primary purpose of this proceeding is to now  
14 implement default TOU rates for all residential customers, based on what the  
15 Company has learned from the RE-TOU Trial. In particular, the proposed  
16 Modified TOU Rates would:

- 17                   • Target rate differentiation to the summer months of June, July, August,  
18                   and September, as opposed to implementing weekday shoulder and on-  
19                   peak pricing year round as we did in the RE-TOU Trial;
- 20                   • Shift on-peak hours during those summer months to 3 p.m. to 7 p.m. from  
21                   2 p.m. to 6 p.m. as set in the Trial;
- 22                   • Reduce the price ratio between on-peak and off-peak energy rates to 2:1  
23                   from 2.4:1 as set in the Trial; and
- 24                   • Revise the Company's rate riders that are applicable to the Residential  
25                   class from per kWh charges to percentage of energy charges, in order to

1 ensure that an all-in 2:1 rate ratio between on-peak and off-peak pricing is  
 2 achieved.

3 Table BAT-D-5 below summarizes the primary differences between Schedule  
 4 RE-TOU as it exists for the Trial, and the proposed Modified Schedule RE-TOU.

**TABLE BAT-D-5  
 TRIAL AND MODIFIED SCHEDULE RE-TOU COMPARISON**

	<b>Trial Schedule RE-TOU</b>	<b>Modified Schedule RE-TOU</b>
Class of service	Residential	Residential
Applicability	Optional, limited participation	Default rate for all Residential customers
Weekday TOU rate differentiation	Year round	Summer only (June through September)
On-peak period	2 p.m. to 6 p.m. weekdays, excluding holidays, year round	3 p.m. to 7 p.m. weekdays, excluding holidays, Summer only
On-peak/off-peak rate ratio	2.4:1	2:1
Shoulder period	9 a.m. to 2 p.m. weekdays, excluding holidays, year round	Summer weekdays, excluding holidays, between 11 a.m. and 3 p.m. and between 7 p.m. and 10 p.m.
Off-peak period	9 p.m. to 9 a.m., including holidays, year round	10 p.m. to 11 a.m. summer weekdays, except holidays and all summer weekends, holidays and winter hours
Low income	Hold harmless provision	No hold harmless provision
Rate riders	Per kWh charges per current tariffs	Percent of base energy rate charges

7 **Q. WHAT IS THE BASIS FOR THESE PROPOSED CHANGES AS COMPARED**  
 8 **WITH THE RATE STRUCTURE YOU UTILIZED IN THE RE-TOU TRIAL?**

9 A. At a high level, the Company believes these adjustments are appropriate based  
 10 on what we have seen, and the feedback received, during the RE-TOU Trial.

1 First, limiting weekday TOU differentiation to the summer months is reasonable  
2 because, as Mr. Wishart demonstrates, these are the months where Residential  
3 class load reductions will have the most material effect on the system and, in  
4 turn, on the Company's emissions profile. Limiting weekday TOU differentiation  
5 to summer months will encourage Residential customers to more narrowly focus,  
6 appropriately, on their energy usage during those months.

7 Second, shifting the on-peak period from 2 p.m. to 6 p.m., as utilized in the  
8 Trial, to 3 p.m. to 7 p.m., is appropriate based on the RE-TOU Trial data  
9 reviewed, as well as the Company's expectation that, in the future, the system  
10 demand curve net of renewables will continue to move our peak demand later  
11 into the evening hours.

12 Third, the Company determined that at this time a 2:1 on-peak to off-peak  
13 price ratio would best balance the goal of implementing a default TOU rate  
14 structure that provides correct pricing signals to residential customers, while also  
15 providing lesser bill changes than would result from a higher price ratio.

16 Fourth, it is reasonable to convert most of the Company's Residential  
17 class rate riders to percentage-based charges based on energy charges, to  
18 assure the desired 2:1 price ratio for rates is achieved. Mr. Wishart discusses all  
19 of these considerations in more detail his Direct Testimony.

1 **Q. YOU MENTIONED THE IMPORTANCE OF LOW INCOME CUSTOMER**  
2 **CONSIDERATIONS TO THE COMPANY. PLEASE EXPLAIN FURTHER.**

3 A. The Company recognizes the particular importance of low income customer  
4 considerations, and the need to reflect on how the new rate structure will work for  
5 them. As mentioned earlier in my Direct Testimony, in order to protect low  
6 income customers from paying more than the Schedule R rate while participating  
7 in the RE-TOU Trial, the Company included in the RE-TOU Trial a hold harmless  
8 provision that allows the low-income participant to pay the lower of their monthly  
9 bills determined under Schedule R and Trial Schedule RE-TOU. The Company's  
10 entire Residential class will ultimately fund any difference in the charges to those  
11 low income customers during the RE-TOU Trial. The reality of this hold harmless  
12 provision, however, is that the Trial Schedule RE-TOU did not incentivize  
13 participating low-income customers to modify their on-peak consumption, one of  
14 the key goals of the RE-TOU Trial. Navigant concluded that "[t]his may be due to  
15 low income customers being held harmless from bill increases and were not  
16 motivated by the possibility of paying a higher bill."<sup>26</sup>

17 **Q. IN LIGHT OF THESE FINDINGS AND RESULTS, WHAT IS THE COMPANY**  
18 **PROPOSING?**

19 A. A primary purpose of TOU rates is to allow all Residential customers, including  
20 low-income customers, to better understand, and better manage, their energy  
21 consumption. Price signaling, and the incentive to respond to those price

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<sup>26</sup> Attachment BAT-3 at p. xi.

1 signals, is thus key to the success of any TOU rate design. As a result, the  
2 Company does not believe it is appropriate to extend the hold harmless as part of  
3 the Modified Schedule RE-TOU. Furthermore, as discussed in more detail by  
4 Mr. Wishart, the Company has specifically considered the impact of the Modified  
5 Schedule RE-TOU on low income customers, concluding that bills for low income  
6 customers will not be subject to any greater change than bills for the average  
7 residential customer. It is important for low income customers to have the tools  
8 to take charge of their bills. The Modified Schedule RE-TOU rates, along with  
9 targeted outreach and education, will help them take that step. Also, as I discuss  
10 below, there are also a number of programs available to low income customers  
11 to assist them with their bills.

12 **Q. PLEASE PROVIDE AN OVERVIEW OF PROGRAMS AVAILABLE TO LOW**  
13 **INCOME CUSTOMERS AND RECENT STATISTICS.**

14 A. The three primary sources of benefits that assist customers with their energy  
15 costs, are LEAP, Energy Outreach Colorado, and the Company-sponsored Gas  
16 and Electric Affordability Programs. LEAP is a federally funded program that  
17 helps eligible Colorado families, seniors, and individuals pay a portion of their  
18 winter home heating costs. Customers whose income is within 60 percent of the  
19 State median income and have a home heating bill, may qualify for LEAP  
20 benefits and the funds are typically paid directly to the energy provider. During  
21 the 2018/2019 heating season, 39,000 Public Service customers received LEAP  
22 benefits totaling over \$16 million. While these funds primarily impact customers'

1 heating costs, the funds do indirectly assist with overall energy bills, regardless of  
2 the heat source.

3 Energy Outreach Colorado has a network of agencies within Colorado  
4 communities that they fund to help customers with their home energy needs,  
5 including electricity, throughout the year. They assist customers whose income  
6 is within 80 percent of the State median income and helped 9,233 Public Service  
7 families during the period October 2018 through September 2019 with  
8 approximately \$4.89 million in energy assistance.

9 **Q. PLEASE PROVIDE AN OVERVIEW OF THE COMPANY'S ELECTRIC**  
10 **AFFORDABILITY PROGRAM AVAILABLE TO LOW INCOME CUSTOMERS**  
11 **AND RECENT STATISTICS.**

12 A. The Company offers bill payment assistance to low income LEAP-qualified  
13 households based on an affordable percentage of their income towards the cost  
14 of consumption on their electric and gas bills. For electric customers, this is  
15 known as the Electric Affordability Program ("EAP"), which is detailed in the  
16 Company's electric tariff and a copy of which is attached to my Direct Testimony  
17 as Attachment BAT-5. As explained therein, the EAP has both affordability and  
18 arrearage forgiveness components and the program provides monthly benefits to  
19 customers throughout the year. Under one of the affordability options, the  
20 "Percentage of Income Payment Plan," the customer receives a "bill credit  
21 determined as one-twelfth of the difference between the Company's estimate of  
22 the Qualified Customer's annual electric bill and three percent (3%) of the

1 Qualified Customer's annual household income as provided by the Colorado  
2 Department of Human Services, Division of Low Income Energy Assistance to  
3 Company." Step bill discounts, zero dollar income allowances, and arrearage  
4 forgiveness are also provided. For the EAP year to date (11/1/18-10/31/19) the  
5 Company has assisted 22,846 low income electric customers with \$5.3 million in  
6 bill assistance.

7 **Q. WHAT OTHER PROGRAMS DOES THE COMPANY OFFER?**

8 A. The Company also offers rate assistance to customers with a medical need in  
9 their homes. The Colorado Medical Exemption Program<sup>27</sup> offers those who  
10 qualify a single, reduced rate for all electricity used from June through  
11 September. The program not only lowers billing rates, but also removes the Tier  
12 2 rate for using more electricity. Standard rates return on October 1. As  
13 mentioned by Mr. Wishart in his Direct Testimony, Schedule MEP is being  
14 revised to apply to the Modified Schedule RE-TOU rates.

15 **Q. YOU ALSO MENTIONED THAT THE COMPANY IS PLANNING TO TARGET**  
16 **OUTREACH AND EDUCATION TO LOW INCOME CUSTOMERS. PLEASE**  
17 **ELABORATE.**

18 A. As explained by Ms. Wozniak in her Direct Testimony, the Company's outreach  
19 to this customer segment is intended to help customers understand how they can  
20 take advantage of Modified Schedule RE-TOU in order to better manage their  
21 energy costs, and to be more aware of their personal energy use information.

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<sup>27</sup> Referred to earlier in my Direct Testimony as Schedule MEP.



1 **Q. PLEASE PROVIDE AN OVERVIEW OF THE COMPANY'S PLAN, IN**  
2 **GENERAL, TO EDUCATE CUSTOMERS ON MODIFIED SCHEDULE RE-**  
3 **TOU?**

4 A. The Company will align its customer education regarding Modified Schedule RE-  
5 TOU with its plan to educate customers on Advanced Grid and Advanced Meter  
6 installations. While Ms. Wozniak discusses this plan in more detail, the  
7 communications plan for Modified Schedule RE-TOU will be coordinated with the  
8 AGIS initiative, and use multiple kinds of communications, including, but not  
9 limited to postcards, letters, Company website information, information cards,  
10 and door hangers. The overall plan is to provide a high-level 90-day  
11 communication with a bill onsert, follow up with the 60-day postcard, and then a  
12 30-day letter. The Company will take the necessary steps to make customers  
13 aware of the changes being made.

1                   **VIII. REQUEST FOR DEFERRED ACCOUNTING**

2   **Q.    WILL THE COMPANY INCUR ADDITIONAL INCREMENTAL EXPENSES**  
3   **WHEN IMPLEMENTING ITS MODIFIED SCHEDULE RE-TOU?**

4   A.    Yes. There will be additional education and communication needed to support  
5   the Modified Schedule RE-TOU in addition to what is already planned for the  
6   Advanced Meter deployment for the reasons explained by Ms. Wozniak. In  
7   addition, there will be billing and programming costs associated with  
8   implementing the Modified Schedule RE-TOU.

9   **Q.    IS PUBLIC SERVICE PROPOSING TO RECOVER THESE EXPENSES IN THIS**  
10   **CASE?**

11   A.    No. The Company proposes the Commission defer the review, approval, and  
12   recovery of the full amount of Modified Schedule RE-TOU implementation  
13   expenses to a future Electric Phase I rate review. Until that time, these expenses  
14   would be tracked and recorded into a deferred accounting asset without interest.  
15   The amortization of these expenses would then be determined in that future  
16   Phase I rate review proceeding. If expenses continue to be incurred after the  
17   test period utilized in the Company's next Electric Phase I rate review, the  
18   Company requests that the deferral continue and that review, approval and  
19   recovery of those incremental costs be determined in a subsequent Phase I rate  
20   review proceeding.

1 **Q. WHY ARE THE REFERENCED EXPENSES AN APPROPRIATE AND**  
2 **RECOVERABLE ITEM IN THE COMPANY'S COST OF SERVICE?**

3 A. The additional system changes necessary to implement the Modified Schedule  
4 RE-TOU and the associated customer education and outreach costs are directly  
5 related to the provision of electrical service and reasonable costs of  
6 implementing the default TOU rate for Public Service's residential customers.  
7 The Company's request to track and defer these costs for future recovery is  
8 reasonable because these costs will vary from year to year, with some of the  
9 implementation activities occurring in the near future and others occurring over  
10 the course of Advanced Meter deployment. However, all of the costs incurred  
11 during this time frame are reasonable costs of providing electric service therefore  
12 including only one year's amount in base rates (as would be the result if the  
13 Company alternately requested traditional base rate recovery in a future Phase I  
14 rate proceeding based on costs incurred in a test year) would prevent the  
15 Company from fully recovering these costs. Additionally, deferring these costs  
16 for future recovery provides the opportunity for the Commission and interested  
17 stakeholders to evaluate the reasonableness of the total costs expended prior to  
18 granting recovery.

19 **Q. WHAT AMOUNT OF MODIFIED SCHEDULE RE-TOU EXPENSES DOES**  
20 **PUBLIC SERVICE EXPECT TO INCUR?**

21 A. The Company expects to incur approximately \$875,000 to \$4.83 million, as  
22 reflected on Table BAT-D-6 below.

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2  
**TABLE BAT-D-6**  
**Estimated Modified Schedule RE-TOU Expenses**

<b>Expense Category</b>	<b>Estimate</b>
Incremental communications expenses	\$825,000 to \$4.78 million
Billing and programming	\$50,000
<b>Total:</b>	<b>\$875,000 to \$4.83 million</b>

3 With respect to the incremental communications expenses for Modified Schedule  
4 RE-TOU, Ms. Wozniak provides a high level estimate of \$1.2 million to \$4.8  
5 million in her Direct Testimony.<sup>28</sup> This expense estimate range at the low end of  
6 \$825,000 assumes only the postcard communication tactic is used, with all  
7 communications tactics implemented at the upper \$4.78 million estimate. As  
8 indicated by Ms. Wozniak, this estimate will be refined when Navigant delivers a  
9 more detailed report with more specifics on customer preferences in early 2020.  
10 The estimate is also subject to change based upon any changes to the structure  
11 of the final Modified Schedule Re-TOU rate approved and/or changes to the  
12 proposed January 1, 2021 effective date.

13 The next category of billing and programming costs are currently  
14 estimated at \$50,000. This includes one-time costs for reconfiguration work  
15 within the billing system for the rate change of the 13,000 IVVO meters, and the  
16 creation of billing programs for systematic meter reconfiguration on future  
17 installations. This also includes one-time billing costs for Itron Enterprise Edition  
18 (IEE) to aggregate the new billing periods, billing register reconfigurations in CRS

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<sup>28</sup> See Ms. Wozniak's Direct Testimony at Table JBW-2.

1 to accommodate the new rate, and the development of new billing programs in  
2 CRS to handle meter exchanges are also included in this estimate.

3 **Q. ARE THE COSTS DESCRIBED ABOVE REASONABLE?**

4 A. Yes. To put the estimate into context, the Advanced Meter deployment plan cost  
5 estimates are \$3.4 million for overall customer awareness and education, and  
6 \$1.2 million for the Home Area Network (HAN) based on a recommendation of  
7 best practices and a 90-60-30 day communication with customers. The rate  
8 implementation of \$50,000 will be mostly for reconfiguration. There was  
9 approximately \$330,000 of one-time programming and billing expenses  
10 estimated for both the RE-TOU Trial and RD-TDR Pilot implementation as part of  
11 the Three Case Settlement.

1           **IX.    REQUESTS OF THE COMMISSION AND CONCLUSION**

2   **Q.    PLEASE SUMMARIZE THE REQUESTS OF THE COMPANY IN THIS**  
3   **PROCEEDING.**

4   A.    As described above and in the Direct Testimonies of the other witnesses in this  
5   case, Public Service requests that the Commission approve the following  
6   Company proposals:

- 7           1) Implementation of the Modified Schedule RE-TOU as the default rate  
8           structure for all residential customers, with customers transitioning to the  
9           Modified Schedule RE-TOU over time beginning January 1, 2021,  
10          generally as Advanced Meter deployment is completed in their area;
- 11          2) The Company's proposed rate design set forth in Modified Schedule RE-  
12          TOU;
- 13          3) Revisions of the Company's tariff, to be effective January 1, 2021, in order  
14          to implement the Modified Schedule RE-TOU rate. These changes, which  
15          are explained more by Mr. Wishart, include revision of the existing  
16          Schedule R and Schedule RE-TOU to incorporate the Modified Schedule  
17          RE-TOU and transition. They also include changes to Schedule MEP to  
18          reflect the Modified Schedule RE-TOU, and changes to the applicable rate  
19          riders to allow those rate riders to be applied based on a percentage of  
20          base energy charges for Schedule RE-TOU customers, to better align  
21          these rate riders with Modified Schedule RE-TOU's rate design; and
- 22          4) Deferred accounting for incremental additional costs for software changes  
23          and customer education and outreach, which the Company will present for  
24          recovery in a future proceeding.

26   **Q.    DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

27   A.    Yes, it does.

## **Statement of Qualifications**

### **Brooke A. Trammell**

As the Regional Vice President of Rates and Regulatory Affairs, I am responsible for providing leadership, direction, and technical expertise related to regulatory processes and functions for Public Service. My duties include the design and implementation of Public Service's regulatory strategy and programs, and directing and supervising Public Service's regulatory activities, including oversight of rate cases and other related filings. Those duties include: administration of regulatory tariffs, rules, and forms; regulatory case direction and administration; compliance reporting; complaint response; and working with regulatory staffs and agencies. Additionally, I oversee the rate implementation procedures for all of Xcel Energy's utility operating companies.<sup>29</sup>

I accepted the RVP position with Public Service in June 2018 after holding the Director of Customer and Community Relations position in another Xcel Energy Inc. subsidiary, Southwestern Public Service Company, since June 2016. From January 2014 to June 2016, I was Manager, Rate Cases and was responsible for the strategic oversight of SPS's regulatory activity in Texas after being promoted from Case Specialist, the position in which I started with Xcel Energy in September 2012. As a Case Specialist, I supported SPS's proceedings before regulatory authorities in Texas

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<sup>29</sup> Xcel Energy Inc.'s operations include the activity of four wholly owned utility subsidiaries that serve electricity and natural gas customers in eight states. These utility subsidiaries, referred to as operating companies, are Northern States Power-Minnesota serving electric and natural gas customers in Minnesota, North Dakota, and South Dakota; Northern States Power-Wisconsin serving electric and natural gas customers in Wisconsin and Michigan; Southwestern Public Service Company serving electric customers in Texas and New Mexico; and Public Service serving electric and natural gas customers in Colorado.

and New Mexico as well as the Federal Energy Regulatory Commission and led SPS's participation and policy analysis in administrative rulemaking proceedings in all jurisdictions.

Prior to Xcel Energy, I was employed with PNMR Services Company, a wholly-owned subsidiary of PNM Resources, Inc., the parent holding company of Public Service Company of New Mexico and Texas-New Mexico Power Company. I held various roles in the Pricing and Regulatory Services department including Rates Analyst II, Senior Rates Analyst and Project Manager, Federal Regulatory Affairs. In those positions, I provided cost of service, cost allocation, pricing, and rate design analysis to support general rate cases, audited rate calculations and filing packages, and managed regulatory filings and proceedings in the company's retail jurisdictions before managing PNM's regulatory proceedings before FERC and leading strategic regulatory and transmission policy initiatives.

I hold a Master of Business Administration degree from West Texas A&M University along with a Master of Arts degree in Economics with a specialization in Public Utility Regulation and a Bachelor of Science degree in Agricultural Economics and Agricultural Business from New Mexico State University.



BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF COLORADO

\* \* \* \*

IN THE MATTER OF ADVICE NO. )  
1814-ELECTRIC OF PUBLIC SERVICE )  
COMPANY OF COLORADO TO )  
REVISE ITS COLORADO P.U.C. NO. 8 )  
- ELECTRIC TARIFF TO REFLECT A ) PROCEEDING NO. 19AL-XXXXE  
MODIFIED SCHEDULE RE-TOU AND )  
RELATED TARIFF CHANGES TO BE )  
EFFECTIVE ON THIRTY-DAYS' )  
NOTICE. )

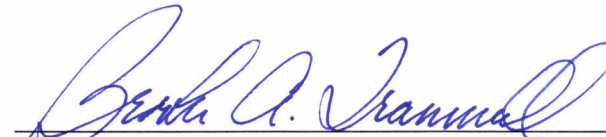
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AFFIDAVIT OF BROOKE A. TRAMMELL  
ON BEHALF OF  
PUBLIC SERVICE COMPANY OF COLORADO

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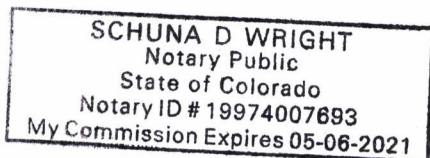
I, Brooke A. Trammell, being duly sworn, state that the Direct Testimony and attachments were prepared by me or under my supervision, control, and direction; that the Direct Testimony and attachments are true and correct to the best of my information, knowledge and belief; and that I would give the same testimony orally and would present the same attachments if asked under oath.

Dated at Denver, Colorado, this 2<sup>nd</sup> day of December, 2019.



Brooke A. Trammell  
Regional Vice President, Rates and Regulatory Affairs

Subscribed and sworn to before me this 2<sup>nd</sup> day of December, 2019.



Schuna D. Wright  
Notary Public

My Commission expires May 6, 2021