

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

* * * * *

IN THE MATTER OF THE)
APPLICATION OF PUBLIC SERVICE)
COMPANY OF COLORADO FOR) PROCEEDING NO. 19A-XXXXE
APPROVAL OF ITS 2020-2021)
RENEWABLE ENERGY COMPLIANCE)
PLAN)

DIRECT TESTIMONY AND ATTACHMENTS OF JACK W. IHLE

ON

BEHALF OF

PUBLIC SERVICE COMPANY OF COLORADO

June 28, 2019

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SUMMARY OF DIRECT TESTIMONY AND ATTACHMENTS OF JACK W. IHLE

1 Mr. Jack Ihle is Director of Regulatory and Strategic Analysis of Xcel Energy
2 Services, Inc. In this position he is responsible for providing direction and regulatory
3 leadership on a number of regulatory processes and functions for Public Service
4 Company of Colorado (“Public Service” or “Company”), one of four utility operating
5 company subsidiaries of Xcel Energy Inc. (“Xcel Energy”). His duties include in part, the
6 direction, project management and implementation of Public Service’s regulatory
7 strategy and programs related to renewable energy (“RE”) plans including customer
8 choice programs.

9 In his testimony, Mr. Ihle presents an overview of the Company’s 2020-2021
10 Renewable Energy Compliance Plan (“2020-21 RE Plan” or “Plan”), which is
11 summarized in the Table below, as well as the RESA impacts of the proposed plan.

1

2020-21 Renewable Energy Plan - Program Summary

	2020	2021	Total RE Plan
Program	Capacity (MW)	Capacity (MW)	Capacity (MW)
Solar*Rewards Small (≤ 25 kW)	12	12	24
Solar*Rewards Medium (25 to ≤ 500 kW)	20	20	40
Solar*Rewards Large RFP (> 500 kW)	20	20	40
Low-income On-Site Solar (CEO) (≤ 3.5 kW) ¹	0.35	0.35	0.7
TOTAL ON-SITE SOLAR*REWARDS	52.4	52.4	104.7
Uncapped (net-metered only) solar (projected)	32	32	64
TOTAL ON-SITE SOLAR PROJECTIONS	84.4	84.4	168.7
General Solar*Rewards Community RFP (Max)	35	35	70
Low-income Solar*Rewards Community RFP	4	4	8
Solar*Rewards Community Standard Offer (Low-Income + Standard)	5	5	10
Low-income Solar*Rewards Community Company-Offered	4	4	8
TOTAL SOLAR*REWARDS COMMUNITY	48	48	96
TOTAL SOLAR*REWARDS - ALL PROGRAMS IN PLAN	100.4	100.4	200.7
TOTAL ON-SITE SOLAR PROJECTIONS - ALL TYPES	132.4	132.4	264.7

2 Public Service's 2020-21 RE Plan proposes a two-year roadmap that continues
 3 to demonstrate the Company's leadership in transiting to a more sustainable energy
 4 future, powered with less carbon-intensive fuel sources. The Company considers the
 5 2020-21 RE Plan to be a bridge plan that facilitates the shift from the significant
 6 changes we have been implementing for the last two-and-a-half years under the 2017-
 7 2019 RE Plan, to what could become a dramatically different RE Plan that is expected

¹ There is a slight difference in actual proposed totals due to rounding.

1 for the years 2022 through 2025. That next 2022-25 RE plan will be influenced by new
2 rules being developed as part of the Notice of Proposed Rulemaking (“NOPR”)
3 Proceeding that is currently underway (Proceeding No. 19R-0096E), by Distribution
4 System Planning (“DSP”) rules that SB 19-236 directed the Commission to develop, and
5 also potentially by the legislative direction in SB 19-236 to include as part of the next
6 resource plan a transformative Clean Energy Plan that will achieve 80 percent carbon
7 dioxide emissions reductions by 2030. Here in this 2020-21 RE Plan, we seek to
8 continue the progress made on renewable energy development and customer choice in
9 a logical progression while these significant changes are developed and implemented.

10 Public Service is well ahead of all requirements under Colorado’s Renewable
11 Energy Standard (“RES”). Under the 2020-2021 RE Plan, the Company proposes a
12 measured increase in renewable energy programs and related customer choice market
13 activities. The Company’s overall strategy with this Plan is to continue the progress we
14 have made to date while proposing some minor modifications to our programs in order
15 to “right size” them to customer demand; examples of this include the expansion of
16 certain programs, small reductions in other programs, or transfers of capacity between
17 programs. We also make some incremental changes to program administrative policies
18 and practices. The Company is implementing these changes based on our experience
19 in operating renewable energy programs in multiple states, trends in renewable energy
20 markets, and consideration of costs to program non-participants as well as participants.
21 Public Service believes this Plan advances the goal of satisfying Colorado’s growing

- 1 energy needs in the most reliable, clean and affordable way possible. We respectfully
- 2 ask the Commission for its approval.

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GLOSSARY OF ACRONYMS AND DEFINED TERMS

<u>Acronyms/Defined Term</u>	<u>Meaning</u>
2017-19 RE Plan	Public Service's 2017-2019 Renewable Energy Compliance Plan
2020-21 RE Plan, RE Plan, Plan, or Compliance Plan	Public Service's 2020-2021 Renewable Energy Compliance Plan
CEO	Colorado Energy Office
CEP	Colorado Energy Plan
Commission	Colorado Public Utilities Commission
CSG	Community Solar Garden
DER	Distributed Energy Resources
DG	Distributed Generation
DSM	Demand Side Management
DSP	Distribution System Planning
ECA	Electric Commodity Adjustment
EOC	Energy Outreach Colorado
ERP	Electric Resource Plan
HB 19-1003	House Bill 19-1003
kW	Kilowatt
kWh	Kilowatt-hour
Motion	Motion to Extend 2017-19 RE Plan Through First Quarter 2020
MW	Megawatt

<u>Acronyms/Defined Term</u>	<u>Meaning</u>
MWh	Megawatt-Hour
NEM-Only	Net Energy Metering Only
Non-DG	Non Distributed Generation
NOPR	Notice of Proposed Rule Making
No RES Plan	Company's Plan to acquire only non-renewable resources
NVP	Net Present Value
PLA	Project Labor Agreement
PPA	Power Purchase Agreement
Public Service or Company	Public Service Company of Colorado
PV	Photovoltaic
QRU	Qualified Retail Utility
RE	Renewable Energy
REC	Renewable Energy Credit
RD TOU	Residential Demand Time of Use Rate Schedule
RFP	Request for Proposal
RES	Renewable Energy Standard
RESA	Renewable Energy Standard Adjustment
RES Plan	Renewable Energy Standard Plan
Retail DG	Retail Distributed Generation
SB 19-236	Senate Bill 19-236

<u>Acronyms/Defined Term</u>	<u>Meaning</u>
Schedule RE	Recycled Energy Service
SRCS Tariff	Solar*Rewards® Community Service Tariff
Wholesale DG	Wholesale Distributed Generation
Xcel Energy	Xcel Energy Inc.

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I. INTRODUCTION AND OVERVIEW

1

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is Jack W. Ihle. My business address is 1800 Larimer Street, Denver,
4 Colorado 80202.

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

6 A. I am employed by Xcel Energy Services, Inc., a wholly-owned subsidiary of Xcel
7 Energy Inc., which is the parent company of Public Service Company of
8 Colorado. My job title is Director, Regulatory and Strategic Analysis.

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

10 A. I am testifying on behalf of Public Service Company of Colorado.

1 **Q. HAVE YOU INCLUDED A DESCRIPTION OF YOUR QUALIFICATIONS,**
2 **DUTIES, AND RESPONSIBILITIES?**

3 A. Yes. A description of my qualifications, duties, and responsibilities is included at
4 the end of my testimony.

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

6 A. The purpose of my testimony is to provide an overview of the Company's 2020-
7 2021 Renewable Energy Compliance Plan ("2020-21 RE Plan, RE Plan, Plan, or
8 Compliance Plan") including an introduction of the Company witnesses filing
9 testimony in support of the Plan. I explain the legislative background concerning
10 Colorado's Renewable Energy Standard ("RES"), present the requirements the
11 Company must meet in order to comply with the RES and the Commission's
12 Renewable Energy Standard Plan ("RES Plan") Rules, and demonstrate why our
13 Plan meets and exceeds those thresholds.

14 I describe our proposals to continue the growth of our robust customer
15 choice programs made-up of Eligible Energy Resources over our acquisition
16 planning period of 2020 through 2021, and our proposal to bridge these
17 programs to the next RE Plan and Electric Resource Plan ("ERP") processes
18 which are expected to operate under new Commission rules.

19 Lastly, I provide an overview of the cost recovery under the Renewable
20 Energy Standard Adjustment ("RESA") and provide a list of approval requests.

1 **Q. HAS THE COMPANY PROVIDED A COPY OF ITS 2020-21 RE PLAN AS**
2 **PART OF ITS APPLICATION?**

3 A. Yes, the Company's 2020-21 RE Plan is attached to my testimony, incorporated
4 by reference into the Application, in three Volumes. Attachment JW1-1 is Volume
5 1 of the 2020-21 RE Plan. Attachment JW1-2 is Volume 2. Attachment JW1-3 is
6 Volume 3.

7 **Q. PLEASE PROVIDE AN OVERVIEW OF THE CONTEXT FOR PUBLIC**
8 **SERVICE'S 2020-21 RE PLAN.**

9 A. The Company is pleased to state that we have been in compliance with
10 Colorado's RES every year and we are exceeding the compliance standard
11 today. This has been achieved in large part because Public Service has taken a
12 proactive approach to adding Eligible Energy Resources to our system.
13 Leadership on these types of acquisitions has been beneficial to our customers
14 and the State of Colorado. The Colorado Energy Plan ("CEP"), approved under
15 the most recent ERP (Proceeding Number 16A-0396E), is the latest example of
16 this proactive approach that will transform our electric system to more than fifty
17 percent renewable energy by 2026. We appreciate the support of the Colorado
18 Public Utilities Commission ("Commission") and the numerous institutions and
19 individuals who have helped make these results possible.

20 In December of 2018, in Denver, Xcel Energy announced a set of
21 ambitious and industry-leading clean energy objectives. The Company,
22 corporate-wide, set an objective to reduce carbon dioxide emissions from our

1 electricity business by 80 percent below 2005 levels by 2030, and an aspirational
2 objective to emit zero emissions from our electric system by 2050. Under the
3 recently-signed Senate Bill 19-236 (“SB 19-236”), the Colorado Legislature
4 created a framework for the Commission to oversee plans for the Company to
5 achieve an 80 percent reduction by 2030. These ambitious objectives provide a
6 focal point for many of our business’ policy and strategy decisions as we look
7 forward.

8 Significant changes to resource planning specific to Eligible Energy
9 Resource planning (RES rules and Community Solar Garden (“CSG”) Rules) are
10 currently being evaluated by the Commission in an ongoing Rulemaking
11 Proceeding (Proceeding No. 19R-0048E). In addition, other rule changes being
12 discussed in that proceeding (*e.g.* ERP rules, net metering rules, qualify facility
13 rules, and interconnection procedure rules) will all also affect renewable
14 resources in Colorado. Notably, the Commission will begin a process to
15 establish Distribution System Planning (“DSP”) rules per legislative direction in
16 Senate Bill 19-236. Therefore, we are filing this Plan at a time when Colorado’s
17 perspectives on renewable energy are evolving, yet when the regulatory
18 processes to implement the state’s policy objectives have not fully run their
19 course. The ongoing changes to current Commission Rules and recent changes
20 to key statutes are a main driver of our decision to file this as a two-year “bridge”
21 plan.

1 **Q. PLEASE PROVIDE AN OVERVIEW OF PUBLIC SERVICE'S 2020-21 RE**
2 **PLAN.**

3 A. The Company's 2020-21 RE Plan continues to build on the successes it has had
4 in a logical progression while the significant events discussed previously are
5 developed and implemented. The Company considers the 2020-21 RE Plan to
6 be a bridge plan from the significant changes we have been implementing under
7 Public Service's 2017-2019 Renewable Energy Compliance Plan("2017-19 RE
8 Plan") to what could become a dramatically different RE Plan for the years 2022
9 through 2025. That next 2022-25 RE Plan will be influenced greatly by the new
10 rules, and potentially by the next ERP, as described above. This Plan furthers
11 what we believe should be the goal of every utility company: the provision of
12 energy in the most reliable, clean, and affordable way possible.

13 The Company's overall strategy with this Plan is to carry on with the
14 progress we have made to date while proposing some minor modifications to our
15 programs in order to "right size" them to customer demand; examples of this
16 include the expansion of certain programs, small reductions in other programs, or
17 transfers of capacity between programs. We also make some incremental
18 changes to program administrative policies and practices. The Company is
19 implementing these changes based on our experience in operating renewable
20 energy programs in eight states, trends in renewable energy markets in
21 Colorado, and consideration of costs to program non-participants as well as
22 participants. The Company updates various materials in Volume III of this Plan

1 (including contracts) which were in need of being refreshed. We respectfully ask
2 the Commission to approve our Plan.

3 **Q. PLEASE PROVIDE A SUMMARY OF THE ELIGIBLE ENERGY CAPACITY**
4 **ADDITIONS THE COMPANY IS PROPOSING IN THIS PLAN.**

5 A. Table JWI-D-1 below summarizes the Company's proposed capacity additions in
6 this Plan.

1
2

**Table JWI-D-1: 2020-21 Renewable Energy Plan – Solar Programs Capacity
 Summary (MW_{DC})²**

	2017-2019 Plan	2020	2021	Total RE Plan
Program	Avg. Capacity (MW)	Capacity (MW)	Capacity (MW)	Capacity (MW)
Solar*Rewards Small (≤25 kW)	24	12	12	24
Solar*Rewards Medium (25 to ≤500 kW)	24	20	20	40
Solar*Rewards Large RFP (>500 kW)	10	20	20	40
Low-income On-Site Solar (CEO) (≤3.5 kW)*	0.35	0.35	0.35	0.7
TOTAL ON-SITE SOLAR*REWARDS	58.4	52.4	52.4	104.7
Uncapped (net-metered only) solar (projected)**	20	32	32	64
TOTAL ON-SITE SOLAR PROJECTIONS	78.4	84.4	84.4	168.7
General Solar*Rewards Community RFP (Max)***	35	35	35	70
Low-income Solar*Rewards Community RFP	4	4	4	8
Solar*Rewards Community Standard Offer **** (Low-Income + Standard)	1	5	5	10
Low-income Solar*Rewards Community Company-Offered	2	4	4	8
TOTAL SOLAR*REWARDS COMMUNITY	41	48	48	96
TOTAL SOLAR*REWARDS - ALL PROGRAMS IN PLAN	99.4	100.4	100.4	200.7
TOTAL ON-SITE SOLAR PROJECTIONS - ALL TYPES	119.4	132.4	132.4	264.7
*The 2017-2019 RE Plan target 300 projects, at 3.5 kW each, over three years, which equals 0.35 MW per year. There is a slight difference in total Plan proposal due to rounding.				
** Net Metered Only system capacity is not governed by this Plan; numbers shown to illustrate potential Net Meter Only solar applications based on historic trends that may change in the future. 32 MW is the Net Metered Only capacity installed during 2018.				
***Minimum and maximum annual awards to be determined during award solicitation and evaluation. Recommended minimum capacity for S*RC is 15 MW per year.				
****The 1 MW of Standard Offer CSGs (standard + Low-income), Company-Offered CSGs and Standard CSG RFP capacity are included in the 35 MW of S*RC capacity in the 2017-19 Plan. This Plan specifies the totals individually for clarity.				
****The Company proposes to continue the low-income Standard Offer at the same level, 0.5 MW, as under the 2017 19 RE Plan.				

² Total and subtotal capacity amounts are rounded for presentation purposes. Not included in Table JWI-D-1 is the annual capacity for the Company's Recycled Energy program which the Company will continue to offer at 20 MW per year.

1 **Q. WHAT DOES THE COMPANY PROPOSE FOR TIMING OF APPROVAL OF**
2 **THE 2020-21 RE PLAN?**

3 A. The Company notes that the 2019 legislative session posed two challenges with
4 respect to the timing around this Plan filing. The first was the clear need to wait
5 for legislative developments to be finalized before completing the Company's
6 proposals and filing this Plan, as Section III covers in more detail. The second
7 challenge was the modification to the procedural deadlines set forth in § 40-6-
8 109.5, C.R.S. Senate Bill 19-236 extended the deadline for a Commission
9 decision by up to 40 days such that the procedural timeline may span a period of
10 250 days from the date of filing an application with the Commission.

11 Given these two factors, the Company recognizes it is unlikely we will be
12 able to conduct the full proceeding and receive a final decision by the end of
13 2019, when the current 2017-19 RE Plan expires. The Company recognizes this
14 difficulty and is proposing a solution that will provide customers and stakeholders
15 with continuity and certainty through the first quarter of 2020. As explained in the
16 Company's concurrently-filed Motion to Extend 2017–19 RE Plan Through First
17 Quarter 2020 ("Motion"), and in the Direct Testimony of Ms. Kerry R. Klemm,
18 Public Service is proposing a path that will allow it to offer the total annual
19 capacity levels prescribed for its Solar*Rewards® and Solar*Rewards
20 Community® programs in 2020 and 2021. The Company's proposal would
21 essentially extend the 2019 capacity levels on a pro rata basis through the first
22 quarter of 2020. In situations where the 2020 capacity levels differ from the

1 capacity levels that were in effect in 2019, the Company will calculate its monthly
2 or quarterly capacity offerings for the remainder of 2020 to meet the annual
3 requirement. Depending on the difference in the 2019 and 2020 requirements,
4 this may result in an upward or downward adjustment to the monthly or quarterly
5 offering for the second, third, and fourth quarters of 2020. The Company
6 anticipates this approach will only impact its Solar*Rewards® Small and Medium
7 programs, as it will issue Requests for Proposal (“RFPs”) for the Solar*Rewards®
8 Large and Solar*Rewards Community® programs promptly after a final decision
9 is entered in this proceeding.

10 While the Company is open to an expedited procedural schedule for this
11 proceeding, our proposal will allow for this proceeding to be heard within the new
12 timeline authorized by SB 19-236, and without negatively affecting program
13 offerings.

1 **II. WITNESS INTRODUCTIONS**

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 summary of the Company's
5 witnesses also submitting direct testimony in this proceeding and discuss how
6 the various components of the 2021-21 RE Plan comply with the Commission's
7 rules regarding RE plans.

8 **Q. PLEASE INTRODUCE THE OTHER COMPANY WITNESSES AND EXPLAIN**
9 **HOW THEIR TESTIMONY MEETS THE FILING REQUIREMENTS OF**
10 **COMMISSION RULE 3657?**

11 A. The following witnesses are providing testimony in support of this application.

- 12 • Ms. Jannell E. Marks, the Director of Sales, Energy and Demand Forecasting,
13 sponsors Section 3 of Attachment JWI-1. Ms. Marks presents the Company's
14 actual and forecasted sales from 2008 through 2030, which reflect the RES
15 compliance requirements in Attachment JWI-2, Table 4-1 per Rule
16 3657(b)(IV);
- 17 • Ms. Tara Fowler, Manager, Renewable Energy Power Purchases, sponsors
18 Section 4 of Attachment No. JWI-1. Ms. Fowler describes the Company's
19 estimates of the RECs that it needs to meet the RES; the Company's
20 projected REC transfers; the Company's Windsource® sales; and any RECs
21 traded. She also sponsors Tables 4-1 through 4-4 in Attachment JWI-2,

1 which provide estimated REC production by resource. This Section and
2 Tables are responsive to Rule 3657(b)(V) and 3657(b)(XV);

- 3 • Ms. Kerry R. Klemm, Manager, Consumer Product Management. Ms. Klemm
4 sponsors portions of Sections 5 and 6 of the Company's Plan. She presents
5 the Company's proposed Solar*Rewards®, Solar*Rewards Community®, and
6 Windsorce® offerings in 2020 and 2021. Ms. Klemm also sponsors Volume
7 III of the Plan (Attachment JW1-3). These Sections respond to Rules
8 3657(b)(VII), (VIII), (X), (XII), (XIII) and (XVII);

- 9 • Mr. Alex G. Trowbridge, Principle Pricing Analyst. Mr. Trowbridge sponsors
10 the portions of Attachment JW1-1, Section 5 relating to Non-DG and
11 Wholesale DG resources on the system. Mr. Trowbridge also sponsors
12 Attachment JW1-1, Section 7 of the Plan. Through Section 7 Mr. Trowbridge
13 supports the RESA calculations, which project the retail rate impact for the
14 period from 2020 through 2029. Section 7 describes the requirements of
15 Rule 3661(h)(V) regarding the resetting the incremental costs of eligible
16 energy resources previously locked down under prior compliance plans. Mr.
17 Trowbridge also sponsors Tables 7-2 and 7-3, which provide the various
18 costs and credits to the RESA which are presented in Attachment JW1-2.
19 Section 7 is responsive to Rules 3657(b)(I), (II), (III), (VI), (VII), and (IX).

20 **Q. WHAT SECTIONS OF THE PLAN DO YOU SPONSOR?**

21 A. I sponsor the following Sections of Volume I (Attachment JW1-1) of the Plan:

- 22 • Section 1 is the Executive Summary;

- 1 • Section 2 briefly summarizes the various sections of the Plan and lists the
2 filing requirements contained in Rule 3657;
- 3 • Section 8 describes the cost recovery mechanisms and accounting treatment
4 associated with implementing the RES, which is responsive to Rule 3657
5 (b)(VI). The RESA has a cumulative positive balance and is expected to
6 remain positive through the planning horizon.
- 7 • Section 9 describes the Company’s net metering provisions consistent with
8 Colorado law and the Commission rules. Currently, the Company offers
9 customers with customer-sited renewable resources the ability to offset their
10 energy charge commensurate with the kilowatt hours (“kWh”) of energy
11 produced by their on-site renewable resource. Section 9 is responsive to Rule
12 3657(b)(XVI).
- 13 • Section 10 states that Public Service is not proposing any changes to the
14 Commission’s interconnection rules or requirements at this time (Rule 3667).
15 Volume III (Attachment JWI-3) includes the Company’s Solar*Rewards
16 standard contracts, Request for Proposal (“RFPs”) and Interconnection
17 Agreements. This Section is responsive to Rule 3657 (b)(X).
- 18 • Section 11 is the Conclusion. It lists the approvals requested by the
19 Company in our 2020-21 RE Plan. This Section is responsive to Rule
20 3657(c).

1 **Q. ARE THERE ANY OTHER FILING REQUIREMENTS UNDER RULE 3657 YOU**
2 **WISH TO ADDRESS AT THIS TIME?**

3 A. Yes. Rule 3657 (b)(XI) requires the Company indicate its ownership investment
4 outlook for any Eligible Energy Resources.

5 **Q. DOES THE COMPANY HAVE ANY PLANS TO ACQUIRE ELIGIBLE ENERGY**
6 **RESOURCES DURING 2020 AND 2021?**

7 A. Yes, the Company is proposing to add 8 MW of Company-owned CSGs as part
8 of its 2020-21 RE Plan as described later in my testimony and in Ms. Klemm's
9 testimony.

10 **Q. WHY IS IT APPROPRIATE TO PLAN FOR THE YEARS 2020 AND 2021 IN**
11 **THIS PLAN?**

12 A. As stated earlier, the Company proposes this 2020-21 RE plan as a bridge plan.
13 We believe that offering a plan covering 2020 and 2021 that carries existing
14 established renewable programs through 2021, to a time where recent legislative
15 and future regulatory developments are finalized, is the appropriate course. As
16 referenced above, three main factors have influenced our thinking. The first is
17 the ongoing Commission NOPR that covers, among other topics, ERP and RES
18 plan rules with numerous specific issues which will need to be incorporated into
19 future RES planning. Notably, the proposed NOPR creates a process under
20 which the ERP and RES plan would be more synchronized; our two-year
21 proposal for this 2020-21 RE plan would create the possibility for that alignment
22 between our next ERP and our next RES plan. The second of these factors is

1 the requirement under SB 19-236³ for the Commission to develop DSP rules.
2 We presume that the Commission will take up a DSP rulemaking in coming
3 months. While we do not yet have visibility on the end date of that process, it is
4 likely that significant progress on DSP rules could have material impact on the
5 RES planning process within the next one to two years. Finally, SB 19-236 also
6 creates a planning process for the Company to include, within its next ERP filing,
7 a Clean Energy Plan meeting emissions targets of 80 percent reduction from
8 2005 levels by 2030.⁴ We expect that such Clean Energy Plan will be a
9 significant undertaking and could have RESA and renewable energy planning
10 impacts. It will be proposed and litigated under ERP rules still to be finalized.

³ Codified at § 40-2-132, C.R.S. (2019).

⁴ Section 40-2-125.5(4), C.R.S. (2019).

1 **III. LEGISLATIVE AND REGULATORY BACKGROUND**

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

4 A. In this section of my testimony, I provide a history of the implementation of the
5 RES in Colorado and discuss the implications of the recent legislation introduced
6 and signed into law in the 2019 legislative session that pertains directly to the
7 Company's 2020–21 RE Plan presented in this proceeding.

8 **Q. PLEASE PROVIDE THE LEGISLATIVE HISTORY FOR THE COMPANY'S**
9 **2020 RE PLAN.**

10 A. In 2004 the citizens of Colorado approved a RES through Ballot Amendment 37,
11 which required certain electric utilities to generate or cause to be generated 10
12 percent of their energy from renewable energy resources by 2020, with lower
13 intermediate standards beginning in 2007. In 2007, the General Assembly
14 expanded the RES to 20 percent renewable energy by the year 2020 under
15 House Bill 07-1281, which kept most of the original framework of Amendment 37
16 but increased the amount that could be charged to customers to acquire
17 renewable energy from one percent to two percent of the customer's total bill.

18 Further changes to the RES were enacted through the General
19 Assembly's passage of House Bill 10-1001 (HB 10-1001) in 2010. The passage
20 of HB 10-1001 resulted in a 30 percent RES requirement by 2020. Another
21 significant change brought about through HB 10-1001 was the elimination of a
22 solar-specific RES component. The solar-specific RES was replaced with a

1 higher level Distributed Generation (“DG”) standard. By 2020, HB 10-1001
2 requires investor owned qualified retail utilities (“QRUs”) to acquire DG equal to 3
3 percent of their retail sales.

4 There were two types of DG created by HB 10-1001: (1) retail distributed
5 generation (“Retail DG”), defined as a renewable energy resource that is
6 designed primarily to provide electric energy to serve the customer's load which
7 is located on the site of a customer's facilities and interconnected on the
8 customer's side of the utility meter; and (2) wholesale distributed generation
9 (“Wholesale DG”), defined as a renewable energy resource in Colorado with a
10 nameplate rating of 30 megawatts (“MW”) or less that does not qualify as retail
11 distributed generation. At least one-half of the DG standard must be met with
12 retail DG. Throughout this Plan, the Company refers to the various mandates of
13 the RES as “Wholesale DG”, “Retail DG”, and “Non-DG” to ensure that we meet
14 the total RES and the minimum requirements in each category.

15 In 2010, House Bill 10-1342 established what are commonly termed
16 “community solar gardens”, or “CSGs”. Customers may participate in these
17 community solar projects by acquiring a share of a larger facility for purposes of
18 receiving a dollar credit on their electric bills commensurate with their share of
19 the solar garden generation that they acquired. This bill directed the Commission
20 to establish the minimum and maximum capacity levels.

21 In 2013, Senate Bill 13-252 (“SB 13-252”) was enacted to expand the RES
22 compliance to cooperative electric associations and expand the definition of

1 Eligible Energy Resources to include resources using coal mine methane and
2 synthetic gas produced by pyrolysis of municipal solid waste. House Bill 15-1284
3 (“HB 15-1284”), enacted in 2015, changed the requirement for the physical
4 location of a solar garden. HB 15-1284 expanded the authority of a CSG to be
5 able to offer subscriptions to customers located in the same county to the
6 customers in adjacent counties.

7 **Q. DID ANY NEW LEGISLATION PASS IN 2019 THAT AFFECTS THIS 2020-21**
8 **RE PLAN?**

9 A. Yes. In the 2019 Legislative Session the Colorado General Assembly passed
10 House Bill 19-1003 (“HB 19-1003”), which changes the CSG program in several
11 ways. The bill increases the maximum system size from 2 MW to 5 MW.⁵ In
12 addition, HB19-1003 removes the requirement that CSGs obtain subscribers
13 from the county where they are located or in an adjacent county. This change
14 allows CSGs to be located anywhere in Public Service’s electric service territory
15 and subscribe customers also from anywhere in the electric service territory.
16 Further, HB 19-1003 requires the Commission to initiate or consider in an
17 ongoing proceeding by January 30, 2020 whether the subscriber or the Company
18 shall receive the REC generated by a solar garden. As explained in Ms.
19 Klemm’s Direct Testimony, the Company plans to implement these changes,
20 along with any other Commission-approved changes that impact its

⁵ On or after July 1, 2023, the Commission has the statutory ability to decide whether CSGs maximum size should be expanded up to 10MW.

1 Solar*Rewards Community® offerings, once the Commission issues its final
2 rules, though it of course will implement such changes earlier if ordered by the
3 Commission.

4 The Colorado General Assembly also passed SB 19-236, a bill covering a
5 number of issues affecting the Commission and the electric utility industry in
6 Colorado. Of particular relevance to this proceeding, SB 19-236 includes a
7 provision (codified at § 40-3.2-106, C.R.S.) that requires electric public utilities to
8 consider the cost of carbon “when determining the cost, benefit or net present
9 value” of plans submitted for resource planning, RES planning, electric DSM
10 planning, and beneficial electrification plans. The cost of carbon provisions
11 specify the use of the federal government’s most recent social cost of carbon, but
12 in any case the social cost of carbon must be at least \$46 per ton. This provision
13 on the cost of carbon does not prohibit the Commission or the Company from
14 also considering other costs for carbon emissions. Later in my Direct Testimony,
15 I present an estimated externality benefit and an avoided cost benefit from
16 avoided emissions related to programs in this Plan.

17 **Q. PLEASE DESCRIBE THE RES REQUIREMENTS THAT THE COMPANY**
18 **MUST MEET.**

19 A. As shown below in Table JWI-D-2, the Company must meet the identified
20 thresholds for the three distinct types of Eligible Energy Resources. Notably, in
21 2020, the first year of this Plan, the RES reaches its maximum statutory levels
22 anchored by a 30 percent overall Eligible Energy Resource requirement.

1

Table JWI-D-2: Renewable Energy Standard

Period	RES	DG	Retail DG
2015–2016	20% of retail sales	1.75% of retail sales	At least ½ of DG
2017–2019	20% of retail sales	2% of RES	At least ½ of DG
2020 and beyond	30% of retail sales	3% of retail sales	At least ½ of DG

2 **Q. HAS THE COMPANY COMPLIED WITH THE RES?**

3 A. Yes. Every year since the RES requirement went into effect, the Company has
4 presented RES Compliance plans that allow Public Service to meet and exceed
5 the RES. The Company has also filed with the Commission annual compliance
6 reports under Rule 3662 demonstrating the Company's continued compliance
7 with the RES.

8 **Q. WILL PUBLIC SERVICE BE IN POSITION TO COMPLY WITH THE RES FOR**
9 **COMPLIANCE YEARS 2020 AND 2021?**

10 A. Yes. The Company is ahead of its compliance requirements in all categories of
11 the standard (Retail DG, Wholesale DG, and Non-DG) and will be able to meet
12 the 2020 and 2021 RES requirements without additional generation acquisitions.
13 This 2020-21 RE Plan requests an overall increase in solar acquisition levels for
14 our Solar*Rewards® programs, with some adjustments, while doing so in an
15 economic manner without negatively impacting the RESA.

1 **Q. IS THE PURPOSE OF THE RES PLAN CHANGING OVER TIME?**

2 A. Yes, I believe that it is. When originally created, the RES plan process was
3 concerned with ensuring that the Company would seek to acquire renewable
4 energy to comply with the targets of the RES. However, as established
5 elsewhere in my testimony and detailed in the Direct Testimony of Ms. Fowler,
6 the Company is well ahead of all required targets, and meeting RES compliance
7 is no longer a primary driver for utility acquisition of renewables today. The
8 largest category of these targets, the Non-DG portion covering 90 percent of the
9 RES mandate, has been and is being met through economic acquisitions made
10 under the ERP process rather than under the RES plan. The focus of our current
11 Plan is now concerned with RES compliance mostly as a formality. The critical
12 issues in the RES plan process have instead shifted toward providing the
13 Commission with information and oversight of the RESA fund, and also toward
14 planning renewable customer choice programs. These customer choice
15 programs include Windsource®, Solar*Rewards® (Small, Medium, and Large),
16 Solar*Rewards Community®, Recycled Energy, and Renewable*Connect®.

1 **IV. THE RENEWABLE ENERGY LANDSCAPE**

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

4 A. In this section of my testimony, I discuss the Company's programs dedicated to
5 the provision of renewable energy for all classes of customers. I provide detail
6 regarding the level of customer participation in such programs, the declining cost
7 of renewable energy and the associated impacts those costs have on carbon
8 reduction goals, as well as potential future changes to the compensation
9 structure of our customer choice renewable energy programs.

10 **Q. PLEASE PROVIDE AN OVERVIEW OF THE CURRENT STATE OF**
11 **RENEWABLE CUSTOMER CHOICE PROGRAMS AVAILABLE TO PUBLIC**
12 **SERVICE COMPANY CUSTOMERS.**

13 A. Together, more than 100,000 customers, or 7 percent of our total retail
14 customers, participate in some form of a renewable customer choice program.
15 The programs attract participation from both residential and non-residential
16 customers, with roughly half of total program capacity going to each. In total, the
17 Company's renewable choice offerings have supported about 560 MW of
18 renewable energy. For two decades, Windsource® has provided an affordable
19 option for customers to obtain up to 100 percent renewables. Additionally, the
20 Company provides on-site solar programs for every customer size. Public
21 Service's Solar*Rewards Community® program offers an option for all types of
22 customers, whether residential, commercial, or low-income, without a suitable

1 roof, or for those who may not want to own or manage an on-site solar system.
 2 Though we are not proposing any changes to the program in this proceeding,
 3 Renewable*Connect offers a larger-scale option that can be used by any
 4 customer, but is particularly attractive to larger corporations or municipal
 5 customers who wish to have their utility provider help them to achieve
 6 sustainability or renewable energy goals. Please see Table JWID-3 below
 7 which shows how our customers are participating in our robust Customer Choice
 8 program offerings.

9 **Table JWID-3: Participation in Customer Choice Programs**

Program	Number of Customers	RES/C&I Proportion by Customer Count	Renewable Capacity Supported (MW)	RES/C&I Proportion by Capacity
WindsorSource*	51,988	98% / 2%	62	72% / 28%
Solar*Rewards Small	34,469	95% / 5%	195	96% / 4%
Solar*Rewards Medium	1,411	36% / 64%	104	7% / 93%
Solar*Rewards Large	35	0% / 100%	32	0% / 100%
Net Metering Only Small	11,102	88% / 12%	63	90% / 10%
Net Metering Only Medium	16	19% / 81%	2	1% / 99%
Net Metering Only Large	1	0% / 100%	1	0% / 100%
Solar*Rewards Community**	1,611	64% / 36%	54	9% / 92%
Renewable*Connect	3,411	79% / 21%	50	14% / 86%
Total	104,044	94% / 6%	563	55% / 45%

10 *WindsorSource® capacity is estimated based on 2018 WindsorSource® energy purchased and capacity factor
 11 of wind resources that supplied the program.

12 **Solar*Rewards Community® capacity shown for end-of-year 2018; this program is growing rapidly with
 13 75 MW now installed and 105 MW expected by end-of-year 2019

14 **Q. IS THE COST OF RENEWABLE ENERGY DECLINING?**

15 A. Yes, the cost of both wind and solar, small and large-scale, has been declining
 16 over the last few years.

1 **Q. WHAT TYPES OF COSTS HAS THE COMPANY SEEN FOR LARGE-SCALE**
2 **RENEWABLE ENERGY?**

3 A. In the CEP the Commission approved as part of the Company's 2016 ERP,
4 successful bids included wind at levelized cost of energy pricing between \$11-
5 \$21 per megawatt-hour ("MWh"), solar between \$23-\$27/MWh, and solar with
6 storage between \$30-\$32/MWh.⁶ A highly competitive RFP yielded more than
7 400 bids. These levelized price numbers are multiples below the prices we
8 currently pay as part of power purchase agreements ("PPAs") secured within the
9 past ten years for wind and solar. Of course, solar with storage was not a
10 commercial option ten years ago.

11 From system and non-participant perspectives, policy and market
12 structures surrounding solar investment in Colorado have driven down costs on
13 larger solar installations, but less so for smaller solar. For larger utility-scale
14 solar installations, such as those acquired through our resource plans, costs are
15 declining through increased competition, economies of scale afforded by the
16 vertically-integrated utility model, technology enhancements, and other carefully
17 balanced and debated resource acquisition decisions.

18 **Q. HAVE COST SAVINGS SIMILARLY DEVELOPED FOR THE MORE RECENT**
19 **ADDITIONS OF SMALL-SCALE RENEWABLES?**

20 A. No. For smaller solar installations, notably the Solar*Rewards Small® program
21 that incentivizes residential and small business with installations up to 25

⁶ 2016 ERP, 120-Day Report, page 51, Public Service Company of Colorado, June, 2018.

1 Kilowatts (“kW”), significant components of the compensation policies such as
2 Net Energy Metering have been fixed since the program’s inception. Those
3 customers are effectively credited at the retail price for electricity for their
4 generation, and the costs have followed the retail rate. To the extent
5 fundamental costs in the Solar*Rewards Small® program may have declined in
6 recent years, the decline is not readily apparent to the Company or the
7 Commission because the policy fixes the compensation structure. In a similar
8 vein, the Company’s Solar*Rewards Community® program uses a bill credit
9 structure that has been largely directed by the legislature,⁷ and cannot be
10 significantly reduced under current statute. Under these types of compensation
11 policies, non-participants may not be fully realizing cost declines occurring in the
12 market because the policy structure has not changed.

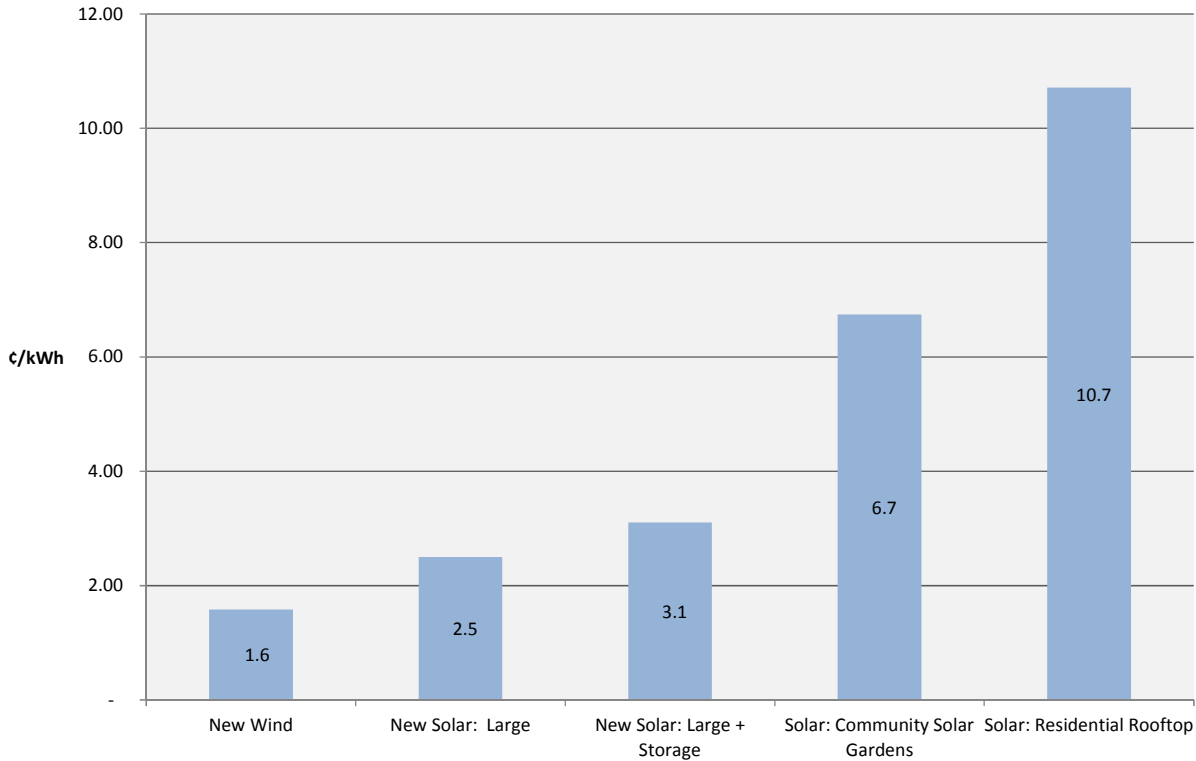
13 **Q. DO THESE FACTORS RESULT IN SIGNIFICANT DIFFERENCES BETWEEN**
14 **LARGE AND SMALL RENEWABLE RESOURCES IN THE BUSBAR PRICE**
15 **FOR ENERGY?**

16 A. Yes. Figure JW1-D-1 below shows this clearly. Focusing on solar, the Company
17 is in the process of implementing PPAs under the CEP for large-scale solar
18 installations at an average price of 2.5¢/kWh or \$25/MWh. Large scale solar with
19 storage is available for roughly \$30-\$32/MWh. The average bill credit for CSG
20 installations is about 7¢/kWh or \$70/MWh (though negative price REC bids can
21 effectively lower this bill credit to some degree). Small rooftop solar installations

⁷ Section 40-2-127(5)(IV)(E)(b)(II), C.R.S.

1 are effectively compensated under NEM policies at \$110/MWh, before applying
2 any Solar*Rewards® incentive. Needless to say, there are clear and significant
3 economies of scale benefits for larger solar installations.

4 **Figure JWl-D-1: Representative Busbar Costs of Renewable Energy**
5 **Resources**



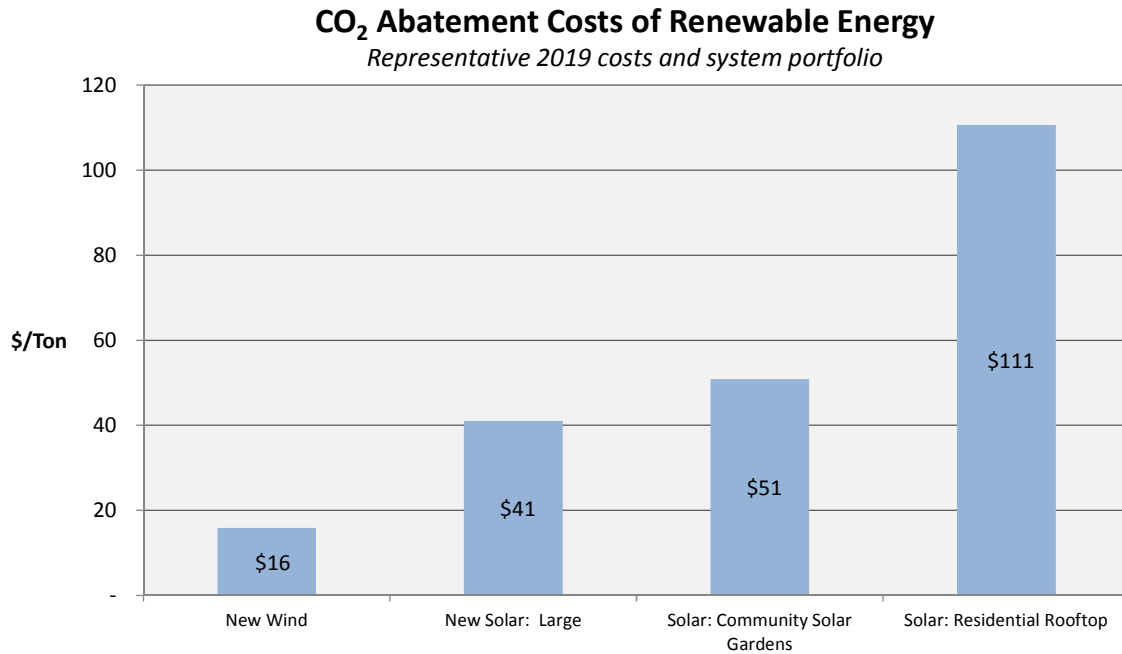
6 Note: Wind and large solar reflect all-in levelized costs of electricity and do not include all
7 potential transmission or system upgrade costs. Community solar gardens and rooftop solar
8 reflect payments made by the Company and its customers for this generation. CSGs are based
9 on bill credit and representative negative REC prices. This representation reflects what Xcel
10 Energy – Colorado’s electric customers are paying or will pay across these resource types.

11 **Q. IS THE COST OF RENEWABLE ENERGY CREATING OPPORTUNITIES FOR**
12 **CARBON DIOXIDE EMISSIONS REDUCTION?**

13 A. Yes. Xcel Energy, Public Service, and the Colorado General Assembly have laid
14 out a significant carbon reduction objective of an 80 percent reduction by 2030,
15 and a goal of zero carbon emissions by 2050. We believe that customer

1 affordability on this pathway is essential, and we observe that cost reductions will
2 make renewables a critical component to reducing statewide carbon emissions.
3 We also believe that we may well need other resource options beside continued
4 development of wind and solar. We are continuing to evaluate what those
5 options will be, but recognize that wind and solar are nonetheless key options in
6 the current planning environment. Also, the cost dynamics among the different
7 types of renewables discussed above play out similarly in the potential cost of
8 carbon reduction or abatement. Figure JWI-D-2 below shows the costs of carbon
9 abatement by renewable source. As with the levelized cost of energy estimate,
10 larger-scale resources are more cost-effective from a busbar perspective in
11 reducing carbon emissions. Thus, we think that larger-scale renewables are
12 likely to be strongly featured in providing the most affordable pathway to an 80
13 percent reduction by 2030 and beyond.

1 **Figure JWI-D-2: Cost of Carbon Abatement from Different Renewable Sources.**



2 Figure JWI-D-2 was developed by using the estimated costs of energy
3 from different renewable resources as shown earlier in Figure JWI-D-1, applying
4 these resources into Public Service’s system, and estimating the avoided
5 emissions using the Strategist model. This figure is based on a 2019 calendar
6 year, but we expect these estimates to be representative over the next few years.
7 At a high level, wind energy can avoid energy and emissions throughout the day,
8 but tends to avoid the most energy at night. This gives wind some advantage
9 over solar in carbon abatement costs on a MWh-per-MWh basis. Solar
10 resources avoid energy and emissions during the day. Solar resources have
11 similar energy production and avoided energy profiles, so the cost of abatement
12 is correlated to the cost of energy across different types of solar resources.

1 **Q. IS THE COMPANY SEEKING ANY CHANGES TO ITS SOLAR**
2 **COMPENSATION POLICIES IN THIS RE PLAN?**

3 A. Generally speaking, no. We are not seeking to change our net energy metering,
4 CSG bill credits, or any other part of the price Public Service is paying for these
5 programs in this Plan. Ms. Klemm discusses the Company's proposals
6 concerning its REC incentive levels associated with its Solar*Rewards® and
7 Solar*Rewards Community® offerings. However, we believe these cost
8 dynamics provide important data points for the Commission to consider in this
9 Plan in determining the size and pace of the Company's various renewable
10 choice offerings.

11 **Q. DOES THE COMPANY BELIEVE THAT THE ONGOING COSTS OF THE**
12 **RESOURCES THAT MAKE UP DIFFERENT RENEWABLE CUSTOMER**
13 **CHOICE PROGRAMS COULD RAISE CONCERNS IN THE FUTURE?**

14 A. Potentially, yes. As renewable costs have declined, a major driving factor across
15 the industry and for our Colorado system has been the economics of existing
16 generation assets versus new, renewable options. This dynamic set the stage
17 for, and allowed the CEP to move forward, in the 2016 ERP. As the state looks
18 to move toward an increasingly lower carbon future, a fundamental issue for
19 discussion will be the cost of existing or ongoing resources.

20 In a similar vein, some of the Company's renewable customer choice
21 programs create ongoing costs that will be borne by non-participant customers
22 for long periods of time. For instance, typical CSG contracts last 20 years, and

1 residential rooftop commitments may last for similar periods of time. With each
2 addition of a new resource into these higher-cost programs, commitments are
3 created that non-participants are likely to bear for decades. The Company has
4 always reserved its ability to change the terms of these programs, and continues
5 to do so, as a matter of prudent rate policy. However, we draw attention to the
6 fact that while the Commission is highly-focused on the ongoing costs of existing
7 emitting resources, the role of higher-cost renewable options approved in the
8 Company's RE Plans merits thought.

9 **Q. WILL THE COMPANY SEEK CHANGES TO ITS SOLAR COMPENSATION**
10 **POLICIES IN THE FUTURE?**

11 A. We may, but are not proposing to do so as part of this Plan. The Company
12 considers this Plan to be a bridge plan, that will allow the market to continue
13 moving forward and provide customers and stakeholders with program
14 consistency, while the Company, Commission, and other stakeholders can
15 develop thoughtful proposals that take into account current market dynamics and
16 recent policy changes in Colorado. We think the cost reductions in renewable
17 resources raise questions that the Commission may consider going forward.
18 Accordingly, we would anticipate various other proceedings may delve into solar
19 compensation policies.

1 **Q. DOES THE COMPANY CONTINUE TO SUPPORT CUSTOMER CHOICES**
2 **OFFERED BY ON-SITE SOLAR GENERATION?**

3 A. Yes. We recognize the strong customer interest in smaller scale, on-site DG
4 resources, particularly solar, but applications such as batteries and other types of
5 Distributed Energy Resources (“DERs”). DERs are another avenue to drive
6 more renewables onto the system through customer investment. But we think
7 that the cost dynamics discussed above, combined with the imperatives that
8 climate policy is driving in terms of emissions reduction, raise questions that the
9 Company, the Commission, and interested stakeholders will have to address in
10 the near future.

1 **V. NON-DG AND WHOLESALE DG ACQUISITION**

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

4 A. In this section of my testimony I present the Company's proposals with regard to
5 the acquisition of Non-DG and Wholesale DG resources as part of this 2020–21
6 RE Plan.

7 **Q. PLEASE EXPLAIN WHY THE COMPANY IS NOT SEEKING TO ACQUIRE**
8 **ANY ADDITIONAL WHOLESALE DG OR NON DG ELIGIBLE ENERGY**
9 **RESOURCES UNDER THIS PLAN.**

10 A. As stated earlier, the Company's existing Eligible Energy Resources allow us to
11 exceed the RES in both Wholesale DG and Non DG categories beyond 2021.
12 For example, the Company has acquired 170 MW of Eligible Energy Resources
13 that are classified as Wholesale DG that produce approximately 460,000 RECs
14 annually, while our compliance requirement is on average 437,000 RECs per
15 year in 2020 and 2021. These are listed in Table 4-2 in Attachment JW1-2. Also,
16 our Non-DG Eligible Energy Resources are well ahead of compliance targets, as
17 they will provide an estimated 9.7 million RECs in 2020, and 13.7 million RECs in
18 2021, compared to our compliance requirement of 7.9 million RECs annually.

19 The Company's ongoing transition to cleaner energy, notably renewable
20 Eligible Energy Resources, continues as part of economic resource acquisitions
21 conducted through the ERP process. As an indicator, we forecast that the CEP

1 will lead to more than fifty percent renewable energy on our system by 2026; this
2 markedly exceeds the 2020 and ongoing RES requirement of 30 percent.

3 **Q. WHAT DOES THE COMPANY PROPOSE WITH REGARD TO**
4 **WINDSOURCE®?**

5 A. As explained by Ms. Klemm, we propose to continue Windsorce® without
6 changes to its structure or price, which is currently \$1.50 per kWh. Our market
7 research suggested that this price level remains competitive with similar
8 products. The program continues to retain and attract customers, as it has done
9 for twenty years. It offers an easy, low-cost way for a customer to increase their
10 purchase of renewable energy.

11 **Q. IS THE COMPANY PROPOSING AN EXPANSION OF ITS**
12 **RENEWABLE*CONNECT® PROGRAM AT THIS TIME?**

13 A. No. We believe the Renewable*Connect® program is filling a valuable role in the
14 voluntary renewable choice market. The 50 MW of Renewable*Connect®
15 capacity we received approval for and acquired through a PPA quickly filled due
16 to strong customer interest. The program has minimal to no real practical effect
17 on non-participants, especially as compared to the pricing paid by non-
18 participants for other solar programs in Colorado. However, we are not
19 proposing to expand Renewable*Connect® in this Plan.

1 **VI. RETAIL DG ACQUISITION**

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

4 A. In this section of my testimony I present the Company's proposals with regard to
5 its customer choice renewable energy programs as part of this 2020–21 RE Plan.

6 **Q. WHAT IS THE CURRENT STATUS OF THE COMPANY'S CUSTOMER- SITED**
7 **SOLAR PROGRAMS?**

8 A. In general, the Company meets our Retail DG requirement from our
9 Solar*Rewards® and Solar*Rewards Community® programs (collectively called
10 "Solar*Rewards® programs"). The Company estimates that for 2020 it will have
11 acquired about 470 MW of Solar*Rewards® program capacity resulting in the
12 production of approximately 600,000 RECs on an annual basis. This places the
13 Company well beyond its RES compliance requirement for the Retail DG
14 component of the RES, which requires approximately 437,000 RECs on average
15 each year from 2020–2021.

16 Breaking it down further, the Company is proposing to add an additional
17 100 MW annually, for a total of 200 MW, of Retail DG capacity to its various
18 programs which will further the Company's REC bank for Retail DG compliance.

19 **Q. WHAT ARE THE COMPANY'S PLANS FOR ACQUIRING CUSTOMER- SITED**
20 **SOLAR?**

21 A. In Section 5 in Attachment JW1-1 of the Plan, and as explained by Ms. Klemm,
22 the Company is proposing a measured increase, overall, in incremental

1 Solar*Rewards® and Solar*Rewards Community® beyond REC compliance
2 needs. Through this Plan, Public Service seeks to continue its Solar*Rewards
3 Small® program at capacity levels reflective of customer demand; maintain its
4 Solar*Rewards Medium® program with a somewhat smaller program capacity,
5 but shift capacity to the Solar*Reward Community® program; and, increase the
6 capacity of its Solar*Rewards Large® program offering. Through this Plan, we
7 are proposing to increase our acquisition of CSG capacity under our
8 Solar*Rewards Community® program by about sixteen percent in total over the
9 average of the 2017-19 RE Plan.

10 **Q. WHAT ARE THE PRINCIPAL CHANGES TO THE COMPANY'S**
11 **SOLAR*REWARDS SMALL® PROGRAM IN ITS 2020-21 RE PLAN?**

12 A. We are proposing a nominal decrease (24 MW to 12 MW) in the capacity of
13 “Option A” of the small Solar*Rewards® program (serving systems less than 25
14 kW). This proposal reflects current activity in this program, and generally aligns
15 the designed size of the programs with actual usage for planning clarity. Notably,
16 this change will not shrink today’s small system market. This is true because the
17 small program is no longer being fully subscribed as a majority of small program
18 installations now occur outside the program, by taking net metering service and
19 eschewing the offered rebate payment for RECs. In 2018, for instance, 86
20 percent of small systems occurred outside the program. We sometimes refer to
21 these installations as Net Energy Metering Only (“NEM-Only”) and in this filing,
22 we include representative estimates of 32 MW per year of NEM-Only systems.

1 The 2017-19 RE Plan included an “Option B,” which was a Solar*Rewards®
2 program offering designed to operate in parallel with the Company’s Schedule
3 RD-TDR rate pilot. There was no customer interest in this option, and the
4 Company proposes to discontinue Option B.

5 The Company proposes no changes here to NEM policy or Solar*Rewards
6 Small program compensation generally. We do observe that because the
7 majority of NEM-Only systems are occurring outside of the Solar*Rewards®
8 program, it is important the Commission recognize at this point that it does not
9 regulate the size of this market under RES planning. The Company continues to
10 believe that these programs and NEM-Only installations do have cost
11 implications for non-participant customers. The Commission retains regulatory
12 authority over the compensation policies affecting small on-site solar, and thus
13 the related costs and benefits to participants and non-participants.

14 **Q. WHAT ABOUT THE SOLAR*REWARDS MEDIUM® PROGRAM?**

15 A. Due to market interest, the 2017-19 RE plan had doubled the size of the
16 Solar*Rewards Medium program (25-500 kW) from 12 MW to 24 MW per year.
17 However, the rate of installations has flattened over the last one to two years and
18 is no longer reaching its maximum specified capacity. We believe that other
19 choices may be taking some of this market. CSGs under Solar*Rewards
20 Community®, for example has been active in subscribing these types of business
21 customers. More recently, we believe Renewable*Connect® may have attracted
22 some customers from this segment before it filled its available capacity. Ms.

1 Klemm's testimony provides further details. Accordingly, we propose a small
2 reduction from 24 MW to 20 MW for this program. Like the Solar*Rewards
3 Small® program change above, we believe this change will not limit the activities
4 in the market. Related, we propose to take this 4 MW reduction and increase our
5 standard offer CSG program by 4 MW, as described later. We propose to
6 maintain the 2019 incentive level of 3.75¢/kWh for the Medium program.

7 **Q. WHAT ABOUT THE SOLAR*REWARDS LARGE® PROGRAM?**

8 A. Under the 2017-19 RE Plan, the Large program (500 kW and larger) was brought
9 back after not having been offered from 2013–2016. The program offered 6 MW,
10 10 MW, and 14 MW in 2017, 2018, and 2019, respectively. The program has
11 received strong bidder interest and sold out over these three years. The
12 Company also believes that this program creates minimal cost shift or impacts on
13 non-participants, in part because the program is offered under a competitive bid
14 process, driving costs down. The REC bids, for instance, are lower than the
15 standard offer REC prices in the Medium program. The program also creates a
16 lower degree of cost shift because of the rate structure of these larger customers.
17 Accordingly, the Company proposes to increase the Large program capacity to
18 20 MW per year. We believe it may be possible to fill this larger capacity while
19 providing an on-site clean energy option to larger employers in our service
20 territory.

1 **Q. IS THE COMPANY PROPOSING TO ACQUIRE OTHER CUSTOMER-SITED**
2 **ELIGIBLE ENERGY RESOURCES UNDER THIS PLAN?**

3 A. Yes, we are proposing to continue offering its Recycled Energy program.

4 **Q. PLEASE PROVIDE AN OVERVIEW OF THE COMPANY'S SOLAR*REWARDS**
5 **COMMUNITY PROGRAM® PROPOSALS.**

6 A. While Ms. Klemm discusses the Company's Solar*Rewards Community®
7 proposals in detail, § 40-2-127 (c)(5)(IV), C.R.S. directs the Commission to
8 determine the annual minimum and maximum CSG capacity for the utility to
9 acquire, and the Company accordingly proposes a minimum and maximum per
10 year. We propose a minimum of 15 MW per year, as in the 2017-19 RE Plan.
11 We also propose a 35 MW per year maximum in the portion of the program that
12 is bid under an RFP, and not specifically allocated to low-income customers. We
13 augment this with a continuation of 4 MW of RFP low-income CSG capacity, and
14 5 MW of Standard Offer (non-RFP) CSG capacity, an increase from 1 MW under
15 the 2017-19 RE Plan. We also propose to increase the low-income Company-
16 offered portion of the program from 2 MW per year to 4 MW per year. In total, we
17 propose to acquire up to 48 MW per year of CSG capacity, an increase of 16
18 percent compared to the average annual level of the 2017-19 RE Plan. We note
19 that the 2017-19 RE Plan had already increased CSG capacity over the 2014-
20 2016 RE Plan, which offered 30 MW of capacity per year.

1 **Q. IS THE COMPANY PROPOSING TO CONTINUE ADDING ANY CAPACITY**
2 **FOR COMPANY-OFFERED CSGS?**

3 A. Yes. The Company proposes to continue to offer these CSGs along with the
4 continued assumption of the 5 percent reservation of CSG subscriptions for low-
5 income customers per Commission Rule 3665(d)(IV) from other CSG
6 developers. The Company is proposing to add 4 MW annually in 2020 and 2021
7 for a total of 8 MW over the term of its Plan, and is proposing to develop this
8 capacity to serve low-income customers in collaboration with Energy Outreach
9 Colorado (“EOC”). The Company is also proposing to explore a collaborative
10 labor partnership in developing this capacity.

11 **Q. PLEASE DESCRIBE PUBLIC SERVICE’S PLAN FOR A COLLABORATIVE**
12 **LABOR PARTNERSHIP FOR THE COMPANY-OFFERED CSGS?**

13 A. Public Service will seek to establish a collaborative labor partnership that will
14 utilize contractors working under a Project Labor Agreement (“PLA”). The
15 construction of Company-offered CSGs will utilize this PLA which in turn will
16 provide opportunity for Colorado trade laborers to gain valuable experience with
17 the construction of distributed solar facilities. Public Service intends to enter into
18 discussions with potential partners such as Rocky Mountain Environmental Labor
19 Coalition and Colorado Building and Construction Trades Council, and possibly
20 others to develop its labor partnership plan for these projects. The potential
21 partnership we envision is similar to the one that the Company proposed in its
22 recent Community Resiliency Initiative filing in Proceeding 19A-0225E.

1 **Q. HOW ELSE DOES THE COMPANY PLAN TO SUPPORT LOW INCOME**
2 **CUSTOMERS THROUGH ITS RETAIL DG PROGRAMS?**

3 A. The Company will continue supporting low-income customers through three
4 distinct programs in this Plan. These include:

- 5 • Continue the Company's Solar*Rewards Community Low-Income RFP with 4
6 MW of capacity for both 2020 and 2021.
- 7 • The Company's continued assumption of the 5 percent reservation of CSG
8 subscriptions for low-income customers per Commission Rule 3665(d)(IV)
9 from other developers.
- 10 • And, continue to support the Colorado Energy Office ("CEO")-administered
11 Rooftop Low-income Solar program.

12 The Company believes that while these programs are additive to the
13 number of other programs available to low income customers, a larger discussion
14 on overall low income support is needed. To that point, the Company signed on
15 to the low income "Supplemental Comments" in the Commission's NOPR
16 process as submitted by the CEO and as agreed-to by Black Hills Electric, LLC,
17 the CEO, EOC, and Pivot Energy in Proceeding 19R-0096E.

18 These programs may complement other low-income offerings unrelated to
19 retail solar programs, such as low-income demand-side management programs,
20 bill assistance under low-income energy assistance programs, and programs
21 funded by Public Service customers and administered by EOC. The Company
22 believes its proposals will allow for increasing numbers of low income customers

1 to be served by retail DG, but will also allow time to help determine how
2 efficiently low income customers are being served by our program offerings.

3 **Q. PLEASE EXPLAIN PUBLIC SERVICE'S REQUEST FOR PERMANENT**
4 **VARIANCE TO APPLY CLASS AVERAGE BILL CREDIT TO ITS**
5 **SOLAR*REWARDS COMMUNITY RFP.**

6 A. As indicated in the Company's Request for Permanent Variance included in its
7 Application, the Company is requesting a permanent variance to continue its
8 practice of offering CSG subscribers the class average bill credit, which was
9 authorized by Decision No. C16-0747 in Proceeding No. 13A-0836E. The
10 Company made its original request on February 24, 2016 when the Company
11 filed a Verified Motion seeking approval of a settlement agreement between the
12 successful 2015 Solar*Rewards Community® RFP developers and the
13 Company. This request was again approved as part of the Three-Case
14 Settlement by Decision No. C16-1075. As explained in those underlying
15 proceedings, applying a class-average methodology results in a more equitable
16 bill credit, thereby reducing the incentive for CSG developers to seek out
17 commercial customers for whom subscribing to a CSG is economic even at a
18 negative REC price. As a result, applying a class average methodology to
19 calculating customers' bill credits results in more equitable financial incentives to
20 attracting a broader array of customer participation in CSGs.

1 **Q. PLEASE PROVIDE AN OVERVIEW OF THE COMPANY'S RECYCLED**
2 **ENERGY PROGRAM.**

3 A. The Company's Recycled Energy Program was introduced in the Company's
4 2017-19 RE Plan and included the corresponding tariff pages for Recycled
5 Energy Service ("Schedule RE"). The Company's Recycled Energy program is
6 designed to provide an incentive for customers who deploy recycled energy
7 electric generating facilities, which turn waste heat into electricity. Recycled
8 energy is defined as energy produced by a system which converts otherwise lost
9 heat energy from exhaust stacks or pipes into electricity, without using additional
10 fossil fuel.

11 **Q. DOES THE COMPANY HAVE ANY CUSTOMERS PARTICIPATING IN THE**
12 **PROGRAM?**

13 A. No. There has been some casual interest from only a few customers over the
14 last couple of years, but nothing that we would consider serious.

15 **Q. IS THE COMPANY PROPOSING ANY CHANGES TO THE PROGRAM IN ITS**
16 **2020-21 RE PLAN?**

17 A. The Company is proposing no changes.

1 **VII. COST RECOVERY AND RESA SUMMARY**

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

4 A. In this section of my testimony I discuss the current status and forecast of the
5 Company's RESA balance and the retail rate impact associated with this 2020-21
6 RE Plan.

7 **Q. HOW DOES THE COMPANY RECOVER THE COSTS OF RENEWABLE**
8 **ENERGY?**

9 A. We recover the costs of renewable energy through a combination of the RESA
10 deferred account and the Electric Commodity Adjustment ("ECA") deferred
11 account. This allocation is consistent with legislative directive as well as
12 Commission rule. Section 40-2-124(1)(g), C.R.S., implemented by Commission
13 Rule 3661, establishes a maximum retail rate impact for the RES program of two
14 percent of the total electric bill annually for each customer.

15 Public Service developed a deferred account, called the RESA account, to
16 track these incremental costs of the renewable energy acquired. The RESA is a
17 rate adjustment mechanism that currently adds 2 percent to each customer's
18 total bill. The RESA deferred account tracks the revenues received from the
19 RESA rider and the incremental costs of renewable energy incurred by the
20 Company.

21 The RESA is designed so that the incremental costs of Eligible Energy
22 Resources (sometimes referred to in shorthand as "renewable energy") are paid

1 through the RESA account, while non-incremental costs are paid through the
2 ECA. The non-incremental cost is equivalent to the cost of non-Eligible Energy
3 Resources that are displaced by the acquisition of the eligible energy resources.
4 On Public Service's system, the non-incremental cost is sometimes referred to as
5 the "avoided cost".

6 The incremental costs of Eligible Energy Resources cannot be directly
7 measured because the utility must compare the actual cost of the resource that is
8 acquired with the hypothetical cost of the resource that it did not acquire (with the
9 proverbial "road not taken.") As a consequence, the incremental costs that are
10 paid through the RESA are determined by sophisticated computer modeling of
11 Public Service's generation system and through the development of two plans,
12 referred to in Commission Rule 3661(h) as the "RES Plan" and the "No RES
13 Plan." Mr. Trowbridge describes this modeling in more detail in his testimony as
14 well as in Attachment JW1-1, Section 7 of the Plan.

15 **Q. PLEASE PROVIDE AN OVERVIEW OF THE RESA STATUS AND FORECAST.**

16 A. As explained in the Direct Testimony of Mr. Alex Trowbridge, in the ten-year
17 forecast that we provide in this case, the cumulative RESA balance stays positive
18 for the entire period. As some higher-cost renewable contracts roll off, and some
19 cost-saving renewables come into the system, the RESA expenditures decline.
20 Meanwhile, RESA collections continue, although at a reduced rate of 1 percent,
21 rather than 2 percent, from approximately 2021 onward under the terms of the

1 Commission decision issued in the Accelerated Deprecation/RESA Reduction
2 (“AD/RR”) proceeding.⁸

3 The RESA balance increases in the later years of the forecast, as
4 modeled by Mr. Trowbridge. However, it is important that the Commission
5 recognize it is likely that other factors, in addition to the assumptions which must
6 be used as of this filing, will come into play that will affect the actual RESA
7 balance during those forecasted years. For instance, SB 19-236 allows the use
8 of RESA funds to assist in the clean energy transition to support an 80 percent
9 by 2030 carbon emission reduction. These are not explicitly modeled in this
10 Plan, as this subject will be part of a future discussion at the Commission.

11 **Q. IS THE RETAIL RATE IMPACT SECTION OF THE PLAN IN COMPLIANCE**
12 **WITH THE COMMISSION RULE?**

13 A. Yes, the Retail Rate Impact Section of the Plan is in compliance with
14 Commission Rule 3661. Specifically, Rule 3661(a) provides that the net retail
15 rate impact of Public Service’s actions comply with the RES statute and
16 Commission Rule if the RESA rate does not exceed two percent of the annual
17 total electric bill for each retail customer. In addition, Rule 3661(f) requires the
18 Company to estimate the retail rate impact of its RES at the beginning of the
19 Compliance Year and for a minimum of ten years after, and identify the funds
20 needed to comply with the RES and retail rate impact rules. We provide this
21 information in Section 7 of the Plan and related Table 7-2(c).

⁸ Proceeding No. 17A-0797E, Decision No. C18-0762 (mailed Sept. 10, 2018).

1 **Q. DOES THE RESA REMAIN POSITIVE OVER THE 10 YEAR PLANNING**
2 **HORIZON?**

3 A. Yes. Our forecast of the RESA balance is shown in Table 4, below. The
4 forecast is positive and grows in the later years. This growth occurs even as the
5 RESA collection level is reduced from 2 percent to 1 percent in 2021 as
6 contemplated under the AD/RR decision. The growth in the RESA deferred
7 balance arises from the generally declining level of net RESA expenditures,
8 which reach zero in 2023 as negative-incremental-cost resources exceed
9 positive-incremental-cost resources. The Company notes that other factors not
10 modeled here are likely to affect the RESA balance over time. For instance, SB
11 19-236 allows the use of RESA funds for incremental costs of clean energy
12 resources (as defined in the legislation) and their directly related interconnection
13 facilities.

1

Table JWI-D-4: RESA Balance (Attachment JWI-2, Table 7-2(c))

RESA 10-Year Forecast			
	RESA Revenue	RESA Costs	RESA Rolling Balance (Deferred)
2018			48,578,155
2019	68,216,243	73,711,943	46,054,284
2020	58,856,531	53,099,841	55,384,894
2021	32,492,779	41,345,932	49,741,501
2022	32,535,323	32,189,690	53,542,144
2023	32,128,362	-	91,580,057
2024	32,473,715	-	132,611,001
2025	32,822,937	-	176,845,571
2026	33,176,075	-	224,508,939
2027	33,533,175	-	275,841,860
2028	33,894,284	-	331,101,743
2029	34,259,450	-	390,563,808

2 **Q. IS THE COMPANY'S PLAN IN COMPLIANCE WITH RULE 3661(h)(v) ?**

3 A. Yes. Rule 3661(h)(V) requires the Company to reset the avoided and
 4 incremental costs of Eligible Energy Resources in the Company's RE Plan after
 5 2019. As Mr. Trowbridge explains in his Direct Testimony, except for resources
 6 locked through Commission decision, the Company's current Eligible Energy
 7 Resources have reset the assessed avoided cost and thus the incremental costs
 8 which is reflected in Tables 7-1 through 7-3. As reflected in Attachment AGT-1 to

1 Mr. Trowbridge's Direct Testimony, the Commission locked down for the life of
2 the asset the incremental costs of SunE Alamosa and Solar*Rewards® acquired
3 before January 2009. The Commission also locked down the remainder of the
4 portfolio resources that were presented in the 2017-19 RE Plan through 2026.
5 Attachment JW1-2, Table 7-2(c) summary reflects the timed unlocking of all
6 Eligible Energy Resources excluding SunE Alamosa and the early
7 Solar*Rewards systems consistent with past Commission decision.

1 **VIII. OTHER ISSUES**

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

4 A. In this section of my testimony, I discuss the Company's proposal to incorporate
5 the social cost of carbon (as set forth in SB 19-236) into its modeling for the
6 2020-21 RE Plan as well as our plans to continue stakeholder outreach and
7 engagement meetings similar to our efforts following the filing of the 2017-19 RE
8 Plan.

9 **A. Cost of Carbon**

10 **Q. HOW DOES THE COMPANY PROPOSE TO INCORPORATE THE COST OF**
11 **CARBON INTO ITS 2020-21 RE PLAN?**

12 A. As discussed earlier, the Colorado Legislature passed SB19-236 in the 2019
13 Legislative session. This bill requires the Company to consider the cost of
14 carbon in its RES planning. The cost of carbon provisions specified the use of
15 the federal government's most recent social cost of carbon, but in any case the
16 social cost of carbon must be at least \$46 per ton.

17 Applying the cost of carbon to RES planning is a new issue in Colorado,
18 and the Company notes that at this point, there are no Commission rules to
19 follow on this matter. To comply with SB 19-236's direction in advance of
20 specific rulemaking, the Company has developed a methodology which creates a
21 range of estimated values and avoided costs. The Company's approach is
22 based on the value or avoided cost of avoided carbon emissions from the new

1 renewable resources that will come online under this Plan. Specifically, the
2 Company has modeled those avoided emissions over a ten-year horizon,
3 consistent with other analysis in this RES plan. Next, the Company has used a
4 range of costs of carbon to apply to the avoided emissions. Finally, the
5 Company has multiplied the avoided emissions by the range of carbon costs to
6 create values or avoided costs by year. This analysis is presented in Table JWI-
7 D-5 below.

8 **Q. WHAT COSTS OF CARBON DID THE COMPANY APPLY IN THIS**
9 **ANALYSIS?**

10 A. The cost of carbon has been a topic of discussion in Public Service's last three
11 ERP plans, with active testimony presented and values approved. We do not
12 propose to debate those values here again. Instead we chose four carbon
13 values to apply as follows:

- 14 • Social cost of carbon. Pursuant to the language in SB 19-236, codified at §
15 40-3.2-106(c)(4), C.R.S., we referenced the federal government's most recent
16 assessment of the social cost of carbon, using the value calculated at a 3
17 percent discount rate, this is labeled "3% Average" in the Technical Support
18 Document.⁹ We used the values that are expressed in constant 2007 dollars
19 per metric ton, and converted those to nominal dollars per short ton to reflect
20 the values we use in resource planning. After the conversion, the lowest

⁹ *Technical Support Document: Technical Update of the Social Cost of carbon for Regulatory Impact Analysis – Under Executive Order 12866*, page 25, Interagency Working Group on Social Cost of Greenhouse Gases, United States Government, August 2016.

1 value was \$47 per nominal short ton, so we did not have to use the statute's
2 floor value of \$46 per short ton.

- 3 • Market costs of carbon. The provision of SB 19-236 on the cost of carbon
4 does not prohibit the Commission or the Company from also considering
5 other costs for carbon emissions. The Company stands by its long-held view
6 that a range of carbon costs, including zero carbon cost, are appropriate to
7 consider for planning purposes. These two market-based forecasted carbon
8 costs are sourced from the last Phase I ERP, and were litigated by parties,
9 and approved by the Commission in 2017 in that ERP (Proceeding No. 16A-
10 0396E) in Decision C17-0316. We call these forecasts 2017 ERP Low CO2
11 Cost, and 2017 ERP High CO2 Cost.
- 12 • Zero. The Company also chose a value of zero to show the possibility of a
13 carbon policy that does not rely on a carbon market price.

14 We are not presenting a Net Present Value ("NPV") calculation in this
15 analysis. The provisions in SB 19-236 may ultimately require rulemaking to
16 clarify how to perform an NPV calculation. We are not clear that an NPV
17 calculation, which has not been done in RES plans before to our knowledge, is
18 required in this 2020-21 RE Plan. We are also not in this proceeding analyzing
19 or forecasting statewide carbon prices based on recent state climate policy
20 legislation, specifically HB 19-1261, which requires an economy-wide 50 percent
21 reduction in greenhouse gas emissions by 2030, and SB 19-236, which creates a
22 pathway at the Commission for the Company to propose and implement an 80

1 percent reduction in our electric business by 2030. Those regulations and the
2 plans to comply with them are still in early stages of development at the Colorado
3 Department of Health and Environment, the Commission and at the Company.
4 The Company believes that Phase I of its next ERP will be a better place to
5 propose, discuss, and decide carbon values for planning. Notably, compliance
6 with the 80 percent reduction target in SB 19-236 may result in no actual carbon
7 costs being paid by the Company or its customers; rather the emphasis is on
8 meeting the emissions objective through planning and execution of lower-
9 emissions generation options.

10 **Q. WHAT WERE THE RESULTS OF THE COMPANY'S COST OF CARBON**
11 **ANALYSIS FOR THIS PLAN?**

12 A. The externality value related to this 2020-21 RE Plan is \$5 M-\$13 M per year,
13 and the avoided cost value related to the Plan is \$0.4 M-\$5 M per year, as
14 reflected in Table JWID-5 below. The Company also provides the full ten-year
15 forecast as Attachment JWID-4.

16 The Company intends this cost of carbon analysis to be a good-faith effort
17 to comply with the cost of carbon provisions of SB 19-236 in advance of specific
18 rule direction to do so. The Company believes that this range of estimates
19 provides the Commission with a reasonable range of values for avoided
20 emissions to consider. This range also encompasses two perspectives on
21 avoided carbon emissions: one is the estimated externality value of avoided
22 emissions to humanity globally and across centuries. The other is an estimate of

1 avoided Public Service customer costs from avoided emissions during the ten-
 2 year forecast period under a potential carbon policy.

3 **Table JWl-D-5: Externality and Avoided Cost Value of 2020-2021 RE Plan**

	2020	2021	2025	2029
Avoided Emissions from RES Plan Portfolio (tons)	107,169	232,066	218,013	204,869
SCC In nominal \$/short ton	\$47.11	\$48.06	\$56.97	\$65.69
Value of Avoided Emissions at SCC	\$5,049,252	\$11,152,379	\$12,420,741	\$13,458,003
2017 ERP Low CO2 Cost	\$0.00	\$0.00	\$4.63	\$12.97
Value of Avoided Emissions at Market Cost of Carbon	\$0	\$0	\$1,009,399	\$2,657,151
2017 ERP High CO2 Cost	\$0.00	\$0.00	\$21.50	\$23.68
Value of Avoided Emissions at Market Cost of Carbon	\$0	\$0	\$4,687,276	\$4,851,298
Zero CO2 Cost	\$0.00	\$0.00	\$0.00	\$0.00
Value of Avoided Emissions at Market Cost of Carbon	\$0	\$0	\$0	\$0

4 **B. Stakeholder Outreach**

5 **Q. DOES THE COMPANY INTEND TO CONTINUE THE PRACTICE OF HOSTING**
 6 **STAKEHOLDER MEETINGS AFTER THE 2020-21 RE PLAN IS APPROVED?**

7 **A.** Yes, it does. In its Three-Case Settlement the Company committed to hosting a
 8 number of stakeholder groups that were designed to identify and address issues

1 leading to additional actions in support of the Three-Case Settlement.¹⁰ This
2 included actions which may require approval of the Commission prior to the next
3 scheduled proceeding in the matter. These stakeholder groups met on a
4 quarterly basis and meeting notes were shared with participants after the
5 meetings to capture action items and to provide those not attending a sense of
6 the material discussed. The Company posted meeting notes, presentations, and
7 other materials on its external web site.

8 **Q. WERE THERE ANY SUCCESSFUL OUTCOMES FROM THESE**
9 **STAKEHOLDER GROUPS?**

10 A. Yes. The Company has included summary reports of the stakeholder meetings
11 in its RES Compliance Reports since 2017. There have been a number of
12 successes, but more generally these meetings have been a success by simply
13 allowing parties to engage more frequently and in a more casual, non-litigated
14 setting where ideas can be shared and discussion can flow more freely. Below
15 are some specific stakeholder successes:

- 16 • Development of energy storage technical guidance documents which assist
17 developers with interconnecting on-site energy storage systems.
- 18 • Development of a Hosting Capacity Map for CSG Developers to reference for
19 potential project sites.

¹⁰ Stakeholder Groups included the Distribution Grid and Interconnection Stakeholder Group, the Future Voluntary Renewable Programs Stakeholder Group, the Existing Voluntary Renewable Programs Stakeholder Group, and the Pilot and Trial Program Stakeholder Group.

- 1 • Development of a number of “dashboards” or graphs showing the
2 performance of the Company’s various retail DG programs.
- 3 • Collaboration amongst a subset of stakeholder to develop evaluation criteria
4 for the Company’s Solar*Rewards Community® Low Income RFP.
- 5 • Collaboration amongst stakeholders to evaluate and refine a renewable
6 programs decision tool on the Company’s external web site.

7 **Q. HOW DOES THE COMPANY SEE THE STAKEHOLDER GROUPS**
8 **CHANGING?**

9 A. The Company proposes that rather than having a variety of stakeholder groups
10 that there just be one General Stakeholder Group that meets once per quarter.
11 Based upon discussions within meetings, and how topics and issues may
12 surface, the Company commits to having more focused stakeholder group
13 meetings on an *ad hoc* basis as necessary. This general format has been in
14 practice in the existing stakeholder group process for over a year, and works
15 well. The Company will also commit to hosting the meetings in the same fashion
16 as it has over the last two and a half years with regard to setting agendas,
17 notifying stakeholders, asking for discussion topics, etc. Finally, while the Three
18 Case Settlement set a specific agenda for the stakeholder groups to tackle over
19 the three-year period, the Company believes that there should not be a set list of
20 topics to discuss for these continued workgroups. The agenda for the ongoing
21 workgroups can grow organically as time goes on.

1 **IX. APPROVALS REQUESTED**

2 **Q. WHAT IS THE COMPANY REQUESTING THE COMMISSION APPROVE**
3 **UNDER THIS APPLICATION?**

4 A. In sum, Public Service has presented a comprehensive 2020 through 2021
5 Renewable Energy Plan for the Commission's consideration.

6 Public Service respectfully requests that the Commission approve the
7 Plan, including, without limitation:

- 8 • The Company's proposed acquisition levels, incentives, and program
9 changes for its Solar*Rewards® and Solar*Rewards Community® programs;
- 10 • The Company's Windsource® and Recycled Energy program proposals;
- 11 • The Company's proposal to submit a "30-day report" following CSG bid
12 awards;
- 13 • Continuation of the CEO's Rooftop Low-income Solar program;
- 14 • The Company's request to develop a total of 8 MW of Company-offered
15 CSGs over 2020 and 2021 (4 MW each year) that will be offered exclusively
16 to eligible low-income customers, using a Project Labor Agreement;
- 17 • The Company's request for waiver of Commission Rule 3665(c)(l)(B) for
18 applying the class-average bill credit for its Solar*Rewards Community®
19 program, as set forth in its concurrently filed Application and Request for
20 Variance;
- 21 • The Company's Motion to Extend 2017–19 RE Plan Through First Quarter
22 2020, as set forth in its concurrently-filed Motion; and,

- 1 • The Company's Motion for Waiver of Rule 3657, as set forth in its
2 concurrently-filed Motion.

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

4 **A. Yes, it does.**

Statement of Qualification

Jack W. Ihle

Jack Ihle is Director of Regulatory & Strategy Analysis for Xcel Energy – Colorado. He leads a team responsible for regulatory aspects of resource planning, renewable energy planning, electric vehicles and other policy issues. He has testified before the Colorado Public Utilities Commission, the Colorado Legislature, the Minnesota Legislature, and the New Mexico Environmental Improvement Board.

Mr. Ihle previously worked in environmental policy for ten years, most recently serving as Director of Environmental Policy while leading Xcel Energy’s climate policy, environmental policy and environmental communications efforts across the Company’s eight states. Mr. Ihle has also served in energy consulting roles with IHS and Platts, focusing on renewable energy, climate policy and forecasting engagements.

Mr. Ihle has a Master of Science degree in Energy & Resources from the University of California at Berkeley, and a Bachelor of Arts degree in Political Science from Bowling Green State University. He serves on the boards of directors for the Regional Air Quality Council, and Volunteers for Outdoor Colorado, and has previously served on the boards of XPAC, the Solar Technology Acceleration Center and WEST Associates.