

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

* * * * *

IN THE MATTER OF THE)
APPLICATION OF PUBLIC SERVICE)
COMPANY OF COLORADO FOR)
APPROVAL OF ITS 2016 ELECTRIC) PROCEEDING NO. 16A-0396E
RESOURCE PLAN)
)

DIRECT TESTIMONY AND ATTACHMENTS OF ALICE K. JACKSON

ON

BEHALF OF

PUBLIC SERVICE COMPANY OF COLORADO

MAY 27, 2016

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

* * * * *

**IN THE MATTER OF THE)
APPLICATION OF PUBLIC SERVICE)
COMPANY OF COLORADO FOR)
APPROVAL OF ITS 2016 ELECTRIC) PROCEEDING NO. 16A-0396E
RESOURCE PLAN)
)**

SUMMARY OF THE DIRECT TESTIMONY OF ALICE K. JACKSON

Ms. Alice K. Jackson is the Regional Vice President, Rates and Regulatory Affairs for Xcel Energy Services Inc. In this position she is responsible for providing leadership, direction, and technical expertise related to regulatory processes and functions for Public Service Company of Colorado, one of four utility operating company subsidiaries of Xcel Energy Inc. Her duties include, among other things, the design and implementation of Public Service Company of Colorado's regulatory strategy and programs, and directing and supervising Public Service Company of Colorado's regulatory activities, including oversight of rate cases.

On at least a four year cycle the Company must present to the Commission its electric resource plan ("ERP"), pursuant to Rule 3603. The ERP process is designed to examine the existing available resources to the Company to meet its customer's needs over the Resource Acquisition Period ("RAP") as well as preview of ongoing resources on a longer planning horizon. Ms. Jackson is the Company's

policy witness in this proceeding in which the Company is requesting Commission approval of the Company's proposed 2016 Electric Resource Plan ("2016 ERP"). While previous ERP filings have been part of the long-term planning for Public Service, our 2016 ERP is being filed in the midst of a bigger change for the Company. As presented to this Commission and various stakeholders, the Company has carefully undertaken an analysis of what its customers and communities have been asking that we provide. As a result, the Company has put together the Our Energy Future initiative, and this 2016 ERP is part of that initiative. This long term initiative intends to provide the future we are hearing from our stakeholders that they desire in a cost effective manner by focusing on three key areas: (1) powering technology; (2) empowering customer choice; and (3) powering the economy. This long-term future envisions an environment where Public Service will continue to provide the highly reliable service it has been known for in an increasingly clean and adaptable manner. A number of other filings are addressing components of this long-term future and some of those filings may have some impact on the resource acquisition need being examined in this ERP. Thus, this ERP serves as not only a basis to acquire necessary resources over the 8-year Resource Acquisition Period ("RAP") (through May 2024), but also as a summarization of the impacts of decisions that could be made in those other filings on the long-term capacity needs of the Company. These impacts are presented as either part of the base case analysis or as sensitivities to that base case analysis.

In this 2016 ERP, the Company is forecasting a capacity need of approximately 615 MW over the RAP *after* accounting for the impacts of the 2017

RE Plan, the DSM plan, the Solar*Connect Program, and the Rush Creek Wind Project – all of which are components of the Our Energy Future initiative. But we also recognize that today’s energy environment is in a state of flux and uncertainty. With lower natural gas prices, the extension of the ITC and PTC, surplus existing thermal generation, and improvements in generation technology, our energy environment is increasingly competitive. As a result of these dynamics, the 2016 ERP does not identify the specific generation resources to be acquired, but instead provides a path and process forward that provides for an evaluation of all technologies under a Phase II ERP. To this end, the Phase II portion of this ERP is anticipated to present a number of selection alternatives to be utilized as a solution for our customers, beyond just resource type. In addition to more traditional power purchase agreements (“PPAs”), these options are anticipated to include extensions of expiring PPAs, build/transfer arrangements, potential sale of resources with expiring PPAs, Company bid resources, and/or other Company owned resources. Having this variety of options transparently before the Commission will allow for a clear and detailed evaluation of the best public interest outcome.

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

* * * * *

**IN THE MATTER OF THE)
APPLICATION OF PUBLIC SERVICE)
COMPANY OF COLORADO FOR)
APPROVAL OF ITS 2016 ELECTRIC) PROCEEDING NO. 16A-0396E
RESOURCE PLAN)
)**

DIRECT TESTIMONY AND ATTACHMENTS OF ALICE K. JACKSON

INDEX

<u>SECTION</u>	<u>PAGE</u>
I. INTRODUCTION, QUALIFICATIONS, AND PURPOSE OF TESTIMONY	9
II. OVERVIEW OF THE 2016 ERP	14
A. BACKGROUND AND ERP HISTORY	14
B. 2016 ERP OBJECTIVES AND DRIVERS	20
C. OTHER COMPANY ACTIONS RELEVANT TO THE 2016 ERP	25
D. THE COMPANY'S ALTERNATIVE PLANS AND ADDITION OF NEW RESOURCES	29
III. REQUESTED APPROVALS AND COMPLIANCE ISSUES	34

LIST OF ATTACHMENTS

Attachment AKJ-1	2016 ERP – Volume 1
Attachment AKJ-2	2016 ERP – Volume 2
Attachment AKJ-3	2016 ERP – Volume 3

GLOSSARY OF ACRONYMS AND DEFINED TERMS

<u>Acronym/Defined Term</u>	<u>Meaning</u>
CACJA	Clean Air Clean Jobs Act
CO ₂	Carbon Dioxide
CPCN	Certificate of Public Convenience and Necessity
CPP	Clean Power Plan
DG	Distributed Generation
DSM	Demand Side Management
EPA	Environmental Protection Agency
ERP	Electric Resource Plan
ITC	Investment Tax Credit
kW	Kilowatt
kWh	Kilowatt-hour
MWh	Megawatt hour
PTC	Production Tax Credit
Public Service or Company	Public Service Company of Colorado
PVRR	Present Value Revenue Requirement
RAP	Resource Acquisition Period
RE Plan	Renewable Energy Plan
RES	Renewable Energy Standard
Retail DG	Retail Distributed Generation
RFP	Request for Proposal

ERP Rules

Electric Resource Planning Rules

Xcel Energy

Xcel Energy Inc.

XES

Xcel Energy Services Inc.

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

* * * * *

**IN THE MATTER OF THE)
APPLICATION OF PUBLIC SERVICE)
COMPANY OF COLORADO FOR)
APPROVAL OF ITS 2016 ELECTRIC) PROCEEDING NO. 16A-0396E
RESOURCE PLAN)
)**

DIRECT TESTIMONY AND ATTACHMENTS OF ALICE K. JACKSON

1 **I. INTRODUCTION, QUALIFICATIONS, AND PURPOSE OF TESTIMONY**

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

3 A. My name is Alice K. Jackson. My business address is 1800 Larimer, Suite
4 1400; Denver, Colorado 80202.

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

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

3 A. As the Regional Vice President of Rates and Regulatory Affairs, I am
4 responsible for providing leadership, direction, and technical expertise related
5 to regulatory processes and functions for Public Service. My duties include
6 the design and implementation of Public Service's regulatory strategy and
7 programs, and directing and supervising Public Service's regulatory activities,
8 including oversight of resource proceedings such as this proceeding, rate
9 cases, administration of regulatory tariffs, rules and forms, regulatory case
10 direction and administration, compliance reporting, and complaint response. I
11 frequently testify in proceedings before the Colorado Public Utilities
12 Commission ("Commission") as the Company's policy witness. I have
13 included a Statement of Qualifications after the conclusion of my testimony.

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

15 A. I provide an overview of the 2016 ERP and I am the Company's primary
16 sponsor of the plan, which I present as Attachment AKJ-1 through AKJ-3. I
17 also introduce the Direct Testimony of other Public Service witnesses who will
18 address various sections of this ERP in their testimonies. Finally, I lay out the
19 Company's list of requested approvals from the Commission.

20 **Q. WHAT IS THE PURPOSE OF AN ERP?**

21 A. The ERP process evaluates and determines the need for additional
22 generation resources, and rate-regulated utilities in Colorado are subject to
23 the ERP process. The ERP Rules seek to identify cost-effective resource

1 portfolios to serve a utility's resource need and meet the need reliably over
2 the Resource Acquisition Period and Planning Period. The Planning Period is
3 a period of between 20 and 40 years from the date the ERP is filed with the
4 Commission. This is the period over which the utility develops its ERP and
5 for which the net present value of revenue requirements ("NPVRR") for
6 generation resources are calculated.¹ The RAP is a subset of this longer
7 period and represents the first six to 10 years of the Planning Period. In an
8 ERP, the utility requires specific generation resources to meet the projected
9 demand and energy requirements over the RAP. "[A] primary goal" of the
10 ERP process "is to minimize" the NPVRR and "[i]t is also the policy of the
11 state of Colorado that the Commission give the fullest possible consideration
12 to the cost-effective implementation of new clean energy and energy-efficient
13 technologies."²

14 **Q. IS THERE ANYTHING DIFFERENT OR UNIQUE ABOUT THIS ERP THAT**
15 **YOU WOULD LIKE TO HIGHLIGHT?**

16 A. While previous ERP filings have been part of the long-term planning for Public
17 Service, this ERP is being filed in the midst of a bigger change for the
18 Company. As presented to this Commission and various stakeholders, the
19 Company has carefully undertaken an analysis of what its customers and
20 communities have been asking that we provide. In so doing, the Company

¹ Rule 3602(k).

² Rule 3601.

1 has put together an initiative, Our Energy Future, of which this 2016 ERP is
2 part of that initiative. This long-term initiative intends to provide the future we
3 are hearing from our stakeholders that they desire in a cost effective manner.
4 This long term future envisions an environment where Public Service will
5 continue to provide the highly reliable service it has been known for in an
6 increasingly clean and adaptable manner.

7 As referenced through our simultaneously filed Notice of Intent, a
8 number of other filings are addressing components of this long-term future
9 and some of those filings will utilize information from the adjudication of the
10 assumptions in this proceeding. Thus, this 2016 ERP serves as not only a
11 basis to acquire necessary resources over the RAP, but also as a
12 summarization of the impacts of decisions that could be made in those other
13 filings on the long term capacity needs of the Company.

14 **Q. WHAT OTHER COMPANY WITNESSES FILED TESTIMONY WITH THIS**
15 **APPLICATION?**

16 A. In addition to myself, the Company is sponsoring four witnesses in support of
17 our Application. The following table identifies these witnesses and the areas
18 that they are covering:

Witness	Area of Testimony
James Hill Director, Resource Planning	<ul style="list-style-type: none"> • Describes the selection of the 8-year Resource Acquisition Period and Planning Period. • Discusses the assessment of need. • Provides an analysis of alternative plans and relevant cost estimates used for the comparative plans.
Kent Scholl Senior Resource Planning Analyst	<ul style="list-style-type: none"> • Discusses the proposed Phase II evaluation process. • Sponsors the RFPs and PPAs in Volume 3 of the 2016 ERP. • Sponsors the solar integration cost study and an effective load carrying capability (“ELCC”) study of existing and incremental solar generation resources.
Jannell Marks Director, Energy and Demand Forecasting	<ul style="list-style-type: none"> • Presents the demand and sales forecast used in the ERP and describes its underlying methodology.
Connie Paoletti Manager, Regional Transmission Initiatives	<ul style="list-style-type: none"> • Discusses the Company’s existing transmission planning activities for facilities 115 kV and above and the system capabilities. • Supports the description in the ERP of all transmission lines and facilities appearing in the most recent report filed with the Commission pursuant to § 40-2-126, C.R.S. that could reasonably be placed into service during the RAP.

1 **Q. DO YOU HAVE ANY ATTACHMENTS TO YOUR DIRECT TESTIMONY?**

2 A. Yes. I am sponsoring Attachments AKJ-1 through AKJ-3, the three volumes
3 of our 2016 ERP.

1 **II. OVERVIEW OF THE 2016 ERP**

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

3 A. This section of my Direct Testimony is divided into four distinct parts: (1)
4 background and previous ERP history; (2) 2016 ERP objectives and drivers;
5 (3) other activities; and (4) alternative evaluations. These four sections
6 collectively provide a summary and overview of the ERP process as well as a
7 summary of the Company's 2016 ERP. Specifically, I will address the key
8 drivers of our ERP and uncertainties that affect our demand and the
9 competitiveness of different generation technologies. I also discuss the
10 potential impacts of other filings with the Commission on the forecasted
11 resource need and issues regarding the acquisition of resources in this
12 proceeding.

13 **A. Background and ERP History**

14 **Q. WHAT IS THE PRIMARY PURPOSE OF THE COMPANY'S 2016 ERP?**

15 A. The primary purpose of the 2016 ERP is to describe the current state of the
16 Company's generation portfolio and what the incremental resource needs
17 could be over the near future, which as discussed above is known as the
18 designated RAP. In this instance we are recommending an 8-year RAP,
19 specifically from May 2016 to May 2024.³ Mr. Jim Hill provides support for
20 why the Company selected this period of time as the appropriate RAP to
21 consider in this instance.

³ Note the selected RAP does not result in the Company filling the summer peak need for 2024 through this ERP.

1 Additionally, in the provided materials the Company presents our
2 proposed method of acquiring the necessary resources, and the solicitation
3 and evaluation process Public Service plans to employ in order to select the
4 resources necessary to ensure an economic and reliable generation portfolio.
5 The 2016 ERP is designed to reflect and accommodate the current energy
6 environment while providing a path to acquire the necessary generation
7 resources to meet future capacity and energy needs of the system. The 2016
8 ERP lays out the use of a competitive acquisition process to fill the future
9 capacity and energy needs of the system and provides the materials for
10 enabling the evaluation of multiple types of participants in that acquisition
11 process.

12 **Q. PLEASE DESCRIBE HOW THE COMPANY IS PRESENTING THE 2016**
13 **ERP, SPECIFICALLY YOUR ATTACHMENT NOS. AKJ-1 THROUGH AKJ-**
14 **3.**

15 A. The 2016 ERP consists of three volumes of detailed information and
16 alternative plans filed in compliance with the Commission's Electric Resource
17 Planning Rules ("ERP Rules").

18 • **Attachment AKJ-1** is Volume 1, which includes the executive
19 summary, a discussion of the current industry landscape, the
20 assessment of the need for additional resources and the analysis of
21 alternative plans.

22 • **Attachment AKJ-2** is Volume 2, which contains the technical
23 appendices and includes much of the detailed information required by

1 the ERP Rules, additional detail about the information provided in
2 Volume 1, and supporting information and reference studies.

- 3 • **Attachment AKJ-3** is Volume 3, and contains the Request for
4 Proposals (“RFP”) and the associated model agreements for the
5 Phase II competitive solicitation.

6 **Q. YOU MENTION THE COMMISSION’S ERP RULES. PLEASE BRIEFLY**
7 **DESCRIBE THESE RULES.**

8 A. The ERP Rules govern the process by which the utility develops and presents
9 an ERP. After the utility files its ERP, the ERP Rules establish a process for
10 the Commission to determine the inputs and assumptions, and ultimately the
11 resource need in Phase I. The ERP Rules also provide requirements for the
12 acquisition of resources in Phase II of the ERP to meet demand and energy
13 requirements over the RAP.

14 Specifically, Rule 3603 specifies the frequency of which a utility must
15 file an ERP (i.e., every four years beginning Oct. 31, 2015), the ability to file
16 an interim plan if necessary and with explanation for cause as well as
17 instruction on filing for protective orders for certain materials deemed highly
18 confidential.

19 Rule 3604 goes on to lay out the specific contents of the ERP filing.
20 These contents range from an annual electric demand and energy forecast
21 developed pursuant to Rule 3606 to how the utility will fulfill acquisition of the
22 resources from the second phase of the ERP.

1 **Q. HAS THE COMPANY SATISFIED AND MET EACH OF THE RULE**
2 **REQUIREMENTS WITH THE PRESENT ERP FILING?**

3 A. Yes, the materials to achieve compliance with the Rule requirements are
4 either within Attachments AKJ-2 and AKJ-3 to my Direct Testimony as well as
5 supported by testimonies of the Company's other presented witnesses.

6 **Q. PLEASE GENERALLY DESCRIBE PAST ERPs FILED BY THE**
7 **COMPANY.**

8 A. In the 2004 ERP⁴ and the 2007 ERP,⁵ the Company faced a need to add
9 significant new sources of generation to meet the Company's growing peak
10 day demands. Over these same resource planning cycles, we also needed
11 new renewable energy resources to meet the increasing percentage
12 requirements for qualifying retail utilities under the statutory Renewable
13 Energy Standard ("RES")⁶ and associated RES Rules.⁷ In the 2011 ERP,
14 however, the Company had a relatively low need for additional generation
15 capacity and had a large quantity of PPAs expiring over the 7-year RAP
16 selected for that ERP, which went through October 2018. We identified a
17 limited additional resource need through 2018 and therefore sought to make
18 only short-term resource decisions in the 2011 ERP. The Company stated
19 that it would make longer term decisions in its next resource plan, i.e., this
20 2016 ERP. However, following the Phase I decision on our 2011 ERP

⁴ Proceeding No. 04-214E.

⁵ Proceeding No. 07A-447E.

⁶ § 40-2-124, C.R.S. *et seq.*

⁷ Rules 3650-3668.

1 (Decision No. C13-0094), Congress extended the federal Production Tax
2 Credit (“PTC”) for wind resources. We sought leave to seek additional wind
3 resources in the Phase II process on an expedited timeline. On October 9,
4 2013, the Commission approved 450 MW of wind resources at then
5 “unprecedented low bid prices” that would were estimated to result in \$231
6 million of cost savings to customers. Later in 2013, the Commission
7 ultimately approved a portfolio of wind, solar and gas-fired resources by
8 Decision No. C13-1566.

9 **Q. IS THE 2016 ERP SIMILAR TO PAST RESOURCE PLANS THE COMPANY**
10 **HAS FILED?**

11 A. Yes, in certain respects. In one sense, we face a different set of conditions
12 over the RAP for this 2016 ERP resulting in a sizable need for additional
13 generation capacity (approximately 615 MW by 2023) to meet our need,
14 including planning reserve margin targets. On the other hand, the
15 circumstances presented following the Phase I decision on the 2011 ERP are
16 similar to the current circumstances surrounding the filing of this 2016 ERP.
17 On December 18, 2015, the Omnibus Appropriations Act (“Act”) was signed
18 into law by President Obama. The Act includes a five-year extension of both
19 the 30 percent investment tax credit (“ITC”) and PTC for wind and other
20 eligible renewable energy projects.⁸ Absent the extension, the ITC was slated
21 to decrease to 10 percent from 30 percent for solar facilities placed into

⁸ H.R. 2029.

1 service after 2016, and the PTC was scheduled to expire for eligible projects
2 for which construction had not yet begun by the end of 2015. As a result of
3 the Act, the ITC has been extended at the full 30 percent for five years and
4 then declines over time after that point. The PTC has also been extended,
5 with its decline beginning after December 31, 2016.

6 **Q. DOES THE INTERNAL REVENUE SERVICE STILL ALLOW FOR THE**
7 **SAFE HARBOR?**

8 A. Yes. On May 5, 2016 the IRS updated its safe harbor guidance through
9 Notice 2016-31. The revised safe harbor guidance defines the “begin
10 construction” standard the same as past guidance, but extends the deadline
11 for “continuous construction” requirements. Specifically, rather than the
12 facility needing to be in service two years after beginning construction, the
13 IRS has extended that requirement to four years. Thus, by way of example,
14 the deadline for the in-service date of the facility in order to qualify for the
15 PTC at 100 percent has been changed from year end 2018 to year end 2020.

16 **Q. ARE THERE OTHER SIMILARITIES WITH THE 2011 ERP IN PARTICULAR**
17 **THAT YOU WANT TO ADDRESS?**

18 A. Similar to the circumstances the Company described in the 2011 ERP,
19 today's energy environment is in a state of flux and uncertainty. In addition,
20 with lower natural gas prices, the extension of the ITC and PTC, surplus
21 existing thermal generation, and improvements in generation technology, our
22 energy environment is more competitive today than they have been in recent
23 years. As a result of these dynamics, the 2016 ERP does not identify the

1 specific generation resources to be acquired, but instead provides a path and
2 process forward (through the RAP ending in 2024) that allows competition
3 between all technologies under a Phase II process.

4 **Q. ARE THERE NOTABLE DIFFERENCES IN THIS 2016 ERP THAN THOSE**
5 **FACED IN THE PRIOR TWO DESCRIBED ERPs?**

6 A. Yes. Of particular note is that the load on a going forward basis has more
7 variability due to potential implementation of rate design, growth or lack
8 thereof in the oil and gas industry, and the need for assumptions on the
9 amount of distributed energy that should be assumed on a going forward
10 basis. I and other Company witnesses discuss these variables in our
11 respective testimonies and it is discussed in Volume 1 of the ERP.

12 **B. 2016 ERP Objectives and Drivers**

13 **Q. WHAT ARE THE PRIMARY OBJECTIVES FOR THE 2016 ERP?**

14 A. There are three primary guideposts for our 2016 ERP. First, we want to
15 develop a plan that reliably meets the electric energy needs of our customers
16 in a cost-effective manner. Second, given this era of environmental and
17 regulatory uncertainty, we want to ensure the plan allows us the flexibility to
18 adapt to changing conditions over the next five to ten year period. Third, we
19 want to take advantage of market and political conditions (e.g., federal tax
20 policy) that are favorable to the Company's customers.

21 The combination of these guideposts was discussed by David Eves
22 with the Commission at its Commissioner Information Meeting in December
23 2015. Mr. Eves referred to the outcome and actions the Company will take

1 on a “no regrets” basis. We want to identify resources with economics that
2 benefit our customers and benefit the state of Colorado more broadly.
3 Further, we want to identify a resource portfolio that positions us to comply
4 with any number of future regulatory landscapes, particularly with regard to air
5 quality regulations.

6 **Q. WHAT ARE THE DRIVERS THAT IMPACT THE 2016 ERP?**

7 A. The Company’s projection of need for additional generation resources in this
8 2016 ERP is being influenced by a number of factors, which has resulted in a
9 greater level of uncertainty in these projections than in prior ERPs. The
10 factors creating uncertainty affect (1) our projection of demand and (2)
11 competition as between generation technologies.

12 **Q. PLEASE DESCRIBE THE FACTORS AFFECTING ELECTRIC DEMAND.**

13 A. While there has always been uncertainty as to the economic expectations
14 included in the Company’s forecast of electric demand and energy over the
15 years, Public Service is now facing a convergence of issues associated with
16 an energy environment that is in transition. Some of the near-term issues that
17 have the potential to affect either the customer’s electric demand or the
18 Company’s available resources to be addressed in this ERP through 2024
19 include:

- 20 • Increasing levels of distributed generation on the Public Service
21 system through both Solar*Rewards and non-Solar*Rewards
22 customers;

- 1 • Increased customer participation in customer choice programs
2 including community solar gardens through Solar*Rewards
3 Community, and expected participation in the Company’s proposed
4 Solar*Connect program;
- 5 • Utilization of more energy efficient appliances and lighting;
- 6 • Significantly lower oil and natural gas prices, resulting in a
7 downturn in the energy sector and a lower energy and demand
8 forecast for our customers that are oil and gas companies;
- 9 • Reduced peak electric demand associated with the Company’s
10 proposed future filing for components of the “Advanced Grid
11 Intelligence and Security” (“AGIS”) initiative; and
- 12 • The potential impact of future tariff and services changes as our
13 customer’s energy options continue to evolve.

14 **Q. WHAT FACTORS ARE AFFECTING COMPETITION BETWEEN**
15 **GENERATION TECHNOLOGIES?**

16 A. Colorado is uniquely located in an energy rich zone of the country. We are
17 located in one of the best wind zones of the country, we sit near vast reserves
18 of low cost coal, there is an abundance of natural gas production in the state
19 and in nearby states, and our solar resource is in the top ten of the U.S. As a
20 result of our location and access to these energy resources, along with a
21 number of other issues, we are seeing more competition between the
22 different generation technologies than we have seen in the recent years.

1 Below are several factors that influence the mix and timing of supply-side
2 generation resources that will ultimately be acquired to satisfy the identified
3 needs of the system and make this 2016 ERP process unique:

- 4 • Historic low natural gas prices;
- 5 • Underutilized natural gas generation facilities in the region;
- 6 • Extension of the PTC and ITC;
- 7 • A downward sloping cost curve for solar generation;
- 8 • Enhancements to the distribution grid allowing for new grid related
9 services; and,
- 10 • The U.S. Supreme Court's stay of EPA's proposed Clean Power
11 Plan regulating carbon dioxide emissions from power plants.

12 As a result of these factors, and as discussed further in the 2016 ERP and the
13 testimony of Company witness Mr. James Hill, we expect to see competitive
14 pricing offered from the market for a variety of generation technologies during
15 the proposed 8-year RAP.

16 **Q. HOW DOES THE PROPOSED CLEAN POWER PLAN AFFECT THIS 2016**
17 **ERP?**

18 A. The recent stay of the proposed Clean Power Plan by the U.S. Supreme
19 Court adds to the uncertainty the Company faces in this 2016 ERP. While
20 there is some expectation that this environmental regulation will be reinstated
21 with changes, even if it does not, we anticipate continued change and drive
22 toward lower emitting generation resources. Accordingly, we will be looking

1 for projects to fill our resource need – like the Rush Creek Wind Project
2 discussed below – that move the Company and the State of Colorado toward
3 compliance with the stayed Clean Power Plan. These “no regrets” projects
4 are expected to be given full credit in any future environmental regulation, and
5 this coupled with favorable economics for our customers are why we want to
6 pursue them. The alternative plan analysis discussed in more detail in
7 Volume 1 of the 2016 ERP (Attachment AKJ-1) and the testimony of Mr.
8 James Hill provides a general indication that Public Service’s past and
9 continued efforts in the area of DSM and customer choice programs, coupled
10 with our plan to add the Rush Creek Wind Project in Proceeding No. 16A-
11 0117E and the potential addition of more wind and solar resources through
12 this ERP, will further enhance the Company’s position to address future public
13 policy regulations regarding carbon dioxide emissions.

14 **Q. GIVEN THE CLEAN POWER PLAN IS STAYED (AND MAY EVENTUALLY**
15 **BE STRUCK DOWN OR MODIFIED BY THE COURTS), WHY SHOULD**
16 **THE COMMISSION CONSIDER IT IN EVALUATING THE 2016 ERP?**

17 A. I am not a lawyer, however, I understand that the laws of the State of
18 Colorado direct the Commission to consider the potential costs of carbon
19 dioxide regulation when evaluating utility proposals to acquire resources
20 pursuant to § 40-2-124(1)(b), C.R.S., which provides that “[t]he commission
21 may give consideration to the likelihood of new environmental regulation and
22 the risk of higher future costs associated with the emission of greenhouse
23 gases such as carbon dioxide when it considers utility proposals to acquire

1 resources.” This statutory directive is implemented through Rule 3610(c),
2 which applies it in the ERP context. This rule provides that costs associated
3 with future environmental regulations, which would include regulations such
4 as the Clean Power Plan regulating carbon dioxide emissions from power
5 plants, may be considered in evaluating “utility proposals to acquire additional
6 resources during the [RAP].” For these reasons, we have considered levels
7 of carbon dioxide emissions and Clean Power Plan compliance in evaluating
8 various resource acquisition strategies in this 2016 ERP.

9 **Q. ARE THERE ANY OTHER UNCERTAINTIES THAT YOU WANT TO**
10 **ADDRESS?**

11 A. Yes. As in our 2011 ERP, uncertainty exists regarding whether the City of
12 Boulder will leave the Public Service system. Consistent with our 2011 ERP,
13 we have not reduced our resource need to remove the City of Boulder. We
14 need to be prepared to serve our entire load.

15 **C. Other Company Actions Relevant to the 2016 ERP**

16 **Q. HAS THE COMPANY TAKEN ANY ACTION TO CAPTURE THE BENEFITS**
17 **OF THE PTC EXTENSION?**

18 A. Yes. To capture the 100 percent PTC benefit for customers, we filed an
19 application on May 13, 2016 in Proceeding No. 16A-0117E to develop and
20 own 600 MW of wind resources through a project in eastern Colorado known
21 as the Rush Creek Wind Project. If the Commission approves the project
22 within the timeline proposed by the Company, our customers are expected to
23 save \$443 million on a present value revenue requirement basis (“PVRR”),

1 net of all costs, over a 40-year planning horizon by taking advantage of the
2 100 percent PTC benefit.

3 **Q. HOW DOES THE PROPOSED RUSH CREEK WIND PROJECT AFFECT**
4 **THE RESOURCE NEED FOR THE 2016 ERP?**

5 A. The Rush Creek Wind Project will fill only a portion of the Company's
6 projected resource need over the RAP, i.e., approximately 49 MW. This
7 resource has already been accounted for in the resource need evaluation,
8 and we anticipate seeking approximately 615 MW of new resources to meet
9 the need in 2023. Therefore, the Rush Creek Wind Project is reflected in this
10 ERP, and we will be seeking resources to fill the additional resource need.

11 **Q. IN ADDITION TO PROCEEDING NO. 16A-0117E, WHAT OTHER**
12 **PROCEEDINGS MAY AFFECT THE CUMULATIVE CAPACITY NEEDS OF**
13 **THE SYSTEM OVER THE RAP?**

14 A. The table below shows the proceedings that may affect the resource need
15 over the RAP. Volume 1 of the ERP, which is included as Attachment AKJ-1,
16 has a more detailed analysis of the Company's loads and resources in Table
17 1.4-2.

18 **Table AKJ-1: Potential Impacts of Other Filings on Resource Need**

Topic/Proceeding Number	Approximate Potential Impact on Need	Reflected in Projected Need of 615 MW (Y/N)
2017 RE Plan (Proceeding No. 16A-0139E)	215 MW	Yes
Solar*Connect Program (Proceeding No. 16A-0055E)	15 MW	Yes

Topic/Proceeding Number	Approximate Potential Impact on Need	Reflected in Projected Need of 615 MW (Y/N)
Rush Creek Wind Project (Proceeding No. 16A-0117E)	49 MW	Yes
Proposed AGIS System (N/A – not yet filed)	100 MW to 300 MW	No

1 The Company is forecasting a capacity need of approximately 615 MW
2 by 2023 *after* accounting for the impacts of the 2017 RE Plan, the
3 Solar*Connect Program, and the Rush Creek Wind Project. However, the
4 outcome of these other regulatory proceedings could impact the overall
5 capacity and energy need of the system over the RAP. To the extent these
6 proceedings are finalized by the beginning of the Phase II competitive
7 acquisition process or the actual results of these programs differ from the
8 assumptions underlying the Company’s forecasts, Public’s Service’s actual
9 capacity need in 2023 could range from as low as approximately 200 MW to
10 as high as approximately 800 MW. Due to this higher degree of uncertainty,
11 Public Service is proposing to wait until the beginning of the Phase II
12 acquisition process to finalize the determination of resource need to be
13 acquired in this 2016 ERP. This approach is typical. For example, in
14 Decision No. C13-0094 at Paragraph 203 in the 2011 ERP, the Commission
15 found “good cause to direct the Company to update its forecast based on
16 current information for the calculation of the resource need for Phase II.”

1 **Q. ARE CUSTOMER CHOICE RESOURCES ACCOUNTED FOR IN THE**
2 **COMPANY'S DETERMINATION OF THE RESOURCE NEED OVER THE**
3 **RAP?**

4 A. Yes. Our forecasted resource need accounts for a level of solar and wind
5 customer choice renewable resources that reflects the maximum capacity
6 associated with these resources that could be approved in the 2017 RE Plan.
7 Further, because the 2017 RE Plan is a three-year plan whereas the ERP
8 requires a longer planning horizon, the Company has projected ongoing
9 acquisitions of customer choice solar in 2020 and beyond at a level of
10 approximately 105_{DC} MW⁹ per year over the planning horizon. I would note
11 this has a significant impact on the need shown above. For example, in 2023
12 the need is reduced due to the modeling of ongoing customer choice solar at
13 a level of 105 MW_{DC} per year annually after 2019. If this this level of
14 acquisition is lower in the future, it would increase the need over the RAP.

15 **Q. DOES THE RESOURCE NEED ACCOUNT FOR ONGOING DSM**
16 **PROGRAMS?**

17 A. Yes. As reflected in Table AKJ-1, the determination of the resource need
18 over the RAP accounts for the level of DSM agreed to in the Company's
19 Strategic Issues filing in Proceeding No. 13A-0686EG, despite the law not
20 having a DSM requirement after 2018.¹⁰

⁹ The 105 MW(DC) reflect the nameplate capacity. Its impact on the L&R is only a percentage of nameplate.

¹⁰ § 40-3.2-104(2), C.R.S.

1 **D. The Company’s Alternative Plans and Addition of New Resources**

2 **Q. PLEASE DISCUSS THE COMPANY’S EVALUATION OF ALTERNATIVE**
3 **PLANS IN THE 2016 ERP.**

4 A. As required by the ERP Rules, and specifically Rule 3604(k), the Company is
5 proposing at least three alternative plans “that can be used to represent the
6 costs and benefits from increasing amounts of renewable energy resources,
7 demand-side resources, or Section 123 resources....” As discussed by
8 Company witness Mr. James Hill, we present these alternatives through a
9 PVRR comparison to allow the Commission to compare the costs and
10 benefits of these approaches.

11 **Q. DOES PUBLIC SERVICE PRESENT A PREFERRED PLAN IN ITS 2016**
12 **ERP?**

13 A. No, the Company does not present a preferred plan. The changing dynamics
14 of today’s energy environment makes it challenging to lay out a very detailed
15 plan for the RAP at this time. Nevertheless, the abundant availability of low
16 cost natural gas, wind, and solar resources, provides the opportunity for
17 customers to lock-in a low risk and low cost solution for a number of years to
18 come in this 2016 ERP. We therefore want to use the 2016 ERP process to
19 evaluate and identify a plan over the RAP that recognizes and encourages
20 the transition from our current generation fleet to one that includes more
21 distributed energy resources and increasing levels of renewable energy
22 resources. We believe this approach is appropriate given the numerous

1 factors creating uncertainty that affects both demand and the competitiveness
2 of generation technologies.

3 **Q. WHAT OPTIONS WILL BE AVAILABLE FOR EVALUATION AND**
4 **SELECTION IN PHASE II TO MEET THE NEEDS OF THE PUBLIC**
5 **SERVICE SYSTEM?**

6 A. The Phase II portion of this 2016 ERP will present a number of selection
7 alternatives to be utilized as a solution for our customers, beyond just
8 resource type. In addition to more traditional PPAs, these options include
9 build/transfer, potential sale of resources with expiring PPAs, extensions of
10 expiring PPAs, Company bid resources, and/or other Company owned
11 resources. Having this variety of options transparently before the
12 Commission will allow for a clear and detailed evaluation of the best public
13 interest outcome.

14 **Q. IS THE COMPANY INTERESTED IN EVALUATING BUILD/TRANSFER**
15 **BIDS IN THIS PHASE II?**

16 A. Yes.

17 **Q. DOES THE COMPANY HAVE A DESIRE TO OWN RESOURCES AS A**
18 **RESULT OF THIS PHASE II ACQUISITION?**

19 A. Public Service is interested in participating in the ownership of all forms of
20 large scale generation resources that may be offered and/or selected in
21 conjunction with the proposed Phase II.

1 **Q. WHAT IS THE COMPANY'S OUTLOOK FOR ADDITIONAL RENEWABLE**
2 **ENERGY IN THIS PLAN?**

3 A. The Company has a proven track record of adding and managing renewable
4 resources on our system while taking advantage of the PTC and ITC. We
5 have successfully leveraged the PTC to acquire wind resources that assist in
6 compliance with the RES, reduce air emissions, and provide other
7 environmental and economic benefits to Colorado. As I already mentioned,
8 Public Service is seeking approval of the Rush Creek Wind Project pursuant
9 to Rule 3660(h) in a separate proceeding. While the acquisition of that
10 eligible energy resource is reflected in this 2016 ERP, we are seeking
11 approval of it by separate application consistent with applicable Commission
12 Rules and in order to obtain a Commission decision by November 10, 2016.
13 This timing will allow customers to obtain the benefits of the 100 percent PTC
14 for that resource.

15 The PTC and ITC extension will also factor into this ERP. As in our
16 2011 ERP, where we added 450 MW of wind and 170 MW of solar, additional
17 wind and solar may be able to fill a portion of the forecasted resource need in
18 2023. These tax credit extensions may make wind and solar resources a
19 particularly attractive option in Phase II of this proceeding. We are thus
20 seeking bids for wind and solar resources, including build/transfer projects
21 that could be owned by the Company, as I discuss later in my testimony.

1 **Q. HOW IS THE COMPANY PROPOSING TO EVALUATE THE ACQUISITION**
2 **OF ADDITIONAL RENEWABLE ENERGY IN THIS PLAN?**

3 A. Public Service is proposing to let all types of renewable energy compete in
4 the Phase II solicitation against all of the other bids. As part of our model
5 contracts and RFPs, we are also including a model build/transfer term sheet
6 for wind resources, solar resources, and gas peaking resources. We wanted
7 to include these model build/transfer term sheets in order to obtain
8 build/transfer bids for solar, wind, and gas peaking resources and compare
9 them to other bids received. Phase II of the 2016 ERP will consider PPA bids
10 from independent power producers (“IPPs”), build/transfer bids, and self-build
11 proposals from the Company. We believe that this approach will help to
12 ensure we are able to obtain resources to fill the resource need that are cost-
13 effective for customers.

14 **Q. WILL RESOURCES COVERED BY CUSTOMER CHOICE PROGRAMS**
15 **NEED TO COMPETE IN THE PHASE II SOLICITATION?**

16 A. No. On February 29, 2016, the Company filed its 2017 RE Plan. In the 2017
17 RE Plan, we noted that the Company is ahead of compliance in all categories
18 of the RES (Retail DG, Wholesale DG, and Non-DG) and will be able to meet
19 the RES compliance goals in each of the 2017, 2018 and 2019 RES
20 Compliance Years. Nevertheless, the Company identified economic and
21 prudent customer choice eligible energy resources and has sought approval
22 of substantial amounts of these resources in Proceeding No. 16A-0139E
23 (involving the 2017 RE Plan). These resources, including rooftop solar and

1 community solar gardens, will not be acquired through the Phase II
2 solicitation because we have already sought to acquire them in the 2017 RE
3 Plan. This is the same approach we have used in past ERPs and RE Plans.

4 **Q. ARE THERE ANY TYPES OF GENERATION RESOURCES THAT THE**
5 **COMPANY WILL NOT ACCEPT BIDS FROM IN PHASE II?**

6 A. Yes. As discussed in the testimony of Mr. Kent Scholl, we do not intend to
7 accept bids from coal-fired generation resources in the Phase II solicitation.

1 **III. REQUESTED APPROVALS AND COMPLIANCE ISSUES**

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

3 A. The purpose of this section of my testimony is to address the approvals the
4 Company is seeking from the Commission in this proceeding and in
5 compliance with the ERP Rules. In addition, I address compliance
6 requirements in this proceeding from the 2011 ERP proceeding and how the
7 Company has met those requirements.

8 **Q. WHAT APPROVALS IS PUBLIC SERVICE REQUESTING FROM THE**
9 **COMMISSION BY THIS APPLICATION?**

10 A. The Company seeks approval of its 2016 ERP in this proceeding and the
11 accompanying assumptions and studies incorporated in this 2016 ERP.

12 **Q. DOES THE COMPANY'S 2016 ERP FILING COMPLY WITH THE**
13 **COMMISSION'S ERP RULES?**

14 A. Yes. In Volume 2 of this 2016 ERP included as Attachment AKJ-2, we have
15 provided a compliance table showing applicable Rules and where in our filing
16 the relevant information can be located.

17 **Q. DOES THE COMPANY'S 2016 ERP FILING INCLUDE CERTAIN**
18 **ASSUMPTIONS AND INPUT STUDIES FOR UTILIZATION BY THE ERP**
19 **MODELING?**

20 A. Yes. As we initially presented on February 29, 2016 in Attachment A to our
21 filing in the Technical Inputs and Assumptions proceeding (Proceeding No.
22 16A-0138E), we provided the technical inputs and assumptions to be utilized
23 in this 2016 ERP. Additionally, we identified six items that were supporting

1 studies related to technical inputs and assumptions and that we intended to
2 update. Table AKJ-2 below lists these studies and the proceeding in which
3 we are seeking approval of these studies as informed by the discussion at the
4 prehearing conference in Proceeding No. 16A-0138E on May 27, 2017.

5 **Table AKJ-2: Study Reports and Requested Approvals**

Study Report	Proceeding for Approval (Proceeding Number)	Date Filed
Solar Integration Costs	ERP (this proceeding)	May 27, 2017
Coal Cycling Costs	Rule 3660(h) (16A-0117E)	May 13, 2016
Flex Reserve Adequacy	Rule 3660(h) (16A-0117E)	May 13, 2016
Firm Fuel Charges*	<i>None</i>	<i>No Study Report will be filed</i>
Wind ELCC	Rule 3660(h) (16A-0117E)	May 13, 2016
Solar ELCC	ERP (this proceeding)	May 27, 2017

6 **Q. IF THE COMPANY HAS SOUGHT APPROVALS OF A STUDY IN**
7 **ANOTHER PROCEEDING, DOES IT INTEND TO ALSO SEEK APPROVAL**
8 **OF THE STUDY IN THIS PROCEEDING?**

9 A. No. We do not intend to seek approval of the studies filed in other
10 proceedings in this proceeding. We have provided all studies in an appendix
11 to Volume 2 of the ERP (Attachment AKJ-2) for ease of reference for the
12 Commission and parties that participate in this proceeding. However, we are
13 not seeking approval or otherwise attempting to litigate the contents of those
14 other studies in this proceeding.

1 **Q. IS THE COMPANY SEEKING COMMISSION APPROVAL OF ANY OF THE**
2 **STUDIES REFERENCED IN TABLE AKJ-2 IN THIS PROCEEDING?**

3 A. Yes. The Company is seeking approval of the solar integration cost study
4 and solar ELCC study. These studies are described in the Direct Testimony
5 of Company witness Mr. Kent Scholl and included as attachments to his
6 testimony.

7 **Q. IN PROCEEDING NO. 11A-869E REGARDING THE 2011 ERP, DID THE**
8 **COMMISSION REFERENCE CERTAIN ISSUES THAT THE COMPANY**
9 **NEEDS TO ADDRESS IN THIS 2016 ERP?**

10 A. Yes. In decisions addressing Phase I (Decision No. C13-0094) and Phase II
11 (Decision No. C13-1566) of the 2011 ERP, the Commission directed the
12 Company to address several issues in its next ERP.

13 **Q. WHAT ADDITIONAL COMPLIANCE MEASURES WERE REQUIRED BY**
14 **DECISION NO. C13-0094?**

15 A. In Decision No. C13-0094, the Commission required Public Service to
16 eliminate provisions from its model PPA that subject IPPs to continuing
17 liability for FIN 46 or capital lease issues. The Commission further ordered
18 Public Service to make a filing in a new proceeding seeking approval of a
19 specific approach to address this issue after the conclusion of Phase II, but
20 “only when it is reasonably certain that the new accounting standards will be
21 implemented.” In Section 2.11 of Volume 2 of our ERP, we address the new
22 lease accounting standard issued by the Financial Accounting Standards
23 Board (“FASB”) in February 2016 and summarize the expected impacts of the

1 new lease accounting standard on Public Service's PPAs. Given that the new
2 accounting standards have been implemented by the FASB, we request
3 approval to use this approach, as required by Decision No. C13-0094.

4 **Q. WHAT ADDITIONAL COMPLIANCE MEASURES WERE REQUIRED BY**
5 **DECISION NO. C13-1566?**

6 A. Decision No. C13-1566 includes a section entitled "Future ERP Issues,"
7 which sets forth several issues for the Company to address in its next ERP
8 filing, which is this 2016 ERP. The Commission required Public Service to
9 address (1) the annuity tail comparison, (2) the use of filler capacity
10 adjustments for Strategist modeling, (3) the application of the surplus capacity
11 credit, (4) the Gas Price Volatility Mitigation ("GPVM") adder, (5) the benefits
12 of highly flexible resources, and (6) the use of a sensitivity case using high
13 carbon costs for all portfolios in ERP modeling. Decision No. C13-1566
14 further required us to address each issue "with sufficient detail so that the
15 Commission and parties understand the Company's position and the parties
16 can respond through testimony in the ERP." As required by the Commission,
17 we have addressed each of these issues in detail in Section 2.11 of Volume 2
18 of the 2016 ERP.

19 **Q. WHAT IS THE COMPANY REQUESTING IN THIS APPLICATION?**

20 A. We request that the Commission grant approval of our 2016 ERP and the
21 accompanying assumptions and studies incorporated in this 2016 ERP.

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

23 A. Yes, it does.

Statement of Qualifications

Alice K. Jackson

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 Company of Colorado (“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. 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.

I accepted the RVP position with Public Service in November 2013 after holding the same position in another Xcel Energy Inc. (“Xcel Energy”) subsidiary, Southwestern Public Service Company, for two and a half years. Prior to my employment with Xcel Energy, I had been employed in the energy industry for over 10 years. In 2001, I was employed by Enron Energy Services, where I provided software application design and support to a variety of departments within that company.

In December 2001, I began working as a contract employee for Oxy Services, Inc., a subsidiary of Occidental Petroleum Corporation (“Oxy”), and transitioned to permanent employee status in January 2002. I held positions of increasing responsibility as a software programmer supporting Occidental Energy Marketing,

Inc., the trading organization within Oxy, where I designed, developed and implemented an application used by Oxy for the operations of their Retail Electric Provider ("REP") in the Electric Reliability Council of Texas ("ERCOT").

In June of 2004, I accepted a promotion to work for Occidental Energy Ventures Corp. ("OEVC") as Manager, Texas REP. In this position I was responsible for front office (procurement, monitoring, and regulatory), mid office (data processing and billing) and back office (accounting and reporting) operations of Oxy's wholly owned REP in the ERCOT region. In 2010, I became Director Energy for OEVC and was responsible for the regulatory activities of Oxy's facilities located within the New York Independent System Operator, the Southwest Power Pool ("SPP"), and ERCOT. My responsibilities for these jurisdictions included: (1) direction of Oxy's participation in utility cases at both state and federal levels; (2) direction and participation in federal initiatives impacting Oxy's business (e.g., FERC Notices of Proposed Rulemaking); (3) maintenance of regulatory filings required of Oxy's REP and generation assets at the state and federal level; (4) administration of Occidental Power Marketing, L.P. as a registered North American Electric Reliability Corporation Load Serving Entity in the SPP; and (5) evaluation of, and participation in, rule and protocol updates, revisions and additions before State Commissions, Regional Independent System Operators, and Regional Transmission Organizations ("RTOs").

In May 2011, I accepted a position with Xcel Energy Services Inc. ("XES") as Director, Regulatory Administration, and the position was transferred to SPS effective January 1, 2012. I was subsequently promoted to Regional Vice-President,

Rates and Regulatory Affairs, and in that capacity I devote my time to regulatory issues in SPS's Texas, New Mexico, and FERC jurisdictions.

I graduated from Texas A&M University in 2001, receiving a Bachelor of Business Administration degree with a major in information and operations management. I have testified before this Commission and the New Mexico Public Regulation Commission and provided written testimony a number of times before the Public Utility Commission of Texas.