

BEFORE THE PUBLIC UTILITIES COMMISSION OF COLORADO

19AL-0268E

**IN THE MATTER OF ADVICE NO. 1797-ELECTRIC OF PUBLIC SERVICE
COMPANY OF COLORADO TO REVISE ITS COLORADO P.U.C. NO. 8—ELECTRIC
TARIFF TO IMPLEMENT RATE CHANGES EFFECTIVE ON THIRTY-DAYS
NOTICE**

ANSWER TESTIMONY OF LESLIE GLUSTROM

SEPTEMBER 17, 2019

TABLE OF CONTENTS

1	I. INTRODUCTION AND QUALIFICATIONS.....	6
2	II. SUGGESTED APPROACH—START WITH THE LEGAL MANDATES OF THE PUC	8
3	III. SUMMARY.....	11
4	IV. BACKGROUND INFORMATION	14
5	A. Xcel Had Over \$551 Million in After Tax Net Income in Colorado in 2018	15
6	B. PSCo Has Had Numerous Rate Increases Since the Turn of the Century, Increasing Its	
7	Revenue by Over \$500 Million Per Year	17
8	C. PSCo After-Tax Profits Are Soaring Despite Basically Flat Sales and Peak Capacity.....	18
9	D. Xcel Share Price Has Also Soared In Recent Years.....	19
10	E. PSCo Contributes More to Xcel’s Earnings Per Share Than Xcel’s Minnesota Utility (NSP-	
11	Minn), Despite NSP-Minnesota Having a Larger System Size.....	21
12	F. PSCo Has Had Hundreds of MW of Excess Capacity (Above the Approved Reserve Margin)	
13	for Most Years in the Last Decade—Ratepayers Should Not Be Responsible for Paying For This	
14	Excess Capacity	22
15	G. PSCo’s Fuel Mix in Colorado in 2018 was 73% Fossil Fuel—40% Coal and 33% Natural	
16	Gas—This is Most Definitely Not Promoting the Health and Safety of the Public as Called for By	
17	Colorado Statute.....	24
18	H. Xcel Projects PSCo’s 2027 Fuel Mix to Still Be 46% Fossil Fuel in 2027.....	25

1 **I. There are Thousands of MW of Low-Cost Wind, Solar and Storage Projects Ready to Be**
2 **Developed in Colorado** 26
3 **J. The Climate Crisis is Here and Extremely Serious**..... 29
4 **K. Coal Supply Issues Are Intensifying and Could Easily Become Critical in the Coming Decade**
5 32
6 **V. FIND CACJ EXPENDITURES ON PAWNEE AND HAYDEN IMPRUDENT AND REDUCE**
7 **RETURN ON ANY ALLOWED EXPENDITURES TO THE COST OF DEBT** 38
8 **VI. DISALLOW 50% OF 2018 RUSH CREEK EXPENDITURES—TOO EXPENSIVE AND NOT**
9 **PRUDENT** 48
10 **VII. REDUCE RETURN ON CAP EX ON FOSSIL FUEL RESOURCES TO 4% AND REQUIRE**
11 **ESSENTIAL RELIABILITY ANALYSES IN THE FUTURE BEFORE SPENDING MORE THAN**
12 **\$1 MILLION ON A FOSSIL FUEL PLANT** 50
13 **VIII. REQUIRE REPORTS OF EXPENSES BY PLANT AND BY YEAR—PUT PSCo ON**
14 **NOTICE THAT FOSSIL FUEL EXPENSES WILL NO LONGER BE AUTOMATICALLY**
15 **APPROVED** 53
16 **IX. OTHER ISSUES TO EXAMINE**..... 56
17 **A. Tax Cut and Jobs Act Treatment** 56
18 **B. EAF—Equivalent Availability Factor** 57
19 **C. Comanche 3**..... 58
20 **X. CONCLUSION**..... 59

LIST OF ATTACHMENTS

LWG-1	Leslie Glustrom Resume—One Page
LWG-2	2018 PSCo 10-K Annual Report
LWG-3	2015 PSCo 10-K Annual Report
LWG-4	2019-09-03 Xcel PPT to Barclay’s Conference
LWG-5	19AL-0268E Discovery Response LWG1-1—Approved and Actual Reserve Margins
LWG-6	IPCC Second Assessment of Climate Science 2001—Summary for Policymakers
LWG-7	Xcel’s 2019 Carbon Report
LWG-8	Utilities Knew Report—Energy and Policy Institute (2017)
LWG-9	Coal Cheap and Abundant—Or Is It? (2009)
LWG-10	Warning: Faulty Reporting of US Coal Reserves (2013)
LWG-11	EIA Top US Coal Mines (2017)
LWG-12	Discovery Response LWG6-1 Docket 10M-245E—Net Plant Dec 31, 2009 (Parts A (Text) and B (Spreadsheet))
LWG-13	07A-447E April 2008 Comments of Professor James White on Climate Science
LWG-14	07A-447E April 2008 Comments of Dr. Juerg Schmidli on Climate Science

LWG-15	07A-447E April 2008 Testimony of Dr. Kevin Trenberth on Climate Science
LWG-16	07A-447E Answer Testimony of Leslie Glustrom
LWG-17	08S-520E Answer Testimony of Leslie Glustrom
LWG-18	10M-245E Glustrom Application for RRR of C10-1328
LWG-19	07A-447E 120 Day Report-Public Version
LWG-20	11A-325E Discovery Response LWG 4-9 (Cost of Pawnee in\$/MWh)
LWG-21	11A-689E Cost of Limon II Wind Farm
LWG-22	16A-0396E PSCo 30 Day Report (December 2017)
LWG-23	19AL-0268E Discovery Resp CPUC1-5 (Rush Creek Expenditures by Year)
LWG-24	11A-869E PSCo 120 Day Report (September 2013)
LWG-25	Union of Concerned Scientists “Natural Gas Gamble” (2015)
LWG-26	Rocky Mountain Institute Clean Energy Portfolio Risk to Natural Gas (2019)
LWG-27	IEEFA Report on Financial Red Flags for the Fracking Industry (2019)
LWG-28	Discovery Response OCC10-11, 19AL-0268E (FERC 1 Costs for PSCo)

LIST OF ABBREVIATIONS

CACJA	Clean Air Clean Jobs Act
CCR	Colorado Code of Regulations
CO2	Carbon Dioxide
CPCN	Certificate of Public Convenience and Necessity
CRS	Colorado Revised Statutes
EAF	Equivalent Availability Factor
EIA	Energy Information Administration
EPS	Earnings Per Share
ERP	Electric Resource Plan
IEEFA	Institute for Energy Economics and Financial Analysis
IPCC	Intergovernmental Panel on Climate Change
GHG	Greenhouse Gas
kWh	Kilowatt hour
LOLP	Loss of Load Probability
MW	Megawatt
MWh	Megawatt hour
NSP-Minn	Northern States Power of Minnesota
O&M	Operation and Maintenance
PSCo	Public Service Company of Colorado
PUC	Public Utilities Commission
RFP	Request for Proposal
RMI	Rocky Mountain Institute
TCJA	Tax Cut and Jobs Act (2017)
UCS	Union of Concerned Scientists

1 **I. INTRODUCTION AND QUALIFICATIONS**

2
3 **Q. PLEASE STATE YOUR NAME AND DESCRIBE YOUR EDUCATION AND**
4 **BACKGROUND**

5 A. My name is Leslie Glustrom and I am both an Xcel customer and shareholder.¹ Public Service
6 Company of Colorado (“PSCo” or “Xcel”) is my electricity and natural gas provider and I am a
7 significant holder of Xcel stock. I am trained as a chemist and biochemist and I have over 40
8 years of experience working at the interface of science and society. Most recently I have spent
9 over 15 years at the Colorado PUC working to accelerate the transition to a low-carbon electrical
10 generation system. As part of my work on climate change and clean energy I have conducted a
11 detailed look at the US coal industry. Since this PSCo “rate review” involves spending hundreds
12 of millions of dollars on old coal plants, this grounding in the fundamentals of the US coal
13 industry is very pertinent.

14 A one-page resume of my non-PUC work is included as attachment LWG-1.

15 **Q. PLEASE DESCRIBE YOUR EXPERIENCE AT THE COLORADO PUC**

16 A. Driven by a profound concern about climate change and a desire to accelerate the adoption of
17 clean, low-carbon solutions, I began participating at the Colorado PUC in 2004. Since 2005, I
18 have been granted intervention in over fifteen Colorado PUC dockets, including:

- 19 05A-072E Xcel Comanche-Daniels Park Transmission
20 07A-107E/07A-196E Xcel 2013 Contingency Plan/Tri-State Gas Contracts
21 07A-421E Xcel Pawnee Smoky Hill Transmission
22 07A-521E Xcel Interruptible Service Option Credit
23 07A-447E Xcel 2007 Resource Plan
24 07A-469E Xcel Fort St. Vrain Turbines

¹ I retire from my work in biochemistry on Friday September 13, 2019 and then am taking a much-needed week of vacation, so this deadline has been challenging to meet. I apologize for any roughness in this Answer Testimony.

1 08S-520E Xcel 2009 Rate Increase
2 09AL-299E Xcel 2010 Rate Increase
3 09A-772E Xcel 2010 Renewable Energy Compliance Plan and Windsource
4 10A-124E Xcel Smart Grid CPCN
5 10A-377E Xcel Amendment to 2007 Resource Plan
6 10M-245E Xcel Clean Air Clean Jobs Plan
7 11A-135E Xcel Solar Rebate Program Restart
8 11A-325E Xcel Pawnee Emissions Control CPCN
9 11A-418E Xcel 2012 Renewable Energy Standard Compliance Plan
10 11A-869E Xcel 2011 Resource Plan
11 11A-917E Xcel Hayden Emissions Control CPCN
12 11A-1001E Xcel Smart Grid City Cost Recovery
13 19AL-0268E Xcel Rate Increase Docket
14

15 In addition, I have been closely involved with and submitted detailed comments in several other
16 proceedings, so my experience includes most of the major PSCo dockets over the last 15 years.

17 **Q. PLEASE DESCRIBE YOUR EXPERTISE ON COAL COST AND SUPPLY ISSUES**

18 A. Since the carbon dioxide (CO₂) coming from US coal plants is a large (and until recently was
19 the largest) source of our country's greenhouse gas emissions, I began over a decade ago to take
20 a very close look at the geology and economics underlying the US coal industry. I quickly
21 learned that the oft-claimed "200 year supply" of US coal was based on a false reporting of US
22 coal reserves by the US Energy Information Administration ("EIA"). Instead of 200 years of
23 economically recoverable coal, the amount of US coal that could be mined at a profit was very
24 likely a small fraction (e.g. about one-tenth) of that.²

² The 2009 report written by Ms. Glustrom on US coal supply constraints is available at https://cleanenergyaction.files.wordpress.com/2011/10/coal_supply_constraints_cea_0212091.pdf
A 2009 speech given by Ms. Glustrom in Michigan outlining the situation with US coal supplies is available at <https://www.youtube.com/watch?v=t0y3KPmM22>
The 2013 report entitled "Warning: Faulty Reporting of US Coal Reserves," is available at <https://cleanenergyaction.files.wordpress.com/2013/10/warning-faulty-reporting-us-coal-reserves.pdf>
A 2014 Power Point given by Ms. Glustrom at the Coal Finance workshop at New York University is available at https://policyintegrity.org/documents/GLUSTROMPanel8_2014.pdf
Also, the 2009 and 2013 reports on coal supplies by Ms. Glustrom's are included as Attachments LWG-9 and LWG-10 to this testimony.

1 The consequences of this misreporting of the US coal “reserves” is now being seen in the
2 economic distress and numerous bankruptcies in the US coal industry. Most recently, the fourth
3 and sixth largest US coal mines (the Eagle Butte and Belle Ayr mines in Wyoming) that used to
4 be the sole suppliers of PSCo’s largest Colorado coal plants (Pawnee in Brush and Comanche in
5 Pueblo, respectively) were closed on July 1, 2019 as their owner Blackjewel filed for bankruptcy
6 and the mines have not opened since.³

7 The bankruptcies and abrupt closure of large coal mines are very important harbingers of
8 what is to come in the US coal industry and should play a key role in the PUC’s review of
9 PSCo’s expenditures on old coal plants as presented in this 19AL-0268E docket.

**If coal plants don’t have a long-term supply of coal, then it doesn’t
make a lot of sense to pour tens and hundreds of millions of dollars into
them—independent of all the arguments about climate change, water use,
mercury emissions and the availability of lower-cost, cleaner alternatives.**

10 **II. SUGGESTED APPROACH—START WITH THE LEGAL MANDATES OF THE**
11 **PUC**
12

13 **Q. PLEASE DESCRIBE THE PERSPECTIVE YOU HOPE THE COLORADO PUC**
14 **WILL ADOPT IN THIS 19AL-0268E DOCKET**

15 A. In the past, the Colorado PUC has begun dockets involving rate increases by looking at the
16 increase in revenue requirement requested by Xcel and then seeing what amounts could be
17 “shaved” off of the request. Often the final number ends up being about 60 percent of what Xcel

³ For one of many stories on the Blackjewel bankruptcy filing on July 1, 2019 and the very abrupt closing of the Eagle Butte and Belle Ayr mines, see https://trib.com/business/energy/two-wyoming-coal-mines-close-send-workers-home-after-bankruptcy/article_773100d1-b5b4-57d8-af49-842518b9e219.html

1 asked for—an outcome that Xcel can easily anticipate—just as any child asking for a bigger
2 allowance understands; ask for more than you want and then let your “regulators” (in the child’s
3 case, usually the parents) reduce your request and everyone feels like they did OK in the “deal.”

4 I am suggesting that it is past time for the Colorado PUC to start not with Xcel’s
5 requested increase in revenue requirement, but rather with a close look at the legal mandates
6 given to the PUC as embodied in the Colorado Revised Statutes (C.R.S.), Chapter 40. In
7 particular, the PUC should:

- 8 1) Ensure that rates are “just and reasonable” as called for in C.R.S. § 40-3-101(1)
- 9 2) Ensure that facilities promote the public health and safety as called for in C.R.S. § 40-
10 3-101(2)
- 11 3) “Correct abuses” as called for in C.R.S. § 40-3-102
- 12 4) Give the fullest possible consideration to clean energy and energy efficient
13 technologies as called for in C.R.S. § 40-2-123 (1)(a)

14 As discussed further below, Xcel had \$551 million in after-tax net income from Colorado
15 in 2018, which was an 11.6% increase in after-tax net income from 2017. It is not at all clear that
16 PSCo actually “needs” a rate increase--though of course they want one.

17 Also, there is a strong argument to be made that rates that lead to over a half-billion
18 dollars in profit after taxes are not rates that are “just and reasonable,” and that given that PSCo
19 customers have been paying for large amounts of excess capacity (on top of the approved reserve
20 margin) that this is an “abuse” that needs to be corrected.

1 The Colorado statutes also direct the PUC to ensure that facilities protect the public
2 health and safety and that the “fullest possible” consideration be given to clean energy and
3 energy efficient technologies. This proceeding involves the expenditure of hundreds of millions
4 of dollars on fossil fuel burning coal and natural gas/fossil methane plants. These expenditures
5 are most certainly **not** promoting the public health and safety; they are doing the opposite. Also,
6 the hundreds of millions of dollars that are being poured into fossil fuel generation plants
7 represents money that could be spent on much cleaner, low-carbon, 21st century alternatives—
8 options that are much more in alignment with the laws that the Colorado legislature has passed to
9 direct the workings of the Colorado PUC.⁴

10 Excerpts from the statutes cited above are copied for reference below.

11 ➤ **C.R.S. § 40-3-101—Just And Reasonable Rates (Excerpt)**

12 **40-3-101. Reasonable charges - adequate service** (1) All charges made,
13 demanded, or received by any public utility for any rate, fare, product, or commodity
14 furnished or to be furnished or any service rendered or to be rendered shall be just and
15 reasonable. Every unjust or unreasonable charge made, demanded, or received for such
16 rate, fare, product or commodity, or service is prohibited and declared unlawful.

17 (2) Every public utility shall furnish, provide, and maintain such service,
18 instrumentalities, equipment, and facilities as shall promote the safety, health, comfort,
19 and convenience of its patrons, employees, and the public, and as shall in all respects be
20 adequate, efficient, just, and reasonable.

21

22 ➤ **C.R.S. 40-3-102—Correct Abuses (Excerpt)**

23 **40-3-102. Regulation of rates - correction of abuses** The power and authority is
24 hereby vested in the public utilities commission of the state of Colorado and it is hereby
25 made its duty to adopt all necessary rates, charges, and regulations to govern and regulate

⁴ In 2019, the Colorado Legislature passed a suite of laws that direct the Colorado PUC to further reduce reliance on fossil fuels and greatly increase the reliance on renewable energy. Those bills include [SB19-236](#) as well as several others. It will behoove everyone, including Xcel, for the Commission to start signaling that it intends to take its new mandates to address climate change and reduce reliance on fossil fuels seriously. This means changing old habits about spending large amounts of capital on old coal and natural gas/fossil methane generation.

1 all rates, charges, and tariffs of every public utility of this state to correct abuses; to
2 prevent unjust discriminations and extortions in the rates, charges, and tariffs of such
3 public utilities of this state; to generally supervise and regulate every public utility in this
4 state; and to do all things, whether specifically designated in articles 1 to 7 of this title or
5 in addition thereto, which are necessary or convenient in the exercise of such power, and
6 to enforce the same by the penalties provided in said articles through proper courts
7 having jurisdiction;

8
9 ➤ **C.R.S. 40-2-123 (1) (a) (2017)—Fullest Possible Consideration to Clean Energy**
10 **Technologies**

11
12 **40-2-123. New energy technologies - consideration by commission - incentives -**
13 **demonstration projects - definitions - legislative declaration** (1) (a) The commission
14 shall give the fullest possible consideration to the cost-effective implementation of new
15 clean energy and energy-efficient technologies in its consideration of generation
16 acquisitions for electric utilities, bearing in mind the beneficial contributions such
17 technologies make to Colorado's energy security, economic prosperity, insulation from
18 fuel price increases, and environmental protection, including risk mitigation in areas of
19 high wildfire risk as designated by the state forest service. The commission shall consider
20 utility investments in energy efficiency to be an acceptable use of ratepayer moneys.

21
22 I am making the “radical” (not really, of course...) suggestion that the Colorado PUC
23 begin by carefully considering the laws that are intended to govern the Commission and take
24 those statutory mandates seriously.

25 **III. SUMMARY**

26
27 **Q. PLEASE SUMMARIZE THE KEY POINTS OF YOUR TESTIMONY**

28 A: My testimony makes the following points:

- 29 • Xcel is doing more than well in Colorado. It had over half a billion dollars in after-tax net
30 income last year after paying for all of its expenses and its stock price has soared in
31 recent years. Xcel does not need yet another rate increase in Colorado. It has received
32 numerous rate increases since 2006, totaling over \$500 million in additional annual

1 income in recent years. Between 2013 and 2018, Xcel’s Colorado electric retail sales
2 went up only 1.6% while Xcel’s Colorado after-tax net income went up 21%.

- 3 • Xcel’s Colorado customers have been paying for significant amounts of excess capacity
4 (on top of the 16.3% approved reserve margin) and they have been paying large amounts
5 for fossil fuel resources that are either obsolete (i.e. coal) or will likely soon be obsolete
6 (i.e. natural gas). These are abuses that need to be corrected and Xcel’s Colorado
7 customers need to have their rates adjusted downward—not upward!
- 8 • Xcel was told over and over again not to invest in coal resources as climate change was
9 extremely serious, coal supplies were likely to become constrained in the not-too-distant
10 future and the prices of renewable and demand side resources were falling rapidly and
11 would likely soon be below those of fossil fuel resources. Yet Xcel has proceeded to
12 spend hundreds of millions of dollars on their coal generation and now they want their
13 Colorado customers to provide “return of and return on” those expenditures and provide
14 10.35% return on equity for those expenditures. Based on what Xcel knew or should have
15 known, those expenditures (including the Clean Air Clean Jobs (CACJ) expenditures)
16 were imprudent and significant amounts should be disallowed and/or the return on those
17 expenditures should be reduced to the cost of debt—or at the very least to something well
18 below 9%.
- 19 • A CPCN (Certificate of Public Convenience and Necessity) is a presumption of
20 prudence—**not a guarantee**. It is up to Xcel to operate their utility with their eyes wide
21 open—just as a driver with a green light still needs to proceed with caution if the
22 intersection is not clear. Given the information in the attachments to this Answer
23 Testimony that Xcel should have known (either because it was their own analysis or

1 because it was submitted to the PUC as part of a PSCo docket) it should not have
2 proceeded with the CACJ expenditures as it was clear they were not prudent.

- 3 • The Rush Creek wind farm cost about twice as much (i.e. \$29/MWh) as it should have
4 (i.e. something under \$15/MWh) and Xcel undoubtedly knew this once it received the
5 bids in response to the Request for Proposals (RFP) in the 2016 Electric Resource Plan
6 (Docket 16A-0386E) in late November 2017. Xcel proceeded to spend over \$400 million
7 on the Rush Creek wind farm without taking any apparent efforts to reduce the price.
8 About half of what Xcel spent after it received the 2016 ERP bids, or \$200 million should
9 be disallowed along with a stern warning to Xcel not to “gold plate” the renewable
10 resources it is acquiring.
- 11 • Capital expenditures on old fossil fuel generation are often a case of putting “good money
12 after bad.” The Commission should make it clear to Xcel that future capital expenditures
13 on generation that is already obsolete (i.e. coal) or will likely soon be obsolete (i.e.
14 natural gas/fossil methane) will not be assumed to be prudent unless there is a clear
15 showing that the fossil fuel plant is essential for reliability. The return on capital
16 expenditures made since 2014 should be reduced to the cost of debt, or at the very least to
17 something well below 9%.
- 18 • Operation and Maintenance (O&M) expenditures for fossil fuel generation (including
19 over \$100 million spent on coal and natural gas/fossil methane generation by Xcel in
20 Colorado in 2018) should no longer presumed to be prudent. The Commission should
21 send a clear message to Xcel that it should not make large O&M expenditures on its
22 fossil fuel fleet unless a resource is essential for reliability and that Xcel should make an
23 annual filing with the Commission detailing O&M expenses for its fossil fuel fleet for the

1 coming year and receive Commission approval for those expenses as being essential for
2 reliability to avoid making imprudent expenditures on generation that is already obsolete
3 (i.e. coal) or will likely soon be obsolete (i.e. natural gas/fossil methane).

- 4 • The Commission should take a hard look at the Tax Cut and Jobs Act accounting as Xcel
5 paid over \$130 million less in taxes in 2018 as it did in 2017 but only provided its
6 Colorado customers with a \$42 million credit.
- 7 • The Commission should take a hard look at the Comanche 3 plant which has had both
8 very low Equivalent Availability Factor and capacity factor ratings in recent years. It
9 does not make sense for Xcel’s Colorado customers to pay Xcel large returns on (e.g.
10 close to \$70 million a year) for a plant that is very unreliable and much more carbon
11 intensive than the abundant low-cost wind, solar and storage bids that Xcel received in
12 2017. It is past time that both Xcel and its customers were put “out of their misery” for
13 this billion dollar mistake.

14 **IV. BACKGROUND INFORMATION**
15

16 **Q. PLEASE DESCRIBE THE BACKGROUND INFORMATION YOU WOULD LIKE**
17 **THE COMMISSION AND OTHER PARTIES TO CONSIDER AND EXPLAIN WHY**
18 **THIS INFORMATION IS IMPORTANT TO THIS RATE CASE DOCKET**

19 .

20 A. I would like the Commission and other parties to consider the following facts which are
21 presented in outline information below with supporting data in the attachments to this Answer
22 Testimony.

1 **A. Xcel Had Over \$551 Million in After Tax Net Income in Colorado in 2018**

2 As can be seen in Figure 1 below, PSCo had \$551.7 million in after tax net income in
3 2018 (after paying all of its expenses)—an 11.6%⁵ increase from its 2017 after-tax net income of
4 \$494.1 million. While this “bottom line” is for all of PSCo (not just electric), it is a strong
5 indication that PSCo is doing well and with about 74%⁶ of its revenue in 2018 coming from
6 electricity, it doesn’t appear that PSCo is in need of yet more revenue from its electric customers.
7 Indeed, there is a strong argument that rates that lead to over a half billion dollars in net income
8 are not “just and reasonable” and that the “abuse” of taking over \$550 million more from
9 Colorado rate payers than is needed to meet expenses should be corrected as called for in C.R.S.
10 § 40-3-102; otherwise the Commission is not doing its regulatory duty to protect customers from
11 Xcel’s monopoly power since we can’t protest charges that are excessive by going to buy our
12 electrons somewhere else.

13 While Xcel likes to talk about the \$4 billion it has spent in recent years, it doesn’t
14 mention that it has also had numerous increases in revenue granted by the Colorado PUC as
15 discussed in the next subsection. Also, as discussed later in Ms. Glustrom’s Answer Testimony, a
16 lot of the money spent by Xcel has not been spent wisely as it has been spent on old coal and
17 natural gas/fossil methane generation instead of low-carbon, free-fuel, low-cost 21st century
18 generation and demand side options.

⁵ $(2018 \text{ After Tax Net Income} / 2017 \text{ After Tax Net Income}) - 1) \times 100 = (\$551.7\text{M} / \$494.1 \text{ M}) - 1) \times 100 = 11.66 \%$
(Amounts in millions = “M”)

⁶ $(\text{Electric Revenues} / \text{Total Revenues}) \times 100 = (\$3,031 \text{ M} / \$4,086 \text{ M}) \times 100 = 74\%$.
(Amounts in millions = “M”)

1
2
3
4

Figure 1
PSCo 2018 Consolidated Statement of Income
From PSCo 2018 10-K Annual Report (Attachment LWG-2), Page 22

PUBLIC SERVICE CO. OF COLORADO AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF INCOME
(amounts in millions)

	Year Ended Dec. 31		
	2018	2017	2016
Operating revenues			
Electric	\$ 3,031.2	\$ 3,003.8	\$ 3,049.4
Natural gas	1,014.6	995.2	957.7
Steam and other	40.4	43.5	40.7
Total operating revenues	<u>4,086.2</u>	<u>4,042.5</u>	<u>4,047.8</u>
Operating expenses			
Electric fuel and purchased power	1,157.2	1,126.7	1,196.4
Cost of natural gas sold and transported	428.4	458.7	425.4
Cost of sales — steam and other	15.3	16.1	15.9
Operating and maintenance expenses	787.5	760.8	759.7
Demand side management program expenses	142.2	125.0	118.2
Depreciation and amortization	561.1	471.5	443.6
Taxes (other than income taxes)	201.9	195.7	196.3
Total operating expenses	<u>3,293.6</u>	<u>3,154.5</u>	<u>3,155.5</u>
Operating income	792.6	888.0	892.3
Other income, net	2.1	7.8	1.1
Allowance for funds used during construction — equity	56.4	29.8	18.6
Interest charges and financing costs			
Interest charges — includes other financing costs of \$6.5, \$6.3 and \$6.3, respectively	207.9	190.7	181.6
Allowance for funds used during construction — debt	(22.2)	(11.4)	(7.0)
Total interest charges and financing costs	<u>185.7</u>	<u>179.3</u>	<u>174.6</u>
Income before income taxes	665.4	746.3	737.4
Income taxes	113.7	252.2	273.9
Net income	<u>\$ 551.7</u>	<u>\$ 494.1</u>	<u>\$ 463.5</u>

See Notes to Consolidated Financial Statements

B. PSCo Has Had Numerous Rate Increases Since the Turn of the Century, Increasing Its Revenue by Over \$500 Million Per Year

As can be seen in Table 1, while PSCo has been spending a lot of money over the last decade, they have also been receiving a lot of rate increases—totaling over \$500 million since 2006.

Table LWG- 1
Base Rate Revenue Increases Granted to PSCo Since 2006
Data from the Decision Numbers Provided for Each Docket

Colorado PUC Docket	Year Xcel Rate Increase Went Into Effect	Colorado PUC Decision	Annual Increase in Base Rate Revenue for Xcel
06S-234EG	2007	C06-1379	\$107 million per year
08S-520E	2009	C09-0595	\$112 million per year
09AL-299E	2010	C09-1446	\$128 million per year
11AL-947E	2012	C12-0494	\$73 million per year
11AL-947E	2013	C12-0494	\$16 million per year
11AL-947E	2014	C12-0494	\$25 million per year
14AL-0660E	2015	C15-0292	\$41.5 million
TOTAL 2007-2015			\$502.5 million per year

C. PSCo After-Tax Profits Are Soaring Despite Basically Flat Sales and Peak Capacity

From Table LWG-1 below, it can be seen that PSCo’s peak capacity and retail sales have been essentially flat over the last several years while after-tax profits have gone up over 20%. It isn’t at all clear that PSCo actually needs a rate increase—they are doing more than well from a profit perspective. Now it is (past) time for the Commission to correct the abuses that have led to PSCo taking over half a billion dollars out of the pockets of its Colorado customers to pad its after-tax bottom line.

Table LWG-2
PSCo’s System Size, Retail Electricity Sales and
After-Tax Net Income 2013-2018⁷

Data from PSCo’s 2018 and 2015 10-K Annual Reports (Attachments LWG-2 and LWG-3)

	Source	2013	2014	2015	2016	2017	2018	2013-2018 % Change
PSCo Peak Demand (MW)	Page 6, 2015 and 2018 PSCo 10-K ⁸	6,678	6,152	6,284	6,585	6,671	6,718	0.6%
PSCo Retail Electric Sales (Millions of kWh)	Page 11, 2015 PSCo 10-K and Page 5, 2018 PSCo 10-K	28,861	28,671	28,700	28,801	28,626	29,247	1.3%
PSCo After-Tax Net Income	Page 34, 2015 PSCo 10-K and Page 22, 2018 10-K	\$453.4 Million	\$455.2 Million	\$466.8 Million	\$463.5 Million	\$494.1 Million	\$551.7 Million	21.7%

⁷ If questions arise about longer term trends, the 2012 PSCo 10-K gives the following numbers for 2010-2012: Peak Capacity—6,436 MW (2010), 6,896 MW (2011), 6,689 MW (2012) (page 6, 2012 PSCo 10-K) Total Retail Sales (millions of kWh)—28,298 (2010), 28,483 (2011), 28,786 (2012) (page 10, 2012 PSCo 10-K) After Tax Net Income--\$399.7 Million (2010), \$396.8 Million (2011) \$458.1 Million (2012) (page 32, 2012 PSCo 10-K)

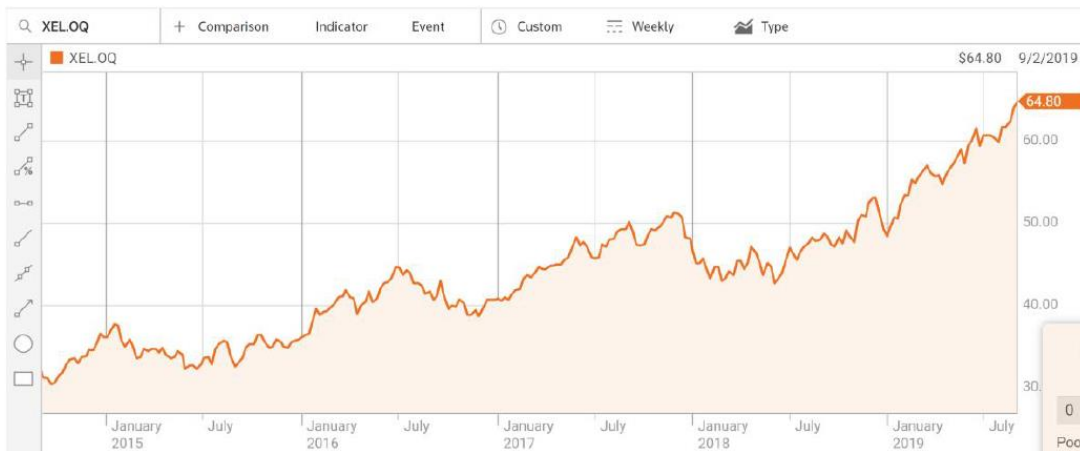
⁸ The 2016 peak capacity in MW came from the 2017 PSCo 10-K as the 2018 10-K diverged from the previously standard practice of reporting three years of data.

1 **D. Xcel Share Price Has Also Soared In Recent Years**

2
3 Figure LWG-2 is the five year chart of Xcel’s stock price from Reuter’s. Again, there
4 does not appear to be any reason to be concerned about Xcel’s financial condition as Xcel’s
5 stock price has soared over the last 5 years, more than doubling from \$31.27 on September 8,
6 2014 to \$64.80 on September 2, 2019.

7 Since Xcel’s financial situation is more than robust, it is past time to correct the “abuse”
8 that is leading to Xcel taking over a half billion dollars from its Colorado customers beyond what
9 is needed to cover its expenses. Many Xcel ratepayers struggle to pay their bills;⁹ it is past time
10 to consider their needs.

11 **Figure LWG-2**
12 **Xcel’s Stock Price Sept 2014-Sept 2019**
13 *From Reuters <https://www.reuters.com/companies/XEL.OQ/charts>*
14



⁹ As in every rate case, there are numerous letters in the record of this 19AL-0268E proceeding asking the Commission to protect them from Xcel’s seemingly endless rate increases. Most individuals are not able to do more than write a letter or email to the Commission—which is actually a significant undertaking given that it takes no small amount of effort to understand the PUC webpage and comment system. It is only the PUC that can help correct the “abuses” that have plagued these customers while Xcel’s profits and stock price have soared.

1 Figure LWG-3 below, taken from Xcel’s 2018 10-K Annual Report (page 25) also
2 underscores that Xcel is doing more than fine financially. PSCo doesn’t need another rate
3 increase, but PSCo’s customers need to have their rates adjusted downward to correct the
4 “abuses” that have occurred over the last dozen years and to create rates that are “just and
5 reasonable.”

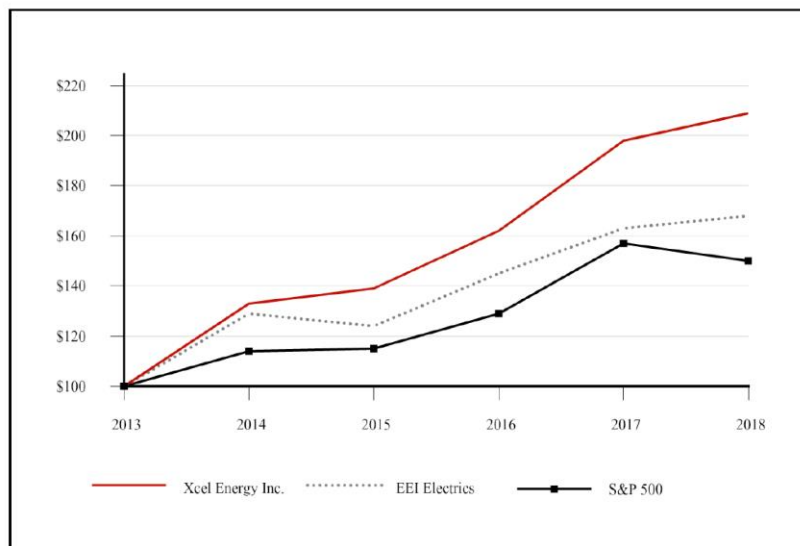
6 **Figure LWG-3**
7 **Xcel’s Five Year Cumulative Returns Compared to the Edison Electric Investor Owned**
8 **Electrics and Standard and Poors 500**

9 *From Xcel 2018 10-K, page 25 available at*

10 <http://investors.xcelenergy.com/Cache/1001248966.PDF?O=PDF&T=&Y=&D=&FID=1001248966&iid=4025308>

11 **COMPARISON OF FIVE YEAR CUMULATIVE TOTAL RETURN***

12 Xcel Energy Inc., the EEI Investor-Owned Electrics and the Standard & Poor’s 500



13
14
15
16

1 **E. PSCo Contributes More to Xcel’s Earnings Per Share Than Xcel’s Minnesota Utility**
2 **(NSP-Minn), Despite NSP-Minnesota Having a Larger System Size¹⁰**
3

4 As shown in Table LWG-3 below, Xcel’s operating utility in Minnesota—Northern
5 States Power of Minnesota (NSP-Minn) has a system that is 25-30% bigger than PSCo’s. Yet,
6 PSCo has quite consistently (except 2016) contributed more to Xcel’s Earnings Per Share
7 (“EPS”) than NSP-Minnesota as shown in Table LWG-4 below.¹¹ This is one indication that the
8 regulators in Minnesota have held a “firmer hand on the reins” than has the Colorado PUC and
9 another indication that it is time for the Colorado PUC to reject PSCo’s request for more revenue
10 and instead correct the “abuses” that have led to this situation.

11 **Table LWG-3**
12 **Comparison of NSP-Minnesota and PSCo (Colorado) Peak Demand 2013-2018**
13 *Data from Annual Xcel 10-K Reports*
14

Peak Demand ¹²	2013	2014	2015	2016	2017	2018
NSP-Minnesota (MW)	9,524	8,848	8,621	9,002	8,546	8,927
PSCo (Colorado) (MW)	6,678	6,152	6,284	6,585	6,671	6,718
Ratio PSCo/ NSP-Minn	0.70	0.695	0.73	0.73	0.78	0.75

15
16
17
18
19

¹⁰ A review of Xcel’s Annual 10-K reports will also demonstrate that NSP-Minnesota also has more employees and generally larger capital expenditures than PSCo (Colorado).

¹¹ A review of Xcel’s Annual 10-K report will show that PSCo’s contribution to Earnings Per Share (“EPS”) has generally been greater than NSP-Minnesota’s since 2007 and the start of PSCo’s back-to-back rate increases as shown in Table LWG-1.

¹² Peak demand for PSCo and NSP-Minn from Xcel Annual 10-K’s (page 11, 2018 Xcel 10-K, page 10, 2015 Xcel 10-K, page 9, 2016 Xcel 10-K)

1
2
3
4
5
6

Table LWG-4
PSCo (Colorado) v NSP-Minn (Minnesota) Contributions to Xcel’s Earnings Per Share
2013-2018

Data from PSCo 2018 and 2015 10-K’s and NSP-Minn 10-Ks Available from
<http://investors.xcelenergy.com/CustomPage/Index?KeyGenPage=1073751307>

Earnings Per Share (EPS) ¹³	2013	2014	2015	2016	2017	2018
NSP-Minnesota	\$0.79	\$0.80	\$0.85	\$0.96	\$0.96	\$0.96
PSCo (Colorado)	\$0.91	\$0.90	\$0.92	\$0.91	\$0.97	\$1.08
EPS Ratio PSCo/ NSP-Minn	1.15	1.125	1.08	0.94	1.01	1.125

7

8 **F. PSCo Has Had Hundreds of MW of Excess Capacity (Above the Approved Reserve**
9 **Margin) for Most Years in the Last Decade—Ratepayers Should Not Be Responsible for**
10 **Paying For This Excess Capacity**

11

12 As detailed in Attachment LWG-5 (Discovery Response LWG1-1, Docket 19AL-0268E)
13 and reproduced in Table LWG-5 below, PSCo has generally had several hundred MW of excess
14 capacity—*on top of* the 16.3% (approximately 1000 MW) approved reserve margin. The average
15 excess capacity (on top of the approved reserve margin for 2014-2018 is 451 MW.

16 Capacity is expensive (in the neighborhood of \$1 million/MW) and this excess capacity
17 *on top of* of the approved reserve margin is bloating PSCo’s rate base—especially when it is
18 considered that PSCo earns over 7% ¹⁴ on its rate base. For every \$1 billion of rate base, PSCo is
19 earning over \$70 million a year as “return on” the rate base. So, PSCo’s long term practice of
20 having more capacity than the 16.3% approved reserve margin is also an “abuse” that needs to be

¹³ Earnings Per Share from Xcel Annual 10-K reports (2015 Xcel 10-K, page 55; 2018 Xcel 10-K, page 28; 2016 Xcel 10-K, page 85)

¹⁴ PSCo’s Current Weighted Average Cost of Capital is 7.55% (See page 2-181, “AKJ-2” Volume of PSCo’s 2016 Electric Resource Plan, Docket 16A-0396E).

1 corrected as PSCo’s customers shouldn’t be responsible for paying both “return of” and “return
 2 on” excess capacity that is not part of the PUC approved reserve margin.¹⁵

3 PSCo’s propensity for having significant excess capacity *on top of* its approved reserve
 4 margin can also be seen in the results of the 2016 Electric Resource Plan with a planned 19.3%
 5 reserve margin in the year 2023.¹⁶

6 **Table LWG-5**
 7 **Approved, Actual and Excess Reserve Margins for PSCo 2009-2018**
 8 *Data from Attachment LWG-5--19AL-0268E Discovery Response LWG 1-1*
 9

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Approved Planning Reserve Margin (MW)	1,067	1,058	1,050	1,010	1,030	1,028	1,029	1,033	1,044	1,025
Actual Planning Reserve Margin (MW)	1,749	1,933	1,418	1,364	1,118	1,764	1,684	1,417	1,392	1,157
Excess Capacity (MW) (<i>Above the Approved Planning Reserve Margin</i>)	682	875	368	354	88	736	655	384	348	132

10
 11 It is also very likely that customers would have lower bills if the Commission forced
 12 PSCo to manage the peak with demand response and other demand-side measures rather than

¹⁵ PSCo has not done a recent study to assess whether it still needs a 16.3% reserve margin and with the evolution of storage technologies, it is likely that the 16.3% reserve margin could be reduced. The ‘current’ Loss of Load Probability (LOLP) study for PSCo (which is used to determine the size of the reserve margin) was filed with the 2016 Electric Resource Plan. It is dated 2008 and so does not reflect any of the recent advances in storage or prediction and management of wind and solar generation or the ability to manage demand with low-cost demand management techniques. (For PSCo’s “current” LOLP study, see page 373 of 398 in “AKJ-2” (Volume 2 of PSCo’s 2016 Electric Resource Plan), Docket 16A-0396E.)

¹⁶ See Appendix B (pages 1 and 2), PSCo’s 120 Day Report in Docket 16A-0396E with reference to Portfolio 6, the “Colorado Energy Plan.”

1 acquiring generation to meet the peak demand which, by definition, only occurs for a few hours
2 of the year.

3

4 **G. PSCo’s Fuel Mix in Colorado in 2018 was 73% Fossil Fuel—40% Coal and 33%**
5 **Natural Gas—This is Most Definitely Not Promoting the Health and Safety of the Public as**
6 **Called for By Colorado Statute**

7

8 As can be seen from Figure LWG-4 below, Xcel’s Colorado fuel mix in 2018 was 40%
9 coal and 33% natural gas—or 73% fossil fuel.

10

11

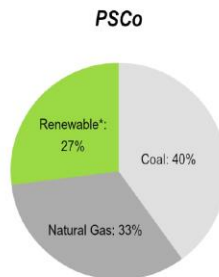
12

13

14

Figure LWG-4
PSCo 2018 Fuel Mix Over 70% Fossil Fuel
From Page 6, 2018 PSCo 10-K, Attachment LWG-2

Energy Sources 2018



*Distributed generation from the Solar*Rewards® program is not included (approximately 387 million KWh for 2018).

15

16

17 The impacts of fossil fuel production and combustion are extremely well documented and
18 it is clear that PSCo’s system is not protecting the safety and health of the public (or the planet)
19 as required by C.R.S. §40-3-101 (2).

20

1 **C.R.S. §40-3-101 (2)** Every public utility shall furnish, provide, and maintain
2 such service, instrumentalities, equipment, and facilities as shall promote the
3 safety, health, comfort, and convenience of its patrons, employees, and the public,
4 and as shall in all respects be adequate, efficient, just, and reasonable.
5

6 With the availability of thousands of MW of low-cost wind, solar and storage projects in
7 Colorado that are just waiting to be developed (see Figure LWG-6A below), it is past time that
8 the PUC took a hard look at the hundreds of millions of dollars included in this rate case which
9 has been spent to support PSCo’s aging fossil fuel infrastructure. We have low-cost alternatives;
10 it is time to invest in those—not in maintaining an unhealthy and expensive fossil fuel
11 generation system.

12 **H. Xcel Projects PSCo’s 2027 Fuel Mix to Still Be 46% Fossil Fuel in 2027**
13

14 While Xcel has stated their intention to reduce their carbon emissions 80% by 2030,¹⁷ the
15 projected fuel mix for Colorado in 2027 is still 46% fossil fuel (24% coal, 22% natural gas) as
16 shown in Figure LWG-5 below. Historically, Colorado has been the most carbon intensive
17 region on Xcel’s system.¹⁸
18

19 [Rest of page left intentionally blank.]
20
21

¹⁷ Attachment LWG-7 is Xcel’s 2019 Carbon Report stating their intentions to reduce their carbon emissions 80% below 2005 levels on a company-wide basis.

¹⁸ For a regional view of Xcel’s carbon intensity see <https://www.xcelenergy.com/staticfiles/xcel-responsive/Environment/Carbon/Carbon-Reduction-2016-Energy-and-Carbon-Summary.pdf>

1
2
3
4

5
6
7
8
9
10
11
12
13

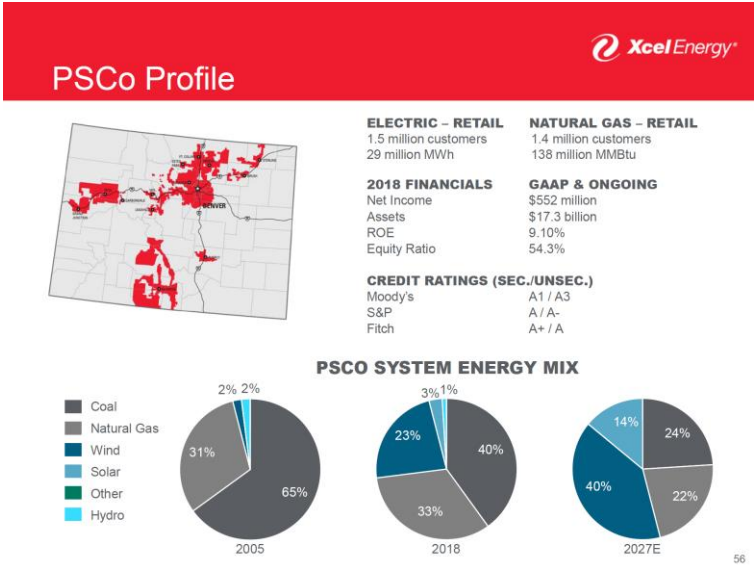
14

15

16
17

Figure LWG-5
PSCo's 2027 Projected Fuel Mix

From Xcel's PPT to the Barclay's Conference, September 2019¹⁹ (Attachment LWG-4, Slide 56)



I. There are Thousands of MW of Low-Cost Wind, Solar and Storage Projects Ready to Be Developed in Colorado

Importantly, PSCo has literally thousands of MW of low-cost carbon free resources available for development in Colorado at costs lower than the costs of operating PSCo's fossil fuel generation fleet. The table below summarizes the bids received by PSCo in the 16A-0396E 2016 Electric Resource Plan Docket, as updated in March 2018.

[Rest of page left intentionally blank.]

¹⁹ Xcel's PPT presented at the Barclays Conference Sept 3-4, 2019 is available from <http://investors.xcelenergy.com/Cache/1001256435.PDF?O=PDF&T=&Y=&D=&FID=1001256435&iid=4025308>

1
2
3
4

5
6
7
8
9
10
11
12
13

Figure LWG-6A
PSCo RFP Responses by Technology—March 2018 Update
From Docket 16A-0396E, Colorado PUC

PUBLIC VERSION Updated Attachment A

RFP Responses by Technology

Generation Technology	# of		Project	Median Bid	
	Bids	Bid MW		Price or Equivalent	Pricing Units
Combustion Turbine/IC Engines	29	6,365	19	4,436	\$ 5.08 \$/kW-mo
Combustion Turbine with Battery Storage	7	804	3	476	6.21 \$/kW-mo
Gas-Fired Combined Cycles	3	873	3	873	█ \$/kW-mo
Stand-alone Battery Storage	28	2,144	24	1,945	10.53 \$/kW-mo
Compressed Air Energy Storage	1	317	1	317	█ \$/kW-mo
Wind	96	41,915	42	16,949	\$ 19.30 \$/MWh
Wind and Solar	5	2,601	4	2,151	19.96 \$/MWh
Wind with Battery Storage	11	5,700	5	2,700	20.63 \$/MWh
Solar (PV)	148	28,382	78	14,085	30.96 \$/MWh
Wind and Solar and Battery Storage	7	4,048	7	4,048	30.41 \$/MWh
Solar (PV) with Battery Storage	79	14,980	57	10,098	38.30 \$/MWh
IC Engine with Solar	1	5	1	5	█ \$/MWh
Waste Heat	2	21	1	11	█ \$/MWh
Biomass	1	9	1	9	█ \$/MWh
Total	418	108,163	246	58,101	

In the table above, there are over 50,000 MW of wind, solar and storage bids and even if:

a) we eliminate all of the bids above the median price, and

b) eliminate half of the bids below the median price on the chance that they are not “solid” (an extreme assumption, but to make the point),

then there are still approximately 10,000 MW of wind, solar and storage bids available at an average cost well below \$30/MWh or 3 cents/kwh. The sooner these projects (and others like them) get built, the sooner ratepayers will start saving money as the operating costs for much of PSCo’s fossil fuel system is generally 3 cents/kwh and above, as shown below.

1 The current operating costs (only) of Xcel’s Colorado fleet as calculated by the Office of
 2 Consumer Counsel and included in Attachment LWG-28 are given in Figure LWG-6B below.

3
 4
 5 **Figure LWG-6B**
 6 **Operating Costs (Only) of Xcel’s Colorado Fleet**
 7 *Data from Attachment LWG-28, OCC Discovery 10-11 (Docket 19AL-0268E)*
 8

PSCo FERC Form 1 Power Plant Costs for 2018						
FERC Form 1 filed on April 30, 2019 in Proceeding No. 19M-0010EG, pages 402 -203 and subparts.						
				Calculated		
				Capacity		
Plant	Kind of Plant	Capacity	Generation	Factor	Cost per kWh	Form 1 Cost
Comanche	Coal Steam	1,160	7,860,923,000	77.4%	\$0.0223	\$175,203,147
Pawnee	Coal Steam	505	3,276,672,000	74.1%	\$0.0226	\$73,928,948
Cherokee 5,6 & 7	Combined Cycle	576	2,762,509,000	54.7%	\$0.0319	\$88,058,446
Ft. St. Vrain 1-4	Combined Cycle	680	3,510,936,000	58.9%	\$0.0320	\$112,378,898
Rocky Mountain	Combined Cycle	580	2,334,625,000	45.9%	\$0.0340	\$79,344,960
Craig 1 & 2	Coal Steam	82	464,946,000	64.7%	\$0.0341	\$15,865,772
Hayden	Coal Steam	233	1,220,776,000	59.8%	\$0.0373	\$45,575,430
Blue Spruce	Combustion Turbine	264	222,065,000	9.6%	\$0.0463	\$10,277,534
Ft. St. Vrain 5-6	Combustion Turbine	288	47,467,000	1.9%	\$0.0529	\$2,509,861
Cheorkee 4	Gas Steam	308	1,126,211,000	41.7%	\$0.0534	\$60,090,872
Alamosa	Combustion Turbine	26	8,836,000	3.9%	\$0.1202	\$1,062,064
Furita	Combustion Turbine	14	256,000	0.2%	\$0.2119	\$54,256
Valmont 6	Combustion Turbine	43	1,912,000	0.5%	\$0.2215	\$423,533
Fort Lupton	Combustion Turbine	88	2,708,000	0.4%	\$0.2262	\$612,539
Total Owned		4,847	22,840,842,000	53.8%	\$0.0291	\$665,386,260

9
 10 Given the availability of thousands of MW of low-cost wind, solar and storage resources
 11 ready to go in Colorado, it is important that the Commission give very close scrutiny to the
 12 hundreds of millions of dollars included in this rate case that have been or will be spent
 13 maintaining aging coal and natural gas plants. This is part of the Commission’s statutory
 14 mandates including those given to the PUC to ensure that rates are “just and reasonable” (C.R.S.
 15 §40-3-101(1)), to correct abuses (C.R.S. §40-3-102), to give “the fullest possible consideration to

1 clean energy and energy efficient technologies” (C.R.S. §40-2-123 (1)) and to “do all things”
2 which are “necessary and convenient” (C.R.S. §40-3-102) to regulate PSCo’s monopoly power.²⁰

3 In short, it is past time for the PUC to start taking a hard look at PSCo’s very large capital
4 and operating expenses related to their fossil fuel generation fleet and to ensure that PSCo
5 customers aren’t paying to maintain old fossil fuel resources when that money could very likely
6 be better invested in fuel-free clean power resources that will better serve PSCo customers and
7 Colorado as we move through the 21st century.

8 **J. The Climate Crisis is Here and Extremely Serious**

9

10 It is now widely recognized that emitting carbon dioxide and other greenhouse gases
11 (GHGs) increases their levels in the atmosphere and oceans, contributing to the warming of the
12 planet, the acidification of the oceans, the disruption of the climate and the occurrence of
13 extreme weather.²¹ Almost every week there is another story about hurricanes, fires, floods,
14 droughts and weather that seasoned observers “have never seen before.”

15 Importantly, the scientific consensus on climate change was clear for many, many years
16 before PSCo decided to spend hundreds of millions of dollars on old coal and natural gas/fossil
17 methane plants and then ask to put those expenditures into their rate base and receive “return of
18 and return on” those expenditures. In this docket, PSCo is asking to earn 10.25% return on their
19 additions to rate base.²² It is hard to understand how Xcel can have the gall to ask to earn a profit

²⁰ In addition to the statutory mandates that have existed for years (and some for many decades), the PUC was given numerous new statutory mandates in the 2019 legislative session that support reducing reliance on coal and natural gas for electric generation, including the mandates give in [SB19-236](#).

²¹ For summaries of opinion polls on climate change, see <https://climatecommunication.yale.edu/>.

²² For the request to earn 10.25% on additions to rate base, including large expenditures on coal plants, see the Direct Testimony of PSCo witness Brooke Trammell, (e.g. page 148, line 13).

1 of over 10% on expenditures that are accelerating the unraveling of the climate of the only planet
2 we know of that supports life.

3 As evidence that the scientific consensus on climate change was clear long before²³ Xcel
4 decided to spend hundreds of millions of dollars on old fossil fuel plants, Attachment LWG-6 is
5 the 2001 Intergovernmental Panel on Climate Change²⁴ Climate Change Synthesis Report—
6 Summary for Policy Makers. Figure LWG-7, below is the final graphic in the report showing the
7 expected dramatic expected increase in temperature of the planet during this century. While there
8 are many scientific uncertainties related to predicting exactly how warm the planet will get and
9 how severe the consequences will be, there is clear consensus that the planet will be warming--a
10 lot-- and the consequences will be very severe. Many of these consequences are now becoming
11 apparent—even to former climate sceptics.²⁵ Importantly, **none of the scenarios shown in**
12 **LWG-7 project a cooling—or even a stabilization—of the earth’s temperature.**

²³ As of now, the very voluminous scientific trail of reports of the warming caused by carbon dioxide goes back to 1856 when Eunice Foote showed how much hotter a container of air got when it contained CO₂ (then called carbonic acid gas) than when it contained “common” air. The journal in which these results were published is at <https://archive.org/stream/mobot31753002152491#page/381/mode/2up>. The paper from Eunice Foote is on pages 382-383. An excerpt is copied below showing how much hotter the container with CO₂ got than the container with “common” air.

Thirdly. The highest effect of the sun's rays I have found to be in carbonic acid gas.
One of the receivers was filled with it, the other with common air, and the result was as follows:

In Common Air.		In Carbonic Acid Gas.	
In shade.	In sun.	In shade.	In sun.
80	90	80	96
81	84	84	100
80	99	84	110
81	100	85	120

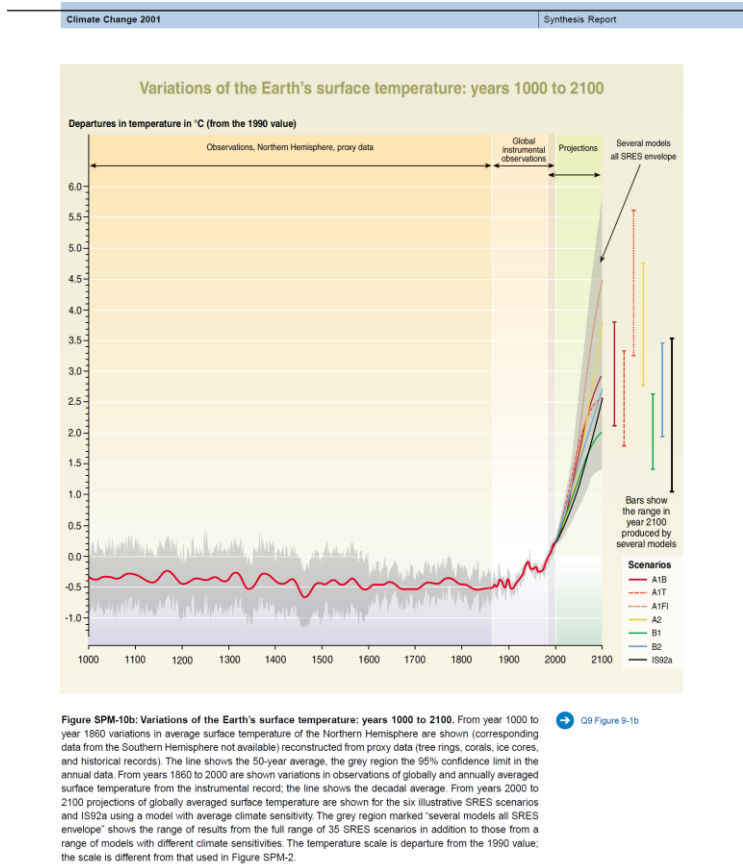
The receiver containing the gas became itself much heated—very sensibly more so than the other—and on being removed, it was many times as long in cooling.

²⁴ The IPCC has issued numerous reports on the science of climate change and they are available for free download from <https://www.ipcc.ch/reports/>. They all document the seriousness of what is now commonly known as the climate crisis with reports dating to the 1990 First Assessment, which can be downloaded from <https://www.ipcc.ch/report/climate-change-the-ipcc-1990-and-1992-assessments/>

²⁵ The famous Republican pollster, Frank Luntz, who helped craft many messages for the climate sceptics has recently “gotten religion” and acknowledged that he was wrong....<https://grist.org/article/the-gops-most-famous-messaging-strategist-calls-for-climate-action/>

1
2
3
4
5

Figure LWG-7
Figure SPM-10 from the 2001 IPCC Synthesis Report Summary for Policy Makers
Earth's Surface Temperature From the Year 1000 to 2100
From Attachment LWG-6



6

7 If the graph in Figure LWG-7 was the projected report for the temperature gauge on an
8 Xcel truck, any employee that didn't respond immediately would probably not have a job for
9 long and they certainly wouldn't be in line for a promotion—yet Xcel's top management at the
10 time ignored this clear warning about the fate of our planet and then proceeded to spend very

1 large sums of money on coal plants in Colorado after the release of this 2001 IPCC report—and
2 all the other warnings about the seriousness of the climate crisis that were available.

3 This rate case involves the expenditures of hundreds of millions of dollars in capital and
4 operating expenses for Xcel’s Colorado fossil fuel plants and given what Xcel either knew or
5 should have known,²⁶ this was imprudent—and unconscionable. The fact that Xcel was able to
6 convince the PUC to approve these expenditures is just a sign of how broken Colorado’s
7 regulatory system was. Now it is time for this Commission to correct these abuses as called for in
8 C.R.S. §40-3-102.

9 **K. Coal Supply Issues Are Intensifying and Could Easily Become Critical in the Coming**
10 **Decade**

11

12 There is a simple fact that the Colorado PUC, its staff and most of the parties have failed
13 to understand. This simple fact is that you need a supply of coal to operate a coal plant.
14 Importantly, given what is now abundantly clear about the US coal industry, we can’t assume
15 that just because PSCo has the concrete and steel that makes up a coal plant, that it will have a
16 supply of fuel to operate that plant until its stated retirement date.

17 Attachments LWG-9 and LWG-10 detail the geology and financial situation of the US
18 coal industry from the time when Xcel was making the decision to spend over \$300 million on
19 the Pawnee and Hayden coal plants. The predictions made in these reports related to the
20 declining economic viability of the US coal industry have been borne out in a dramatic fashion
21 with the top three US coal companies (Peabody, Arch and Alpha Natural) all declaring

²⁶ For more information on what US utilities knew about climate change starting in 1968, see Attachment LWG-8, the Energy and Policy Institute report “Utilities Knew” report from 2017—“Documenting Electric Utilities’ Early Knowledge and Deception on Climate Change from 1968-2017.”

1 bankruptcy in 2015 and 2016²⁷ and numerous smaller coal companies also declaring
2 bankruptcy.²⁸ Yet, Xcel continues to pour money into its Colorado coal plants while asking to
3 earn 10.25% on the equity portion of those expenditures, showing no apparent awareness of what
4 is very likely the structural decline of the US coal industry.

5 The fundamental issue affecting the US coal industry is that the US coal that can be
6 easily accessed and mined at a profit is largely gone. The remaining coal is harder to access and
7 the cost to access the coal is too high to allow for reasonable (or in some cases, any) profit
8 margins. When production costs rise while there is pressure from alternatives that keep prices
9 from rising in parallel, profit margins thin and eventually go away—all concepts that were
10 detailed in the reports in Attachments LWG-9 and LWG-10 that have previously been submitted
11 to the Colorado PUC in proceedings related to PSCo’s plans for coal expenditures.

12 Figure LWG-8, below, shows how US coal consumption has dropped off quite dramatically
13 since the peak in 2008.

14

15

²⁷ Alpha Natural Filed for Bankruptcy August 2015
<https://www.forbes.com/sites/nathanvardi/2015/08/03/u-s-coal-company-alpha-natural-resources-files-for-bankruptcy/#24f529ce4379>

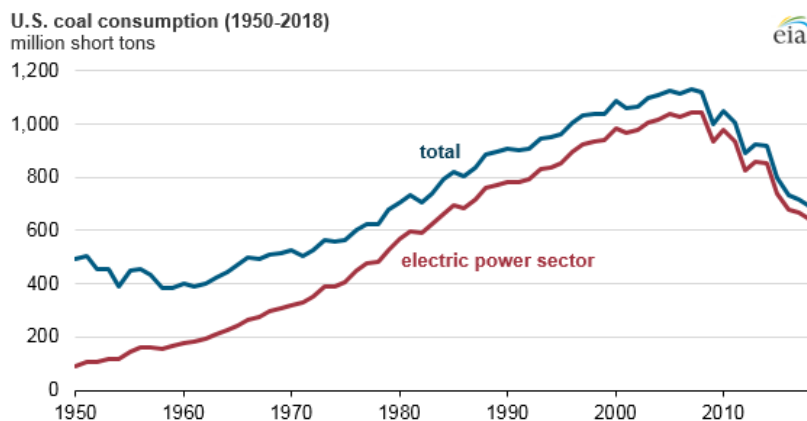
Peabody filed for bankruptcy April 2016
<https://money.cnn.com/2016/04/13/news/companies/peabody-coal-bankruptcy/index.html>

Arch filed for bankruptcy Jan 2016
<https://www.reuters.com/article/us-arch-coal-restructuring-idUSKCN0UP0MR20160111>

²⁸ For a 2015 report on the structural decline in the US coal industry, see <https://www.carbontracker.org/reports/the-us-coal-crash/>

1
2
3
4

Figure LWG-8
EIA Graph of US Coal Consumption 1950-2018
From <https://www.eia.gov/todayinenergy/detail.php?id=37692>



5
6

7 In recent months there have been three more dramatic coal company bankruptcies²⁹
8 affecting the Powder River Basin in Wyoming which supplies the coal to the Pawnee coal plant
9 in Brush and the Comanche coal plants in Pueblo.

29

Westmoreland filed for bankruptcy in October 2018 <https://westmoreland.com/restructuring/>
Cloud Peak filed for bankruptcy May 2019 <https://investor.cloudpeakenergy.com/press-release/corporate/cloud-peak-energy-voluntarily-files-chapter-11>
Blackjewel filed for bankruptcy July 2019 and closed the Eagle Butte and Belle Ayr mines abruptly that afternoon <https://www.cbsnews.com/news/blackjewel-bankruptcy-the-first-coal-mine-to-open-in-wyoming-is-now-closed/>
and https://trib.com/business/energy/bankrupt-coal-company-blackjewel-has-yet-to-call-back-most/article_b2ee7c3d-b1c4-5a3e-983a-7ffe73f8e788.html
<https://www.sfchronicle.com/news/us/article/Mine-shutdowns-in-top-US-coal-region-bring-new-14439916.php>

1 In addition, as reported by S&P Global on September 10, 2019 and copied in part below,
2 the EIA issued a 2019 coal production update significantly cutting projections for coal
3 production and consumption for 2019 and future years.

4 <https://www.spglobal.com/marketintelligence/en/news-insights/trending/SsL-FS3Nmf52yYJIH4kRw2>

5 The EIA expects the share of U.S. generation from coal will average just 25% in 2019 and 22%
6 in 2020, down from 28% in 2018. As coal generation drops, natural gas and renewable energy
7 resources are expected to gain a larger share of total generation.

8 Coal consumption in the U.S. is expected to total 593.4 million tons in 2019 and 548.4 million
9 tons in 2020, a decline from 687.3 million tons in 2018. Meanwhile, the export markets for coal
10 is expected to weaken going forward as higher freight costs and uncertainty in metallurgical coal
11 markets dampen international demand for coal.

12 The EIA projects Central Appalachia coal production will fall from 200.1 million tons of in
13 2018 to 183.0 million tons in 2019 before falling even further to 151.1 million tons in 2020.
14 Western coal production is expected to drop off from 418.3 million tons in 2018 to 363.6 million
15 tons in 2019 before falling to 338.6 million tons in 2020. Coal from the Interior of the U.S. is
16 expected to decline from 137.1 million tons to 127.4 million tons between last year and 2019,
17 but then remains roughly level at 127.7 million tons of production in 2020, according to the EIA
18 forecast.

19

20 Figure LWG-9, below, shows the top Powder River Basin coal mines and producers.

21 Importantly, all of these top producers have either been through or are in bankruptcy—a sign that the
22 economics of coal is—shall we say—very challenged. These geologic and financial challenges were
23 clearly detailed in Attachments LWG-9 and LWG-10—both of which have previously been submitted
24 to the Colorado PUC in several proceedings involving Xcel.

Figure LWG-9
Top Powder River Basin Coal Mines and Producers³⁰

From <https://www.eia.gov/todayinenergy/detail.php?id=41053> (Text from EIA)

More than 40% of coal produced in the United States comes from 16 mines in the Powder River Basin (PRB), a mining region primarily located in northeast Wyoming and southeast Montana. Four companies collectively own more than half of those PRB mines, and those 10 mines produced 87% of the Basin’s coal in 2018. Two of those companies, Cloud Peak and Blackjewel, filed bankruptcy this year. The two other companies, Peabody and Arch Coal, are proposing a joint venture that involves some of the PRB mines.

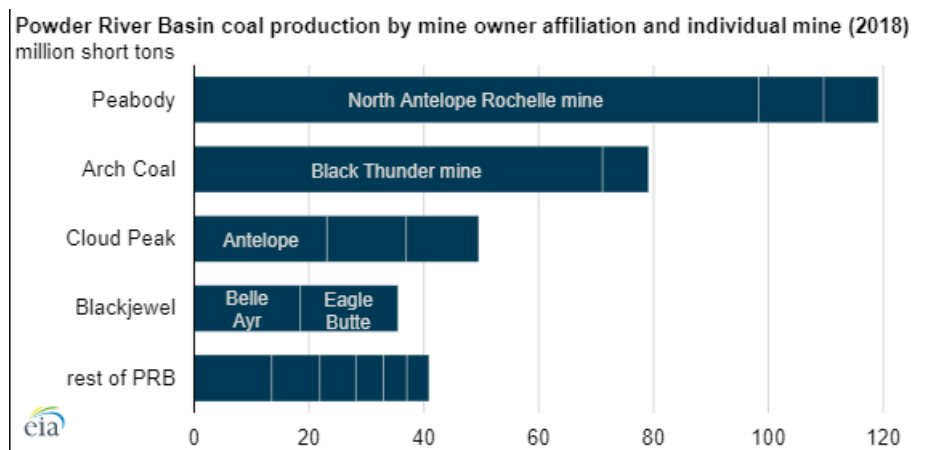


Figure LWG-10, below, shows #1 US coal producer, Peabody Energy’s stock price from April 2017 to September 2019. This does not appear to bode well for Peabody Energy (who already went through bankruptcy in 2016)—and it also doesn’t bode well for any utility that is assuming that “someone” will produce coal to keep their coal plants running until 2070³¹ as Xcel currently is doing in Colorado.

³⁰ Attachment LWG-11 is the EIA’s Table 9 for 2017 (the most recent year available) showing actual production from the top US coal mines including those shown in Figure LWG-9. EIA Table 9 for 2017 can be found at <https://www.eia.gov/coal/annual/pdf/table9.pdf>

³¹ Xcel’s current retirement date for the Comanche 3 coal plant in Pueblo is 2070 as documented in “AKJ-2” in Docket 16A-0396E.

1
2
3

Figure LWG-10
Stock Price for Peabody Energy (“BTU”) April 2014-April 2017
From <https://www.reuters.com/companies/BTU.N/charts>



4
5

6 As discussed further below, this rate case involves the expenditure of hundreds of
7 millions of dollars on Xcel’s Colorado coal plants. There are a host of environmental and
8 economic reasons to oppose pouring money into old coal plants, but perhaps the most
9 fundamental reason is the rapid collapse of the U.S. coal industry.

10 The easily accessible coal in the United States has already been mined and turned into
11 CO2 which is now in the atmosphere and the oceans. While the future is always, by definition,
12 unknown, there is good reason to believe that U.S. coal is unlikely to be available in large
13 quantities at a reasonable price in the 2030s and beyond—and the substantial collapse of the US
14 coal industry could come well before that.

15 It is long past time that the Colorado PUC (both Commissioners and Staff) took a hard
16 look at the facts that have been before it for many years and stopped assuming that it is “just and

1 reasonable” to have ratepayers pay for hundreds of millions of dollars of expenditures on
2 generation assets that are—or are rapidly becoming—obsolete and therefore “stranded.”

3 We have made very large mistakes in Colorado as a result of not understanding these
4 basic facts about the dominant fuel on Xcel’s Colorado system (i.e. coal) and it is long past time
5 that these abuses were corrected as required by C.R.S. §40-3-102.

6 It is “abusive” to continually force Xcel’s customers to pay “return of and return on” for
7 expenditures on obsolete—and polluting—generation—especially when thousands of MW of
8 low-cost, cleaner generation and demand side options exist.

9 It is especially “abusive” to force ratepayers to pay 9-10% return³² on the equity portions
10 of these ill-advised expenditures by Xcel in Colorado. It is long past time that the Colorado PUC
11 woke up to this situation and corrected it—quickly!

12 **V. FIND CACJ EXPENDITURES ON PAWNEE AND HAYDEN IMPRUDENT AND**
13 **REDUCE RETURN ON ANY ALLOWED EXPENDITURES TO THE COST OF DEBT**
14

15 **Q. PLEASE DESCRIBE YOUR POSITION ON PSCO’S REQUEST TO TRANSFER**
16 **RECOVERY OF CLEAN AIR CLEAN JOBS EXPENDITURES INTO RATE BASE.**

17 A. As discussed above and below, Xcel should have known that moving ahead with the Clean
18 Air Clean Jobs (“CACJ”) expenditures on the Pawnee and Hayden coal plants was not prudent.
19 The Commission should send a clear message to Xcel that it should have known better and that it
20 must move forward in the 21st century with its eyes wide open—even if it has been granted a
21 CPCN. Xcel is the “driver” of PSCo and it needs to drive a lot more prudently than it has been.

³² For example, see the Direct Testimony of PSCo witness Brooke Trammell, page 148, lines 9-13.

1 Possible actions for the Commission to take with respect to the CACJ expenditures on the
2 Pawnee and Hayden coal plants include:

3 a) Disallowing all (or a significant amount) of the CACJ expenditures in order to send a
4 strong message to Xcel to “drive” more carefully.

5 b) Disallowing the increase cost of the Pawnee pollution controls above the cost
6 projected in Proceeding 11A-325E.

7 c) Reducing the return on equity for any of the allowed expenditures made on Pawnee
8 and Hayden under the CACJ to the cost of debt—or at the very least, to something well
9 below 9%.

10 d) Sending a strong message to Xcel that expenditures on old coal plants will no longer
11 be assumed to be necessary and will receive very serious scrutiny going forward.

12 Table LWG-6 below shows the amounts of CACJ expenditures that Xcel is asking to
13 transfer to rate base in this proceeding.

14 **Table LWG-6**
15 **Clean Air Clean Job Expenditures that Xcel is Asking to Transfer to Rate Base**
16 *From Discovery Response LWG2-2, Docket 19AL-0268E*
17

Gross Plant in-Service	Total Company	Retail Allocation	Retail Amount
Cherokee 2X1CC	\$ 583,883,318	91.18%	\$ 532,381,691
Pawnee SCR	\$ 288,880,540	91.18%	\$ 263,399,733
Hayden Unit 1	\$ 49,218,732	91.18%	\$ 44,877,377
Hayden Unit 2	\$ 27,420,812	91.18%	\$ 25,002,150
Total CACJA	\$ 949,403,402		\$ 865,660,951

1 For the reasons discussed in this testimony, Xcel’s Colorado customers should not be
2 responsible for paying the full cost plus 9-10% return on equity for the expenditures on the
3 Pawnee and Hayden coal plants.³³

4 Given what Xcel knew or should have known, the expenditures on Pawnee and Hayden
5 were not prudent and this testimony and attachments are being submitted in this proceeding in
6 accordance with the statutory requirements to ensure that rates are “just and reasonable” (C.R.S.
7 § 40-3-101(1)) and that “abuses” are corrected (C.R.S. §40-3-102) and in accordance with PUC
8 Rule 3617(d) (4 C.C.R. 723-3) which is copied below.

- (d) Effect of the Commission decision. A Commission decision specifically approving the components of a utility’s plan creates a presumption that utility actions consistent with that approval are prudent.
 - (l) In a proceeding concerning the utility’s request to recover the investments or expenses associated with new resources.
 - (A) The utility must present prima facie evidence that its actions were consistent with Commission decisions specifically approving or modifying components of the plan.
 - (B) To support a Commission decision to disallow investments or expenses associated with new resources on the grounds that the utility’s actions were not consistent with a Commission approved plan, an intervenor must present evidence to overcome the utility’s prima facie evidence that its actions were consistent with Commission decisions approving or modifying components of the plan. Alternatively, an intervenor may present evidence that, due to changed circumstances timely known to the utility or that should have been known to a prudent person, the utility’s actions were not proper.

9
10 As provided for in PUC Rule 3617 (d) (I) (B, Xcel knew or should have known that the
11 expenditures they were going to make on the Pawnee and Hayden plants were not prudent given
12 the seriousness of the climate crisis and the compelling reasons to reduce emissions of carbon
13 dioxide, the strong questions about coal supplies and the likelihood that low-carbon wind and
14 solar resources would soon be lower cost than Xcel’s fossil fuel fleet. This information was

³³ It is possible that the expenditures on the Cherokee 2 x 1 combined cycle coal plant will also become obsolete before they are fully depreciated, but I am not challenging these expenditures as I believe they were as prudent as they could be at the time—though it would be nice to have responsibly sourced natural gas to run those turbines.

1 provided to the Commission by myself and many others starting in 2005—long before the CACJ
2 expenditures were undertaken. Detailed information was submitted in Dockets 04A-214E, 06S-
3 34EG, 07A-447E, 08S-520E, 09AL-299E, 10M-245E, 11A-325E, 11A-869E and 11A-917E³⁴—
4 all of which occurred before Xcel undertook the large investments in the Pawnee and Hayden
5 coal plants.

6 The following attachments to this 19AL-0268E testimony provide **a few of the many**
7 examples of information that was available to Xcel underscoring the need to take climate change,
8 coal supplies and the declining cost of renewable energy seriously and not to proceed with large
9 investments in coal plants.

10 **LWG-13**—Docket 07A-447E April 2008 Comments of Professor James White on
11 Climate Science

12 **LWG-14**—Docket 07A-447E April 2008 Comments of Dr. Juerg Schmidli on Climate
13 Science

14 **LWG-15**—Docket 07A-447E April 2008 Testimony of Dr. Kevin Trenberth on Climate
15 Science

16 **LWG-16**—07A-447E Answer Testimony of Leslie Glustrom

17 **LWG-17**—08S-520E Answer Testimony of Leslie Glustrom

18 **LWG-18**—10M-245E Glustrom Application for RRR of C10-1328

³⁴ Refer to Ms. Glustrom’s testimony and attachments in these dockets. Additional information was submitted by other parties and by the hundreds of Xcel customers who testified in the public hearings held in these proceedings.

1 **LWG-19**—07A-447E 120-Day Report-Public Version

2 **LWG-20**—11A-325E Discovery Response LWG 4-9 (Pawnee \$/MWh Post CACJ)

3 **LWG-21**—11A-869E Cost of Limon II Wind Farm

4 Clearly Xcel has been told time and again that expenditures on coal would not be prudent
5 and it had abundant evidence that the declining costs of renewable energy would soon make low-
6 carbon generation lower cost than fossil fuel generation. It is past time that the Colorado PUC
7 stopped making Xcel’s customers pay “full freight” on Xcel’s ill-advised expenditures like the
8 CACJ expenditures on Pawnee and Hayden. These expenditures were spent on coal plants that
9 added more carbon dioxide to the atmosphere and oceans leaving a planet whose climate and
10 ecosystems will become increasingly unstable—and in many regions, unlivable...while it was
11 clear that lower-cost and cleaner alternatives were just “on the horizon.” (See Attachments LWG
12 13-21).

13 Below is an excerpt of page 1 of LWG-15, Dr. Kevin Trenberth’s April 2008 Answer
14 Testimony in Docket 07A-447E describing Dr. Trenberth’s impeccable credentials. In addition,
15 there were several other climate scientists³⁵ who submitted Answer Testimony in the 07A-447E
16 docket, describing the seriousness of climate change—and this was, of course, long before Xcel
17 moved forward with very large expenditures intended to keep the Pawnee and Hayden coal
18 plants running.

³⁵ Other internationally recognized climate scientists who submitted Answer Testimony in Docket 07A-447E include Dr. Pieter Tans and Dr. Mark Serreze.

1 Excerpt from the April 2008 Answer Testimony of Dr. Kevin Trenberth, Climate Scientist,
2 Docket 07A-447E (From Attachment LWG-15).
3
4

1 Q. PLEASE STATE YOUR NAME, TITLE AND BUSINESS ADDRESS.

2 A. My name is Dr. Kevin E. Trenberth. I am the Head of the Climate Analysis Section at NCAR, the
3 National Center for Atmospheric Research. The address of NCAR is 1850 Table Mesa Drive (PO Box
4 3000), Boulder CO 80307

5

6 Q. PLEASE DESCRIBE YOUR EXPERIENCE AS A CLIMATE CHANGE
7 SCIENTIST.

8 A. I obtained my Sc. D. in meteorology in 1972 from the Massachusetts Institute of Technology. I
9 have published over 410 scientific articles or papers, including 42 books or book chapters, and over 185
10 refereed journal articles. I have given many invited scientific talks and have appeared in a number of
11 television, radio programs and newspaper articles. I have been a Coordinating Lead Author of the 1995
12 and 2007 Intergovernmental Panel on Climate Change (IPCC) Scientific Assessments of Climate Change,
13 as well as a Lead Author of the 2001 report. In all three reports I was involved in writing the Technical
14 Summary and the Summary for Policy Makers (SPM) and in defending the report in the

1

5
6 An unwillingness to read the facts that were presented to them many times and ignoring
7 the facts displayed by their own analyses, leading to a stance of willful ignorance, is not a
8 prudent way to “drive” a utility. Xcel either knew or should have known that large expenditures
9 on coal plants were imprudent—and they knew it (or should have known it) many, many years
10 before choosing to make large investments in the Pawnee and Hayden coal plants.

11 A Certificate of Public Convenience and Necessity provides a presumption of prudence,
12 **but it is not a guarantee**—any more than a green light is a guarantee of prudence that it is OK
13 to proceed forward if there are pedestrians in the cross walk. It is up to the “driver” of the vehicle
14 or the utility to use their best judgment so as not to injure anyone.

1 Given what Xcel knew or should have known long before proceeding with the CACJ
2 expenditures on Pawnee and Hayden, it was not prudent to spend several hundred million dollars
3 on old coal plants as emissions of carbon dioxide (and mercury and all the other pollutants that
4 come from coal plants) would indeed injure (and kill) thousands of people and the cost of
5 operating the coal plants would soon exceed the costs of generation from cleaner sources. The
6 failure of Xcel to heed these warning is most assuredly not something that should be rewarded
7 with full cost recovery and a 9-10% return on equity!

8 Here is how one commentator³⁶ described it

9 Asset stranding results when assets have suffered
10 from *unanticipated* or *premature* write-downs, devaluations or conversion to
11 liabilities. The first point to note is that nothing about climate change
12 is *unanticipated*, and climate policy action is certainly not *premature*, but on the
13 contrary fully predictable and overdue. **Thus, there are no stranded assets in**
14 **fossil energy companies caused by climate policy or the shift to green energy;**
15 **any write-downs are the consequence of bad investment decisions and**
16 **unjustified valuations, investments made in willful ignorance of the true costs**
17 **and risks.** (Emphasis added.)

18
19 As yet further evidence that Xcel knew many years ago that there were significant risks related to
20 climate change and emissions of CO2, below are some excerpts related to climate risks from PSCo's 2010
21 10-K.³⁷

³⁶ Quote taken from R. Andreas Kramer, a Senior Fellow at the Institute for Advanced Sustainability Studies in Potsdam, Germany. The full commentary is available [here](#).

³⁷ Available from <http://investors.xcelenergy.com/SEC-Filings>

1 **PSCo 2010 10-K, Page 16**

Item 1A — Risk Factors

Oversight of Risk and Related Processes

The goal of Xcel Energy’s risk management process, which includes PSCo, is to understand, manage and, when possible, mitigate material risk; management is responsible for identifying and managing risks, while Xcel Energy’s Board of Directors oversees and holds management accountable. As described more fully below, PSCo is faced with a number of different types of risk. We confront legislative and regulatory policy and compliance risks, including risks related to climate change and emission of CO₂; risks for recovery of capital and operating costs; resource planning and other long-term planning risks, including resource acquisition risks; financial risks, including credit, interest rate and capital market risks; and macroeconomic risks, including risks related to economic conditions and changes in demand for our products and services. Cross-cutting risks such as these are discussed and managed across business areas and coordinated by Xcel Energy’s and PSCo’s senior management. Our risk management process has three parts: identification and analysis, management and mitigation and communication and disclosure.

2

3

4 **PSCo 2010 10-K Page 18**

To the extent climate change impacts a region’s economic health, it may also impact our revenues. Our financial performance is tied to the health of the regional economies we serve. The price of energy, as a factor in a region’s cost of living as well as an important input into the cost of goods and services, has an impact on the economic health of our communities. The cost of additional regulatory requirements, such as a tax on GHGs or additional environmental regulation could impact the availability of goods and prices charged by our suppliers which would normally be borne by consumers through higher prices for energy and purchased goods. To the extent financial markets view climate change and emissions of GHGs as a financial risk, this could negatively affect our ability to access capital markets or cause us to receive less than ideal terms and conditions.

5

6 **PSCo 2010 10-K Page 21**

Public Policy Risks

We may be subject to legislative and regulatory responses to climate change and emissions, with which compliance could be difficult and costly.

Increased public awareness and concern regarding climate change may result in more regional and/or federal requirements to reduce or mitigate the effects of GHGs. Numerous states have announced or adopted programs to stabilize and reduce GHGs, and federal legislation has been introduced in both houses of Congress. Internationally, other nations have already agreed to regulate emissions of GHGs pursuant to the United Nations Framework Convention on Climate Change, also known as the “Kyoto Protocol,” by 2012. In addition, in 2009, the United States submitted a non-binding GHG emission reduction target of 17 percent compared to 2005 levels pursuant to the Copenhagen Accord. Such legislative and regulatory responses related to climate change and new interpretations of existing laws through climate change litigation create financial risk as our electric generating facilities are likely to be subject to regulation under climate change laws introduced at either the state or federal level within the next few years.

7

8

9

10 From Table LWG-6, above, it can be seen that Xcel’s expenditures on the Pawnee plant
11 at issue here are over \$288 million (with about \$263 million being requested to add to PSCo’s
12 rate base.) In docket 11A-325E (Pawnee CACJ Emission Controls) PSCo estimated that the
13 Pawnee pollution controls would “only” cost \$236.5 million as seen in paragraph 20 from
14 Colorado PUC decision C12-0159E, reproduced below, along with the paragraphs from that

1 same decision that discuss the burden of proof that PSCo bears to demonstrate the prudence of its
2 expenditures on the Pawnee coal plant.³⁸

3 The Commission should review this increase in costs for the Pawnee CACJ expenditures
4 and the requirements of Decision C12-0159E (as well as Decision R12-0593, paragraphs 78-80
5 in Docket 11A-917E related to Hayden) carefully as part of its deliberations in this 19AL-0268E
6 docket.

7 **From Colorado PUC Decision C12-0159E, Docket 11A-325E**

1. Public Service

20. Public Service estimates the costs of the SCR and LSD at Pawnee to be
\$236.5 million in Docket No. 10M-245E. Public Service also includes the additional costs of the
sorberent injection controls at Pawnee in its analysis of the total estimated cost and rate impacts of
the Company's entire emission reduction plan pursuant to the CACJA.

8

[Rest of page left intentionally blank.]

³⁸ Similar language regarding PSCo's burden of proof exists in the decision granting the Hayden CPCN from Docket 11A-917E, Decision R12-0593, paragraphs 78-80.

Accordingly, the presumption of prudence that flows from the granting of the CPCN does not obviate the requirement that Public Service present robust Direct Testimony that will enable the Commission to determine what portion of the actual costs incurred are properly chargeable to ratepayers.

40. Public Service fully carries the burden of proof that the Company acted in a prudent manner in constructing the facility. The general presumption of prudence that attaches to the CPCN is rebuttable. Hence, an intervenor challenging the construction costs may make a *prima facie* showing through Answer Testimony that the Company acted in some imprudent manner. Although such a prudence challenge is generally necessary for some amount of the actual costs incurred to be disallowed, fair and efficient rate case proceedings require that the Company not wait until the development and filing of Rebuttal Testimony in order to carry its burden of proof.

41. We find that the record in this proceeding does not support the establishment of a prospective, not-to-exceed maximum level of expenditures for the Pawnee project. Similarly, by this Order, we are making no findings or conclusions as to whether the cost estimate that Public Service has provided in this proceeding is the appropriate starting point against which the prudence of actual costs may be tested. We will also decline to require Public Service to submit semiannual reporting of progress as to milestones, budget, and deviations from budget.

1
2 Xcel's decision to proceed with the CACJ expenditures, given what it knew or should
3 have known, was not prudent. Xcel's Colorado customers should not have to pay for that
4 imprudent decision—and Xcel should certainly not be earning 9-10% on the equity portion of the
5 expenditure.

1 **VI. DISALLOW 50% OF 2018 RUSH CREEK EXPENDITURES—TOO EXPENSIVE**
2 **AND NOT PRUDENT**

3
4 **Q. PLEASE DESCRIBE YOUR POSITION ON THE RUSH CREEK WIND FARM**
5 **EXPENDITURES**

6 A. I am a strong proponent of using carbon-free electrical generation sources like wind farms,
7 but the Rush Creek Wind Farm was too expensive and Xcel knew it for sure by late 2017—but
8 does not appear to have taken any steps to address the high cost of the Rush Creek project.

9 A significant amount of the Rush Creek expenditures in late 2017 and 2018 should be
10 disallowed as Xcel’s customers should not be required to pay significantly more for resources
11 than is needed in order to keep rates “just and reasonable.”

12 From page 6 of PSCo’s 2018 10-K, (Attachment LWG-2) it is clear that the cost of the
13 Rush Creek wind farm is about \$29/MWh with the pertinent excerpt copied below.

14 **Excerpt from PSCo 2018 10-K, Page 6 (Attachment LWG-2)**

- Rush Creek became operational in December 2018. The 2019 average cost per MWh is expected to be \$29.

15
16 In late November 2017, Xcel received the bids it received in response to the Request for
17 Proposals (RFP) issued as part of the 2016 Electric Resource Plan, Docket 16A-0396E. The 30-
18 Day Report from PSCo on these bids is Attachment LWG-22. The median price (i.e. half the
19 bids are lower in cost) for the bids is summarized on page 10 of 12 of PSCo’s 30-Day Report and
20 it can be seen that there are thousands of MW of wind, solar and wind/solar/storage projects
21 bidding in under \$29/MWh.³⁹ At that point in time, Xcel should have taken active steps to reduce

³⁹ The final wind bids that PSCo accepted were between \$11 and \$18/MWh as stated in the 120-Day Report for Docket 16A-0396E, (bottom of page 50, top of page 51.)

1 the costs of the Rush Creek Wind Farm because it was clear (as many of us had predicted
2 previously) that the \$29/MWh, while perhaps a good price in 2013, was much too high for a
3 wind farm that would go into service in 2018 with wind costs falling dramatically.

4 Attachment LWG-23 shows PSCo's expenditures on the Rush Creek Wind Farm by
5 month and year including:

6 **Expenditures on Rush Creek Production (Not Including Transmission)**
7 *From Attachment LWG-23, CPUC Discovery Response 1-5 (19AL-0268E)*

8
9 \$46.3 million in December 2017

10 \$359.3 million in 2018

11 So Xcel continued to spend over \$400 million dollars on the Rush Creek wind farm **after**
12 it unequivocally knew that wind prices had dropped dramatically and it was paying much too
13 much for the Rush Creek wind farm.

14 Ratepayers should not be expected to pay for "gold plated" wind farms like the Rush
15 Creek wind farm. Consequently, a significant amount of the expenditures made in December
16 2017 and throughout 2018 should be disallowed. I am suggesting that since the Rush Creek wind
17 farm cost about twice as much as it should have, that the PUC disallow \$200 million or
18 approximately one half of the Rush Creek expenditures (detailed in Attachment LWG-23) made
19 in December 2017 and throughout 2018.

20 Xcel could have easily known earlier than November 2017 that it was paying too much
21 for the Rush Creek wind farm, so only disallowing \$200 million is actually not a very steep price
22 to pay for Xcel having proceeded cavalierly even after it knew it was paying way too much for
23 the Rush Creek wind farm.

1 In general, the Commission needs to send a strong message to Xcel that it needs to stop
2 going to the Commission and claiming that it needs to “rush, rush” to get the Rush Creek wind
3 farm or some other generation outside of the standard bidding process. Ratepayers have already
4 paid for way too much of this in the last decade⁴⁰ and the PUC should make it clear that it will
5 not take it lightly when Xcel abuses the bidding process so that it can own a resource that is
6 significantly more expensive than it almost certainly would have been if it had been put out for
7 bid.

8 **VII. REDUCE RETURN ON CAP EX ON FOSSIL FUEL RESOURCES TO 4% AND**
9 **REQUIRE ESSENTIAL RELIABILITY ANALYSES IN THE FUTURE BEFORE**
10 **SPENDING MORE THAN \$1 MILLION ON A FOSSIL FUEL PLANT**
11

12 **Q. PLEASE DESCRIBE YOUR RECOMMENDATION ON THE TREATMENT OF**
13 **CAPITAL EXPENDITURES ON EXISTING COAL AND NATURAL GAS/FOSSIL**
14 **METHANE GENERATION**

15 A. Xcel has known for many years that wind and solar generation and demand-side measures
16 could save ratepayers money. Once that became clear, Xcel should have begun taking a hard
17 look at the hundreds of millions it was spending most years on maintaining its fossil fuel fleet
18 and start phasing out that generation as quickly as possible so as to avoid throwing “good money
19 after bad.”

20 With respect to Capital Expenditures on fossil fuel generation (e.g. see Xcel Witness
21 Kyle Williams testimony and exhibits KIW-1 and KIW-2), the Commission should consider all
22 of the following:

⁴⁰ Large PSCo-owned resources that have not been put out to bid in the last decade include the Comanche 3 coal plant, the Cherokee combined cycle plant, the Fort St. Vrain 5 and 6 turbines and the Rush Creek wind farm.

1 1) Disallowing a percentage of the capital expenditures made on coal and natural gas
2 generation after 2014.

3 2) Reducing the return on these capital expenditures to the cost of debt—or at least to
4 something well below 9%.

5 3) Sending a strong message that capital expenditures made on fossil fuel generation will
6 be receiving close scrutiny going forward and without a detailed analysis of why any particular
7 capital expenditure is essential for system reliability, capital expenditures on fossil fuel
8 generation will carry a presumption of imprudence.

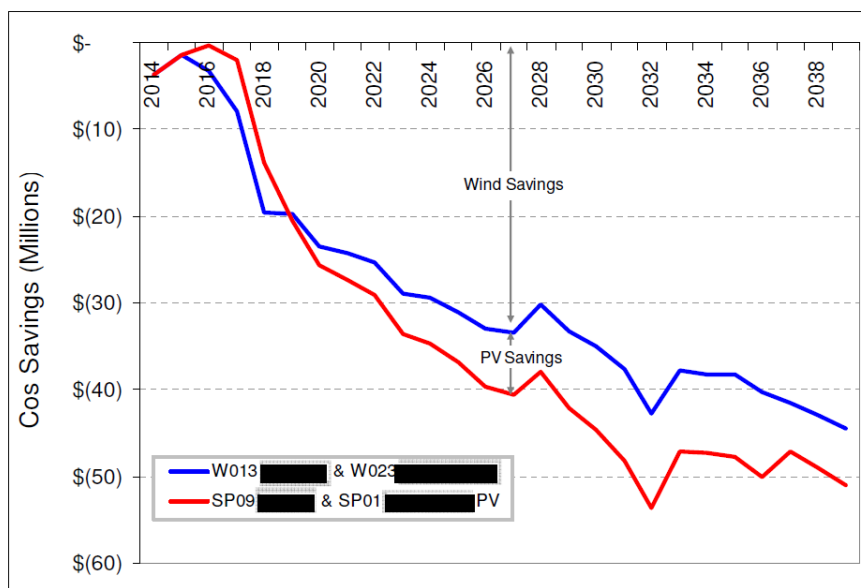
9 Figure LWG-11, below is from Xcel’s 2011 120 Day Report (Docket 11A-869E)
10 submitted to the PUC in September 2013 showing how adding wind and solar to Xcel’s
11 Colorado system will save money. Once Xcel knew this, they should have accelerated plans to
12 phase out their fossil fuel generators—not pour hundreds of millions of dollars of capital
13 expenditures into them as documented in the testimony and exhibits of Xcel witness Kyle
14 Williams.

[Rest of page left intentionally blank.]

1 **Figure LWG-11 Excerpt from PSCo 120 Day Report Docket 11A-869E**
2 **(September 2013)**

3 *Taken from Attachment LWG-24*
4
5

Figure 22 - Annual Cost Savings of 450 MW Wind and 170 MW PV



6
7
8 While it has been clear for a long time that coal will soon be obsolete, it is also likely that
9 natural gas will also become obsolete with a growing number of media reports⁴¹ of natural gas
10 being replaced with solar and storage and detailed analyses warning about investments in natural
11 gas. While the Colorado PUC failed to heed the warnings about coal, they can now avoid making
12 the same mistake with respect to natural gas.

13 Attachment LWG-25 is the 2015 report “Natural Gas Gamble” from the Union of
14 Concerned Scientists. Attachment LWG-26 is the recent report from Rocky Mountain Institute
15 warning that natural gas generation will soon be obsolete. Attachment LWG-27 is the recent

⁴¹ See for example <https://www.latimes.com/environment/story/2019-09-10/ladwp-votes-on-eland-solar-contract>
And

1 report from the Institute for Energy Economics and Financial Analysis documenting the financial
2 challenges facing the natural gas fracking industry.

3 I am desperately hoping that the Colorado PUC does not ignore all the warning signs
4 about natural gas the way they did about coal. Xcel's Colorado customers have already paid way
5 too much for fossil fuel expenditures that are or will be stranded. This is an "abuse" that should
6 be corrected in accordance with C.R.S. §40-2-103.

7 **VIII. REQUIRE REPORTS OF EXPENSES BY PLANT AND BY YEAR—PUT PSCo ON**
8 **NOTICE THAT FOSSIL FUEL EXPENSES WILL NO LONGER BE**
9 **AUTOMATICALLY APPROVED**
10

11 **Q. PLEASE DESCRIBE YOUR POSITION ON OPERATION AND MAINTENANCE**
12 **EXPENSES FOR FOSSIL FUEL GENERATION.**

13 A. As described in detail throughout this testimony and in the attachments, money spent on fossil
14 fuel assets is very likely misspent as it is literally going "up the smokestack." Instead Xcel
15 should be taking a very hard look at its fossil fuel fleet and not spending any significant amounts
16 of money on these resources that are already obsolete (coal) or soon will be (natural gas/fossil
17 methane.) Only if a resource is shown to be essential for reliability should it be maintained.
18 Otherwise it is past time to let these aging resources die a peaceful death and instead spend the
19 money on much cleaner supply and demand side solutions that will keep Colorado powered in
20 the 21st century.

21 The operating and maintenance expenses for Xcel's assets is found in KIW-3 and KIW-4,
22 with a break down by fuel type provided in response to LWG13-48 in this 19AL-0268E
23 proceeding, as copied below.

1 **DISCOVERY REQUEST LWG13-48:**

2
3 With respect to KIW-3 and KIW-4, and the \$143,513,331.75 in PSCo 2018 O&M costs, is it possible to
4 provide a breakdown of these expenses by generation fuel type—e.g. coal, natural gas, hydro, other? If so,
5 please provide such an overall breakdown. Thank you.

6
7 **RESPONSE:**

8 Please see the Table below.

Generation Fuel Type	Sum of 2018 PSCo Electric
Coal	72,288,950.52
Gas	44,430,917.16
Hydro	5,241,698.87
Wind	2,218,436.22
Support Organizations	19,242,687.52
Decommissioned Plant Expense	90,641.46
Grand Total	143,513,331.75

9
10 **Sponsor:** Kyle I. Williams

Response Date: August 30, 2019

11
12 From discovery response LWG13-48 (Docket 19AL-0268E) copied above, it can be seen
13 that over \$100 million dollars was spent by PSCo on last century’s resources--\$72 million on
14 coal and \$44 million on natural gas.

15 The Commission should send a very clear signal to Xcel that these expenses will no
16 longer be presumed to be prudent unless there is a strong showing that they were essential for
17 reliability—and that the analysis includes an accounting for the social cost of carbon and other
18 external costs accompanying the production and use of fossil fuels.

19 To help Xcel determine what expenses will and won’t be seen as prudent, the
20 Commission should require an annual forecast of operating and maintenance expenses by fossil
21 fuel plant with a justification for why this fossil fuel generation is essential for reliability in the
22 coming year. To do otherwise would require Xcel’s Colorado customers to pay for expenses that

1 are not just and reasonable given the availability of thousands of MW of wind, solar and storage
2 options below 3 cents/kwh as shown in Figure LWG-6A, above.

3 **A Visual Summary....**

4 This testimony has been full of facts and figures, but if you have made it this far, it is
5 time to reward you with an image to help summarize what is going on.

6 I am very grateful for the stated intention of Xcel to reduce their carbon emissions, but it
7 is long past time that the Commission made sure that the expenditures that Xcel is making in
8 Colorado (and that it is asking for its customers to pay for...) are in line with both the statutory
9 mandates governing the PUC (including giving the “fullest possible” consideration of clean
10 energy technologies as called for in C.R.S. §40-2-123(1)) and in line with Xcel’s stated
11 intentions. Otherwise, Xcel is just doing a variation on the old refrigerator magnet joke...

Whenever I say the word “diet,”

(or in Xcel’s case “carbon reduction”),

I wash my mouth out with chocolate

(or expenditures on carbon-emitting assets).



12

1 OK. Now back to more facts and figures.....

2 **IX. OTHER ISSUES TO EXAMINE**

3

4 **Q. PLEASE BRIEFLY DESCRIBE SOME OF THE OTHER ISSUES YOU WOULD**
5 **LIKE THE COMMISSION TO EXAMINE**

6 A. There are a number of other issues that I believe the Commission should examine closely as
7 part of this “rate review” for PSCo. These are briefly described below. In addition, I expect other
8 parties to brief a number of issues and I reserve the right to also discuss those in my Statement of
9 Position.

10 **A. Tax Cut and Jobs Act Treatment**

11

12 From the excerpt below from PSCo’s 2018 10-K (Attachment LWG-2, page 22 as copied
13 in Figure LWG-1 above, with the years 2018, 2017, 2016 going from left to right), it can be seen
14 that in 2018, PSCo only paid \$113.7 million in income taxes or \$138.5 million less than the
15 \$252.2 million paid in income taxes in 2017. While PSCo was required to return \$42 million to
16 its customers as a result of the Tax Cut and Jobs Act (TCJA) proceeding 18M-0401E, it appears
17 that the \$138.5 million less that PSCo paid in taxes in 2018 was a lot more than it passed through
18 to its Colorado customers. The Commission is requested to take a close look at what is going on
19 with PSCo’s actual tax burden in light of the TCJA passed by Congress in late 2017.

20

Income before income taxes	665.4	746.3	737.4
Income taxes	113.7	252.2	273.9
Net income	<u>\$ 551.7</u>	<u>\$ 494.1</u>	<u>\$ 463.5</u>

21

1 **B. EAF—Equivalent Availability Factor**

2

3 Given the press of other demands, I do not have time at this point to research the

4 Equivalent Availability Factor issue. I believe other parties (like the PUC Staff and the OCC)

5 may do this, and I encourage the Commission to take a close look at how to handle this issue.

6 For reference, the EAF for Xcel’s Colorado fossil fuel generation plants is given in the table

7 below copied from Discovery Response CPUC10-5 in this 19AL-0268E docket.

8

9 **Table LWG-7**

10 **Equivalent Availability Factors (EAF) for Xcel’s Colorado Fossil Fuel Resources**

11 *Data from Discovery Response CPUC10-5 (Docket 19AL-0268E)*

12

EAF											
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Cherokee 4	85.47	87.36	79.16	64.95	78.81	92.82	77.38	82.64	83.61	94.03	86.79
Cherokee 5									42.84	79.07	87.98
Cherokee 6									71.43	82.02	87.99
Cherokee 7									54.64	80.23	88.12
Comanche 1	91.17	71.10	91.56	84.03	75.75	89.54	91.65	76.73	92.47	95.67	83.78
Comanche 2	76.66	93.72	89.19	69.80	72.89	93.82	78.20	88.76	93.77	77.13	96.39
Comanche 3				70.72	57.86	77.97	82.26	71.09	75.57	87.20	80.45
Fort St. Vrain 1	83.46	95.89	75.45	80.21	93.02	85.46	80.66	93.51	95.35	84.03	77.96
Fort St. Vrain 2	92.04	95.73	76.60	85.92	85.84	82.85	93.63	89.59	84.56	91.90	87.30
Fort St. Vrain 3	84.49	96.96	89.22	79.82	90.24	88.49	76.87	94.76	94.49	92.29	90.84
Fort St. Vrain 4	86.16	94.46	94.50	82.17	91.42	89.64	80.54	90.73	94.16	91.31	89.23
Hayden 1	96.63	95.79	76.34	96.39	92.83	66.97	97.84	95.87	76.35	92.95	99.00
Hayden 2	93.31	87.10	96.71	98.03	69.63	96.07	95.47	85.78	96.54	81.15	87.92
Pawnee	93.97	91.15	56.05	87.85	76.81	86.43	79.95	70.59	91.57	74.00	95.04
Rocky Mountain 1	98.48	94.24	89.98	96.84	88.85	76.88	64.95	85.75	70.17	91.89	90.97
Rocky Mountain 2	93.30	88.98	93.72	90.32	88.06	77.95	63.92	88.76	68.01	92.21	90.38
Rocky Mountain 3	96.10	92.69	91.57	93.21	90.26	79.70	63.09	85.31	65.54	93.25	92.54

1
2
3
4
5
6
7
8
9

C. Comanche 3

It is clear that the Comanche 3 coal plant has had numerous problems going back to the problems bringing the plant on-line in 2009 and 2010. This can be seen in the Equivalent Availability Factor data in Table LWG-7, above and in the Capacity Factor Data in Table LWG-8 below.

Table LWG-8
Capacity Factor Data for Comanche 3 2015-2018
Data taken from Discovery Response LWG 8-4 (Docket 19AL-0268E)

Year	Capacity Factor for the Comanche 3 Coal Plant
2015	64.64%
2016	75.66%
2017	71.89%
2018	65.40%

10
11
12
13
14
15
16
17

Both the EAF and the capacity factor for Comanche 3 are quite low and the plant has experienced numerous unplanned outages since it was put into service in 2010.⁴² At least reductions in output from a wind or solar farm can often be predicted. When Comanche 3 goes off line the grid loses 800 MW of power—just like that, often with no warning. Talk about unreliable!!

18
19
20

If a new car was “in the shop” this often it would be classified as a “lemon,” and so it appears it is with Comanche 3. In the meantime, Xcel’s Colorado customers are paying “return of and return on” this approximately billion dollar expenditure every year.⁴³ Every time

⁴² The outages for Comanche 3 for the years 2015-2018 were supplied to Ms. Glustrom in response to Discovery Question LWG10-2.A1 in this 19AL-0268E proceeding, but I promised myself I wouldn’t exceed 28 attachments for this testimony.). If anyone would like a copy of the list of Comanche 3 outages, please contact me.
⁴³ Return on a billion dollar investment for Xcel is over \$70 million in the first year and for many years thereafter as the plant depreciates over its 60 year life span and assuming Xcel’s Weighted Average Cost of Capital stays above 7% as it is now.

1 Comanche 3 breaks down or needs a replacement of “this-that-or-the-other-thing,” Xcel’s
2 Colorado customers are paying for back-up power and return of and return on the capital
3 expenditures—as well as millions of dollars a year in operating and fuel expenses. This has been
4 going on for a long time and it is past time that Xcel’s Colorado customers were provided relief
5 from paying all of this for a resource that is already obsolete and it isn’t even 1/6th the way
6 through its expected 60 year life. Once again, the Commission needs to protect Xcel’s Colorado
7 customers from having to put “good money after bad” to keep this already-obsolete plant going
8 when those hundreds of millions of dollars could be spent building low-carbon, low-cost wind,
9 solar and storage resources and investing in 21st century demand management solutions.

10 In short, it is long past time that the Commission took a hard look at the situation with
11 Comanche 3 and put both Xcel and its customers out of their collective misery for this billion
12 dollar mistake.⁴⁴

13 **X. CONCLUSION**

14

15 **Q. PLEASE DESCRIBE THE CONCLUSIONS YOU ARE ASKING THE COMMISSION** 16 **TO MAKE AS A RESULT OF YOUR TESTIMONY.**

17 A. Xcel is in fine shape with \$551 million in after-tax net income in Colorado in 2018. They
18 certainly want a rate increase, but they certainly don’t need it as detailed in this testimony.

19 In contrast, Xcel’s Colorado ratepayers have been the subject of numerous rate increases
20 in this century, totaling over \$500 million per year in additional income for Xcel-Colorado. They
21 have been paying for excess capacity and poorly conceived decisions to spend over \$1 billion on

⁴⁴ A detailed history of the Comanche 3 process in Colorado is provided in the 2009 report by Ms. Glustrom entitled, “Comanche 3—Colorado’s Billion Dollar Mistake” available from Ms. Glustrom or the website of Clean Energy Action.

1 coal plants and hundreds of millions on natural gas plants that either are already, or soon will be,
2 obsolete. It is long past time that these abuses were corrected as called for in C.R.S. § 40-2-103.

3

4 **Q. DOES THIS CONCLUDE YOUR ANSWER TESTIMONY.**

5 A. Yes. Thank you.

6