

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

\* \* \*

IN THE MATTER OF THE APPLICATION OF PUBLIC )  
SERVICE COMPANY OF COLORADO FOR APPROVAL OF ) Docket No. 08A-532E  
ITS 2009 RENEWABLE ENERGY STANDARD )  
COMPLIANCE PLAN. )

---

**ANSWER TESTIMONY AND EXHIBITS OF FRANK SHAFER ON BEHALF OF  
THE COLORADO OFFICE OF CONSUMER COUNSEL**

---

February 23, 2009

## **TABLE OF CONTENTS**

A. Purpose and Summary of Testimony .....	1
B. Request to True-up Costs within the ECA Deferred Account .....	2
C. Request to Use Resource Planning Assumptions in the Calculation of the Retail Rate Impact and the “Lock Down” Calculation .....	4
D. The WiP Forecasting Tool .....	12
E. Concluding Comment.....	15

## **LIST OF EXHIBITS**

FCS-1	Carbon Cost Adder Diagrams
FCS-2	OCC Discovery Question 2-1
FCS-3	OCC Discovery Question 1-12
FCS-4	OCC Discovery Question 1-7

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

**A.** My name is Frank Shafer. I am a Financial Analyst with the Colorado Office of Consumer Counsel (“OCC”). My business address is 1560 Broadway, Suite 200, Denver, CO, 80202.

**Q. HAVE YOU PREPARED AN APPENDIX THAT DESCRIBES YOUR QUALIFICATIONS?**

**A.** Yes. An Appendix A is attached to this testimony.

**A. Purpose and Summary of Testimony**

**Q. WHAT IS THE PURPOSE OF YOUR WRITTEN TESTIMONY?**

**A.** The purpose of my written testimony is provide the OCC’s recommendations regarding Public Service Company of Colorado’s (“Public Service” or “Company”) 2009 Renewable Energy Standard (“RES”) Compliance Plan.

**Q. WOULD YOU PLEASE SUMMARIZE YOUR RECOMMENDATIONS?**

**A.** Certainly. The OCC recommends that the Colorado Public Utilities Commission (“Commission”): 1) adopt a true-up process where the deferred accounts of both the Renewable Energy Standard Adjustment (“RESA”) and the Electric Commodity Adjustment (“ECA”) receive their fair respective share of actual costs associated with variations in production for either the increased or reduced wind and solar production as compared to the projected production; 2) not include a carbon cost adder in the determination of the retail rate impact calculation until actual carbon costs are “known and measurable;” 3) not include a carbon cost adder in the determination of the “locked down” net costs/net benefits until actual carbon costs are “known and measurable;” 4) allocate the revenue requirement costs of the

1 Wind Predictor (“WiP”) Forecasting Tool between the RESA and the ECA on the basis of  
2 installed wind generation flowing through the respective adjustment clause; 5) allocate the  
3 costs associated with the WiP Forecasting Tool on the basis of on the relative penetration rate  
4 of wind generation on each of the Xcel operating companies’ system, and 6) recompute the  
5 allocation percentages to Xcel’s operating companies in third year of the WiP’s useful life  
6 based on a more current relative penetration rate of wind generation on each of the Xcel  
7 operating companies’ system.

8 **B. Request to True-up Costs within the ECA Deferred Account**

9 **Q. AS PART OF ITS 2009 COMPLIANCE PLAN, IS PUBLIC SERVICE**  
10 **PROPOSING TO CHANGE THE TRUE-UP PROCESS FOR ELIGIBLE ENERGY**  
11 **COSTS WITH RESPECT TO THE DEFERRED ACCOUNT?**

12 **A.** Yes. Starting on page 12, line 18 of his Direct Testimony, Mr. Ahrens notes that in  
13 past year’s Compliance Reports, the actual costs of Eligible Energy have been reported and  
14 the difference between the projected total costs of Eligible Energy and the actual total costs of  
15 Eligible Energy have been “trued-up” by adjustments to the RESA deferred account. Public  
16 Service is seeking Commission approval to change the true-up process of Eligible Energy  
17 resources from the RESA to the Company’s ECA. Mr. Ahrens explains that although  
18 currently there are no wind costs recovered through the RESA, as more wind comes on-line to  
19 meet the RES requirements, Public Service is concerned that there will likely be more  
20 significant variations between actual wind output as compared to the projected wind output.  
21 He contends that since the RESA is currently the “balancing” rate mechanism, the RESA  
22 deferred account will be impacted by the full costs of either the increased (actual production  
23 greater than projected production) or reduced (actual production less than projected

1 production) as opposed to only the incremental cost of that generation. Mr. Ahrens mentions  
2 that variations in solar resource generation would also impact the RESA at their full costs and  
3 not their incremental costs. He concludes this discussion in his Direct Testimony on page 14  
4 where he states that, in order to reflect only the incremental costs in the RESA, the variations  
5 caused by increases or decreases in Eligible Energy production should be accomplished  
6 through adjustments to the ECA and not the RESA.

7 **Q. WHAT IS THE OCC'S CONCERN WITH THIS PROPOSED TRUE-UP**  
8 **CHANGE?**

9 **A.** The OCC believes that if the ECA becomes the sole rate mechanism where variations  
10 in Eligible Energy production are trued-up then the RESA would not be charged its fair share  
11 (the incremental portion of the costs of either higher or lower production, as compared to the  
12 projected production). While at the same time, the ECA would be charged more than its fair  
13 share (the full costs of either higher or lower production as compared to the projected  
14 production). In my opinion, the practical effect of the Company's request is to shield the  
15 RESA account from cost variances caused by variances in production.

16 **Q. WHAT WOULD THE OCC SUGGEST AS AN ALTERNATIVE TO PUBLIC**  
17 **SERVICE'S PROPOSAL?**

18 **A.** The OCC recommends that the Commission adopt a true-up process where the  
19 deferred accounts of both the RESA and the ECA receive their respective shares of the  
20 variations in production of either the increased costs (actual production greater than projected  
21 production) or reduced costs (actual production less than projected production) from Eligible  
22 Energy resources. We believe that putting the entire deferred cost recovery into the ECA  
23 unduly burdens it to the benefit of the RESA.

1   **Q.     HAS THE OCC DEVELOPED A METHOD TO ALLOCATE THE COSTS**  
2   **CREATED BY VARIANCES IN PROJECTED GENERATION VERSE ACTUAL**  
3   **GENERATION AS YOU HAVE SUGGESTED?**

4   **A.**     No, but if the Commission agrees with the concept, then it could require Public  
5   Service to include a method which assigns some of the costs due to variances in Eligible  
6   Energy production to both the RESA and ECA in its next Compliance Plan filing.

7           **C.     Request to Use Resource Planning Assumptions in the Calculation of the**  
8           **Retail Rate Impact and the “Lock Down” Calculation**

9   **Q.     PLEASE DESCRIBE THE COMPANY’S LOCK DOWN PROPOSAL.**

10   **A.**     Starting on page 19, line 9 of his Direct Testimony, Mr. Ahrens describes the concept  
11   of a time fence and how it factors into the determination of the costs and benefits of Eligible  
12   Energy resources. He explains that at the time of acquisition of an Eligible Energy resource,  
13   the Company estimates the associated net incremental cost. However, without a “lock down,”  
14   this resource’s net incremental cost will likely change in the future Compliance Plans due to  
15   the fluctuations in natural gas prices. Mr. Ahrens contends that if the Company is forced to  
16   continually recalculate incremental costs that are driven by unavoidably imprecise gas price  
17   forecasts, there could be a situation where the RESA funds will be inadequate to pay for those  
18   incremental costs. To avoid the possible changes in the net costs or net benefits, it proposes  
19   to lock down for each Eligible Energy resource—at either the time it files its Compliance  
20   Report or at the time it signs a contract—that resource’s net cost or net benefit.

**Q. WHAT IS THE OCC'S CONCERN WITH THE LOCK DOWN PROPOSAL?**

**A.** We are concerned that the resource acquisition planning assumption regarding the carbon cost adder should not be included in the lock down calculation until the actual carbon costs become "known and measurable." To help better explain this concept, I have prepared three diagrams as Exhibit FCS-1. I should first mention that the values shown on pages 2 and 3 of these diagrams are not based on actual numbers nor are the relative changes between the two scenarios (with and without a carbon cost adder) intended to be reflective of actual differences between the two. However, I think they reasonably represent how carbon costs factor into the determination of what has been called "headroom," which is the amount of Eligible Energy resources that can be added before the two percent retail rate cap is reached.

However, I would like to start with Page 1 of 3 of Exhibit FCS-1 to provide an overview of how a carbon adder affects the retail rate impact calculation. This bar graph begins with the first green bar on the left-hand-side and it represents the No-RES plan with a carbon adder. It has a height of 100 units. The second green bar is the RES plan with a carbon adder. It has a height of 102 units. Under the retail rate impact cap, the RES plan can be up to two percent greater in cost than the No-RES plan's cost,<sup>1</sup> that is why it has a height of 102 units (100 units X 1.02). The first blue bar is the No-RES plan without a carbon adder. It has a height of 98 units. I arbitrarily picked a value of two units to represent the lower cost of the portfolio when there is no carbon adder. The second blue bar is the RES plan without a carbon adder. It has a height of 99.96 units. Its height is the product of 98 units times the 1.02 factor explain previously. The red arrow between the top of the second blue bar (the RES Plan without a carbon adder) and the dashed green line, which represents the top of the

---

<sup>1</sup> The associated RESA program administrative costs are in both scenarios, but have been ignored for this explanation.

1 second green bar (the RES Plan with a carbon adder) indicates that 2.04 units of headroom is  
2 created by including a carbon adder in the determination of the retail rate impact calculation.  
3 The practical effect of this additional headroom is that more Eligible Energy resources can be  
4 acquired when a carbon adder is included in the retail rate impact calculation.

5 Page 2 of 3 of Exhibit FCS-1 shows the additional headroom concept and the  
6 additional Eligible Energy resources available when a carbon adder is included in a line graph  
7 format. Beginning on the left-hand-side (in green text) of Page 2 of 3, Exhibit FCS-1 shows  
8 that the No-RES costs with a carbon cost adder is 26 on the hypothetical scale. The same  
9 starting point on the right-hand-side (in blue text) for the No-RES costs without a carbon cost  
10 adder is 24. In both scenarios, the cost of the resource portfolio after some fossil fuel  
11 resources are removed results in either a value of 21 under the carbon cost adder scenario or a  
12 value of 22 under the without a carbon cost adder scenario. In the final step, Eligible Energy  
13 resources are added until the two percent retail rate cap is reached. Again focusing on the  
14 hypothetical scale, the RES costs with a carbon cost adder reaches a cost of 29, while the RES  
15 costs without a carbon cost adder reaches a cost of 27. Therefore the headroom created by the  
16 carbon cost adder is 8 units (29 - 21), while the headroom created without a carbon cost adder  
17 is 5 units (27 - 22).

18 On page 3 of 3 of Exhibit FCS-1, I develop the same type of comparative diagram for  
19 the development of the lock down. On the left-hand-side, in green text, the No-RES with a  
20 carbon cost adder scenario starts at 28, while on the right-hand-side, in blue text, the No-RES  
21 without a carbon cost adder scenario starts at 27. Once the equivalent sized fossil fuel  
22 resource is removed the cost of the portfolio drops to 24 under the scenario with a carbon cost  
23 adder, while the cost of the portfolio without a carbon cost adder drops to 25. Thus the ability



1 for an Eligible Energy resource to achieve net benefits is greater since there is more  
2 “distance” when a carbon cost adder is included (4 units or 28 – 24) as compared to the  
3 scenario when no carbon cost adder is included (2 units or 27 – 25).

4 **Q. SO WHY DOES IT MATTER THAT MORE HEADROOM IS BEING**  
5 **CREATED BY THE CARBON ADDER?**

6 **A.** Because imputing a carbon cost when no actual carbon costs are currently being paid  
7 for by the customers on their bills artificially creates headroom that does not exist in the “real  
8 world.” The OCC believes that the method used to calculate the retail rate impact and the  
9 associated lock down amount should be based on assumptions which are more closely tied to  
10 what is actually impacting customer bills and not on resource planning assumptions which are  
11 used in the selection process of resources.

12 **Q. MR. SHAFER PLEASE DESCRIBE RES RULE 3661(E).**

13 **A.** This RES Rule<sup>2</sup> provides that for purposes of calculating the retail rate impact, the  
14 utility shall use the same methodologies and assumptions it used in its most recently approved  
15 least-cost planning<sup>3</sup> case unless otherwise approved by the Commission.

16 **Q. DO YOU KNOW WHAT CARBON COSTS WERE RECENTLY APPROVED**  
17 **BY THE COMMISSION IN PUBLIC SERVICE’S MOST RECENT ELECTRIC**  
18 **RESOURCE PLANNING PROCESS?**

19 **A.** I believe the Commission approved a carbon tax of \$20 per ton starting in 2010 and  
20 escalating at seven percent per year.<sup>4</sup>

---

<sup>2</sup> The RES Rules are found at 4 Code of Colorado Regulations 723-3-3650 to 723-3-3665.

<sup>3</sup> There is a pending RES Rulemaking case, Docket No. 08R-424E, where the reference to the Commission’s least-cost planning process is changed to the current electric resource planning process.

<sup>4</sup> See, Decision No. C08-0929, paragraph 270.

**Q. IS THE OCC BASING ITS POSITION ON EXCLUDING THE CARBON COST ADDER FROM THE RETAIL RATE IMPACT CALCULATION ON THE LAST PHRASE IN YOUR EARLIER ANSWER REGARDING ‘UNLESS OTHERWISE APPROVED BY THE COMMISSION’?**

**A.** Yes and let me explain why. To help put this into context, I want to discuss how the Electric Resource Planning (“ERP”) assumption regarding natural gas prices differ from a carbon cost adder assumption. In the ERP process, the Commission does not approve specific natural gas prices, but instead approves a methodology, which is updated at the time the utility begins its resource selection process after it has received bids. While it is unlikely that the updated natural gas prices will reflect actual prices when the resource comes on-line, it does not matter because customers ultimately pay whatever the actual natural gas prices are through the ECA and not the updated natural gas price that was used in the selection resource process. However, carbon costs are not analogous to updated natural gas prices because, at least as of today, customers do not ultimately pay for the carbon costs that were used in the screening process or pay for the carbon costs included on their bills.

I am aware of a similar situation where an imputed value was used in the resource selection process, but when the actual costs of the wind resources were included in the RES/No-RES modeling it had the unintentional consequence of increasing the incremental energy costs recovered through the RESA.<sup>5</sup> The imputed value was an \$8.75 per MWh Renewable Energy Credit (“REC”) for all renewable resources. Attached as Exhibit FCS- 2 is OCC Discovery Question 2-1 where I asked Public Service to confirm my understanding of this outcome. This exchange is presented in sub-part G of OCC Discovery Question 2-1. In

---

<sup>5</sup> Docket No 07A-462E.

1 my opinion, this demonstrates why using imputed value or costs which are not being  
2 recovered through actual customer bills can present problems.

3 **Q. WHAT DOES THE OCC PROPOSE THE COMPANY DO FOR ITS 2009 RES**  
4 **COMPLIANCE PLAN AS IT RELATES TO THE LOCK DOWN CALCULATION OF**  
5 **NET COSTS OR NET BENEFITS OF ELIGIBLE ENERGY RESOURCES?**

6 **A.** Public Service should be allowed to calculate an associated lock down for an Eligible  
7 Energy resource's net cost or net benefits as it has proposed with the exception that no carbon  
8 cost adder be included in the analysis. We would also suggest that the Company be required  
9 to retain the associated data and modeling files used in these net cost or net benefit lock down  
10 calculations such that when carbon costs become more known and measurable, the associated  
11 lock downs can be recalculated for all prior Eligible Energy resources. Then the updated lock  
12 down figures can be factored into future Compliance Plans.

13 **Q. IS THE OCC OPPOSED TO A UTILITY GETTING MORE ELIGIBLE**  
14 **ENERGY RESOURCES FOR CUSTOMERS?**

15 **A.** No. We are concerned that the carbon cost adder should remain as a planning  
16 assumption for resource modeling purposes and should not be included in a net cost/benefit  
17 calculation until it becomes a known and measurable cost which customers pay.

18 **Q. ARE CARBON COSTS INCLUDED IN OTHER ANALYSES WITHIN**  
19 **PUBLIC SERVICE 2009 COMPLIANCE PLAN?**

20 **A.** Yes. The use of the carbon cost adder is also factored into the revenue figures Public  
21 Service presents in Table 6-3. Exhibit FCS-3 is OCC Discovery Question 1-12. It shows that  
22 starting in 2010, the Company has estimated an additional \$2,621,000 of additional RESA

1 revenues attributable to the additional carbon dioxide costs above the 20 percent level and the  
2 additional carbon cost related revenues continue through the RES Planning Period of 2020.

3 **Q. IS THE OCC TAKING ISSUE WITH THIS ASPECT OF THE COMPANY'S**  
4 **2009 COMPLIANCE PLAN?**

5 **A.** No. Because the effects of this inclusion does not start until 2010, I believe the 2010  
6 Compliance Plan docket is the proper venue to discuss this issue.

7 **Q. IN ONE OF YOUR EARLIER ANSWERS YOU MENTIONED THAT**  
8 **BECAUSE THE CARBON ADDER IS NOT PART OF THE "REAL WORLD" IN**  
9 **TERMS OF CUSTOMERS' BILLS THEN IT SHOULD NOT BE INCLUDED IN THE**  
10 **RETAIL RATE IMPACT CALCULATION. DID I ACCURATELY REPRESENT**  
11 **YOUR POSITION ON THIS POINT?**

12 **A.** Yes.

13 **Q. MAY I TAKE THIS NEXT PORTION OF OUR DISCUSSION INTO THE**  
14 **REAL WORLD, AS YOU USE THAT TERM?**

15 **A.** Fair enough.

16 **Q. ISN'T THE COLLECTION OF ACTUAL RESA FUNDS SIMPLY THE RESA**  
17 **RIDER PERCENTAGE TIMES THE TOTAL VALUE OF A CUSTOMER'S**  
18 **ELECTRIC BILL?**

19 **A.** Yes.

**Q. SO WHY DOES IT MATTER THAT THERE COULD BE MORE HEADROOM AND THUS MORE ELIGIBLE ENERGY RESOURCES DEPLOYED UNDER A SCENARIO WHEN A CARBON ADDER IS INCLUDED IF THE MAXIMUM RESA CHARGE ON A CUSTOMER'S BILL IS FIXED AT TWO PERCENT?**

**A.** Described below is my current working theory of the interplay between the RESA modeling headroom and actual RESA collection through customer bills. Using Page 1 of 3 of Exhibit FCS-1 as a way to put this into a visual context, although the differences between both the blue bars (1.96 units) and both the green bars (2 units) is two percent of the respective scenarios the relevant difference is between the two RES scenarios which is 2.04 units. For purposes of the retail rate impact calculation with a carbon adder, we are using a larger base upon which to measure two percent from and to acquire more Eligible Energy resources. However, in the real world that larger base does not exist because customers are not paying the associated carbon costs which made the green RES bar higher. My suspicion is that by allowing more Eligible Energy resources to be acquired because carbon costs have been included, that in subsequent RESA Account reconciliations (comparing actual RESA collections from customers to the modeled incremental costs shown in Column H of Table 6-3) it might turn out that actual RESA collections will fall short of the model incremental costs of the Eligible Energy resources. This would mean that the retail rate impact cap has been exceeded. This is visually demonstrated on Page 1 of 3 with the modeling headroom of 2.04 units, but with the real world headroom (because carbon costs are not currently being charged to customers) of only 1.96 units.

**D. The WiP Forecasting Tool**

**Q. PLEASE DESCRIBE THE COMPANY'S PROPOSAL FOR THE WIND PREDICTOR FORECASTING TOOL?**

**A.** Through the use of the WiP Forecasting Tool, Public Service hopes to be able to more accurately forecast the wind. As a result of these more accurate wind forecasts, Public Service believes that it can reduce its wind forecasting error percentage. According to the Company, it currently has a wind forecasting error in the range of 18 percent and it hopes to reduce its wind forecasting error to 16 percent by using the WiP. Public Service estimates that for every one percentage point reduction in the wind forecasting error it will result in cost savings of \$1,379,000. The estimated cost of the WiP is \$2.6 million for the implementation of the weather models and \$750,000 for the data acquisition hardware and software at the wind farms.<sup>6</sup> The Company states that since the three Xcel Energy operating companies will share this cost, Public Service's share will only be \$1,287,423 based upon allocating the costs using the relative levels of installed wind capacity as of 2008 on each of the three operating companies. For this compliance filing, only \$113,077 of WiP costs are included and the associated revenue requirement for this investment cost is \$35,343. According to the Company, this revenue requirement cost has been included as part of the RESA Program and Administrative Costs shown in Column L of Table 6.3.

---

<sup>6</sup> See, Company witness Mr. Park's Direct Testimony, page 4 line 21 to 23.

**Q. WHAT ARE THE OCC'S CONCERNS WITH THE COMPANY'S PROPOSAL FOR WIND PREDICTOR FORECASTING TOOL?**

A. Currently Public Service has two wind generation facilities<sup>7</sup> associated with its WindSource program – Ponnequin and Peetz Table. These two wind farms have a total capacity of approximately 61 MW. It is my understanding that under the WindSource settlement reached in Docket No. 08A-260E, these generation facilities will be considered “sunk”<sup>8</sup> and will not affect the retail rate impact calculation. Public Service has contracted for 162 MW of wind generation at the Colorado Green site, near Lamar, CO. This wind generation facility is also considered sunk and does not affect the retail rate impact calculation. Lastly, Public Service acquired 775 MW of wind from its 2005 All-Source acquisition process. The Commission has ruled that these three wind generation facilities are sunk and thus do not affect the retail rate impact calculation either. In total, the Company has approximately 998 MW of wind generation resources whose costs do not affect the RESA retail rate impact calculation.

Recently Public Service filed an application<sup>9</sup> seeking approval of a new wind project called Northern Colorado Wind Energy. According to the application, it will be a 151.8 MW facility. I believe that this wind resource's costs are included in Column D of Table 6-3, which is titled “New Wind Energy Costs,” since this wind project is scheduled to be on-line by November 2009 and costs appear starting in 2010. When one does the math, there is only 13.2 percent (151.8 MW/ (998 + 151.8) MW) of wind costs that will be flowing through the RESA in the near term.

---

<sup>7</sup> It is my understanding that 5.1 MW of the Ponnequin wind farm is under a purchase power contract, while the rest is owned by Public Service.

<sup>8</sup> When a resource is sunk its costs flow through the ECA instead of the RESA because its costs are included in both the RES and No-RES scenario.

<sup>9</sup> Docket No. 09A-020E.

1           The OCC contends that it is inappropriate for the RESA to be responsible for the  
2   entire revenue requirement costs of the WiP Forecasting Tool since all of the wind generation  
3   costs currently flows through the ECA. The OCC recommends that the associated revenue  
4   requirement costs of the WiP be allocated between the RESA and ECA adjustment clauses on  
5   the basis of installed wind generation attributable to the respective adjustment clauses. Since  
6   currently all of the wind resources' costs are recovered through the ECA, 100 percent of the  
7   WiP revenue requirement should be borne by the ECA until such time as the "new" wind  
8   costs are flowing through the RESA.

9           Our next concern is associated with the allocation of WiP costs among the Xcel  
10   operating companies. The OCC asked discovery questions regarding the cost allocation  
11   process relating to the WiP Forecasting Tool. Exhibit FCS-4 is the Company's response to  
12   OCC Discovery Question 1-7 regarding the WiP Forecasting Tool. I would like to focus on  
13   responses to sub-parts D, E, G and H. According to Public Service, it intends to allocate the  
14   software cost based on the 2008 installed capacity and that those allocation percentages will  
15   not change over time. The OCC believes that a more appropriate allocation methodology for  
16   the costs associated with the WiP Forecasting Tool would be to use the relative wind  
17   penetration rate on each of the operating companies' system. The basis for this  
18   recommendation is that as the level of wind generation increases on a utility's system, there  
19   would be greater benefits (more savings) through a better dispatching of the wind generation.  
20   Unfortunately, I was not able to issue follow-up discovery in time to receive the responses  
21   and learn whether this proposed allocation method would result in more costs being assigned  
22   to Public Service as compared to the Company's proposed allocation method.



We are also concerned that the allocation percentages for the WiP between the Xcel operating companies is being fixed as of the 2008 values. The OCC believes that it would be appropriate to update the allocation percentages at some future point in time during the WiP's useful life. The Company has indicated that the WiP Forecasting Tool has a five-year useful life. The OCC recommends that the allocation percentages to Xcel's operating companies be recomputed in third year of the WiP's useful life based on a more current relative penetration rate of wind on each of the Xcel operating companies' system or based on whichever method the Commission adopts in this proceeding. Under this recommendation years four and five of the WiP's useful life would use updated allocation percentages.

### **E. Concluding Comment**

**Q. IS THERE SOMETHING ELSE YOU WANT TO SAY?**

**A.** Yes. The common theme through my testimony is that I am challenging proposals that Public Service has made in this Compliance Plan filing which helps the RESA and the retail rate impact cap calculation. I contended that: 1) the variations in generation between forecasts and actual need to be shared between the deferred accounts for the RESA and the ECA instead of being exclusively assigned only to the ECA; and 2) that carbon costs should not be included in the retail rate impact calculation or the lock down calculation until they are known and measurable and being charged to customers, instead of using the estimated carbon costs from Public Service's most recent ERP case;

The OCC believes that in order for the retail rate cap to have meaning, costs that should appropriately be “charged” to the RESA should not be charged to the ECA and that estimated carbon costs should not be included in the determination of rates until carbon costs

1 are actually being charged to customers. The OCC wants the utilities to succeed at meeting  
2 the RES, but we need to be true to what the voters have indicated they are willing to pay.

3 The OCC believes that not every renewable energy facility's cost needs to flow  
4 through the RESA, but that finding ways to move costs and savings around does not serve  
5 the process in the long-run. The OCC has advocated in a prior Public Service Compliance  
6 Plan docket<sup>10</sup> that the Commission has the authority to find that it is in the public interest for a  
7 utility to acquire a resource mix with more Eligible Energy resources than can be acquired  
8 within the two percent rate cap.

9 Traditionally when the Commission has approved a fossil fuel resource, the costs for  
10 that resource (fixed and operating) flowed through a combination of base rates and  
11 adjustment clauses. Should the Commission decide on an renewable energy resource mix  
12 which would exceed the retail rate impact cap, the OCC believes that the Commission could  
13 designate those additional renewable energy resources (those above the two percent retail  
14 rate impact cap) as non-RES resources and their associated costs would flow through a  
15 combination of base rates<sup>11</sup> and non-RESA adjustment clauses just as a fossil fuel resource's  
16 cost would have in the past.

17 We also believe that the RECs produced from these Eligible Energy resources could  
18 not be used for compliance since the RESA was not charged a portion of the costs. Instead,  
19 those RECs should be deemed to be something like "Merchant RECs" and any profits from  
20 those Merchant REC sales would flow exclusively into the ECA.

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

22 **A.** Yes.

---

<sup>10</sup> See, Hearing Exhibit No. 23 in Docket No. 07A-462E, pages 12-14.

<sup>11</sup> To the extent there are fixed costs.

Line	Headroom with a Carbon Adder		Scale	Headroom without a Carbon Adder	
1					
2					
3			102.5		
4			102		
5			101.5		
6			101.0		
7			100.5		
8			100		
9			99.96		
10			99.0		
11			98.5		
12			98		
13			97.5		
14					
15					
16					
17					
18					
19	No-RES	RES		No-RES	RES
20	(w/ Carbon Adder)	(w/ Carbon Adder)		(w/o Carbon Adder)	(w/o Carbon Adder)

2% Headroom 2.00



Headroom 2.04



2% Headroom 1.96



--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--



---

<b>Re: The Application of Public Service Company of Colorado for Approval of its 2009 Renewable Energy Standard Compliance Plan Docket No. 08A-532E</b>	)	<b>Second Set of Discovery Requests Of the Office of Consumer Counsel Served On Public Service Company February 6, 2009</b>
---	---	---

---

**DISCOVERY REQUEST NO. OCC2-1:**

In this docket, Public Service is proposing to be allowed to “lock down” the incremental costs of a new Eligible Energy Resources.

- a) Under Public Service’s proposal, will this lock down calculation include a value for the “carbon savings” of the Eligible Energy Resource?
- b) Under Public Service’s proposal, will this lock down calculation include a value for the “carbon costs” of the fossil fuel equivalent resource used in the No-RES scenario?
- c) Under Public Service’s proposal, which Eligible Energy Resources will use the carbon prices approved in the Company 2007 Colorado Resource Plan case, Docket No. 07A-447E for the lock down calculation?
- d) Mr. Warren explains on page 5 of his Direct Testimony, lines 3 to 5 that in the last column of Table 6-1 is the on-going costs of the SunE Alamosa and all On-Site solar installed as of the as of the end of 2008. Please break out by year this column into two sets—one attributable to SunE Alamosa and one attributable to all On-Site solar resources. Please provide the spreadsheet, with cell references intact, which performs these lock down calculations.
- e) Please provide the on-going costs shown in the last column of Table 6-1, but without including any carbon costs being included in the analysis. Please break out by year the values into two sets—one attributable to SunE Alamosa and one attributable to all On-Site solar resources. Please provide the spreadsheet, with cell references intact, which performs these lock down calculations.
- f) Should future carbon costs/taxes legislation be approved which establishes known costs for carbon, would Public Service agree to recalculate the prior years’ lock down amounts based on actual carbon costs/taxes and true-up the RESA account for the difference between estimated carbon costs and known costs for carbon?

- g) Does Public Service agree with the following statements. As a result of the settlement reached in its 2003 LCP, it agreed to impute a Renewable Energy Credit value of \$8.75 per MWh in the resource selection process for renewable resources. This imputed REC value was used in the selection process for the 2005 All-Source RFP. The use of the imputed REC value contributed in part to the selection of four wind resources because they were shown to be cost effective, due in part to the \$8.75 per MWh imputed REC value. Contracts were signed for four wind resources and the facilities went into service. However, when their actual costs were included in the RES/No-RES modeling in Docket No. 06A-478E, they had the unintentional consequence of increasing the incremental energy costs recovered through the RESA. If the Public Service disagrees with any of the above statement, please identify which statements the Company disagrees with and why.

**RESPONSE:**

- a) Yes.
- b) Yes.
- c) All eligible renewable resources are compared to thermal resources in the No RES model and therefore include the carbon prices when considering the lock down calculation.
- d) See Attachment OCC2-1.
- e) Unavailable. The RES and No RES modeling, and Ongoing Costs calculations were not performed without Carbon Costs.
- f) No. The purpose of the lock-down provision is to lock in expected incremental costs (or incremental savings) at the time that the resource is procured. Therefore, Public Service does not agree that the RESA balance should be changed if carbon costs are different in the future from the Commission-approved carbon estimates that are used at the time of resource procurement. The same is true for all other cost estimates in the STRATEGIST model.
- g) Public Service agrees with all of these statements.

**Sponsor:** Art Warren (a – e)  
Dan Ahrens (f & g)

**Response Date:** February 12, 2009

---

<b>Re: The Application of Public Service Company</b>	<b>)</b>	<b>First Set of Discovery Requests</b>
<b>of Colorado for Approval of its 2009 Renewable</b>	<b>)</b>	<b>Of the Office of Consumer Counsel</b>
<b>Energy Standard Compliance Plan</b>	<b>)</b>	<b>Served On Public Service Company</b>
<b>Docket No. 08A-532E</b>	<b>)</b>	<b>January 15, 2009</b>

---

**DISCOVERY REQUEST NO. OCC1-12:**

On page 7 lines 1 to 12 of Mr. Warren's Direct Testimony, he indicates that Public Service has included the cost of carbon emissions above the 20% reduction for purposes of calculating the RESA beginning in the year 2010. Please identify the yearly amount of carbon costs above the 20% level for the years 2010 to 2020 included in the RESA calculations.

**RESPONSE:**

See Attachment OCC1-12.

**Sponsor:** Art Warren

**Response Date:** February 9, 2009



Year	Wholesale LRS	Retail	CO2 \$000 above 20%	CO2 \$000 added to Retail Revenue Forecast	CO2 RESA \$000 @ 2% RESA
2010	14%	86%	\$152,464	\$131,042	\$2,621
2011	14%	86%	\$158,786	\$136,221	\$2,724
2012	9%	91%	\$133,884	\$122,202	\$2,444
2013	9%	91%	\$126,158	\$114,753	\$2,295
2014	9%	91%	\$133,365	\$121,003	\$2,420
2015	9%	91%	\$154,213	\$139,582	\$2,792
2016	10%	90%	\$154,013	\$139,094	\$2,782
2017	10%	90%	\$145,915	\$131,580	\$2,632
2018	10%	90%	\$166,613	\$150,037	\$3,001
2019	10%	90%	\$179,283	\$161,228	\$3,225
2020	10%	90%	\$189,136	\$169,880	\$3,398

---

<b>Re: The Application of Public Service Company of Colorado for Approval of its 2009 Renewable Energy Standard Compliance Plan Docket No. 08A-532E</b>	)	<b>First Set of Discovery Requests Of the Office of Consumer Counsel Served On Public Service Company January 15, 2009</b>
---	---	--

---

**DISCOVERY REQUEST NO. OCC1-7:**

On page 5, lines 8 to 10 of Mr. Parks' Direct Testimony, he discusses costs aspects of the WiP forecasting tool.

- a) He mentions that not all of the projected WiP forecasting tool costs are included in the 2009 budget. Why were not all costs included?
- b) What costs were excluded from the 2009 budget?
- c) Please itemize the \$113,077 of costs which are included in the 2009 budget.
- d) What depreciation/amortization life will be used for the WiP forecasting tool for Public Service?
- e) What is the depreciation/amortization life of similar assets for Public Service?
- f) Please provide the depreciation/amortization lives to be used in the other two Xcel Energy operating companies for the WiP forecasting tool.
- g) Please provide the allocation percentages of the WiP forecasting tool total costs among the three Xcel Energy operating companies.
- h) Will these WiP allocation percentages change over time? If so, what could cause a change in the allocation percentages?
- i) Please provide the mathematical derivation of the \$35,343 of revenue requirement associated with the 2009 capital investment.
- j) Please provide an estimated cost figures (both capital and operating) for how much it will cost to add a new wind farm into the WiP forecasting tool.
- k) Will each Xcel operating company solely bear the costs of adding new wind farms used to serve their own customers into the WiP forecasting tool?

**RESPONSE:**

- a) Not all the investments were made during the budget period.
- b) No costs were excluded from the budget. Rather, not all costs have been yet incurred.
- c) \$113,077 is the 13-month average on \$210K in assets. This \$210K is comprised of 7 servers at \$30K each.
- d) The software is expected to amortize over the approved 5-year life.
- e) Public Service uses a 5-year life for all standard software for any software that is not a workstation operating system (Windows XP) or large base operating systems (JD Edwards general ledger).
- f) The other operating companies will use the life authorized by their respective state commissions.
- g) The software is allocated based on the 2008 installed wind capacity.
- h) No.
- i) Please refer to Attachment OCC1-7 for the derivation of the revenue requirement.
- j) New wind farms will be required by contract to supply necessary data to the Company for integration in the WiP. New Company owned farms will provide this information as part of the cost of building and maintaining the wind farm. Based on our experience with integrating existing wind farms and depending on the preferred IT solution, incremental capital costs are expected to be \$5,000 - \$20,000. Updating the WiP to incorporate a new wind farm is unknown, though is expected to be nominally more costly than updating the existing wind forecasting system. There are no incremental impacts expected to WiP hardware and software for forecasting new wind farms.
- k) Since the brunt of the incremental costs are borne by the new wind farms themselves (see answer (j)), then the incremental WiP capital costs will burden the individual operating companies.

Public Service Company of Colorado  
Calculation of Wind Software Servers Revenue Requirements

Attachment OCC1-7

	Wind Software Servers		
Total Steam Production	113,077	89.12158%	100,776
Total Transmission Plant			
Total Plant in Service	113,077		100,776
Total Reserve for Depreciation & Amortization	7,795	89.12158%	6,947
Total Net Plant in Service	105,282		93,829
Total Plant	105,282		93,829
ADIT - Prefunded AFUDC			0
			0
ADIT - Comanche 3	(2,868)	89.12158%	(2,556)
Total Accumulated Deferred Income Taxes	(2,868)		(2,556)
Net Original Cost Rate Base	102,414		91,273
Total Depreciation & Amortization Expense	26,884	89.12158%	23,959
Income Tax Expense:			
Rate Base			91,273
Return on Rate Base			8.74%
Earnings before Interest			7,977
Rate Base			91,273
Cost of Debt			2.65%
Interest Expense			2,419
State Taxable Amount			5,558
State Income Tax Rate			4.63%
State Income Tax Amount			257
Net Federal Taxable Amount			5,301
Federal Income Tax Rate			35.00%
Federal Income Tax Amount			1,855
Total Deferred Income Taxes			
Sub-Total			2,112
Gross-up			1.6131634
Total Income Tax Expense			3,407
Total Deductions			27,366

BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF COLORADO

\* \* \*

IN THE MATTER OF THE APPLICATION OF PUBLIC )  
SERVICE COMPANY OF COLORADO FOR APPROVAL ) Docket No. 08A-532E  
OF ITS 2009 RENEWABLE ENERGY STANDARD )  
COMPLIANCE PLAN. )

AFFIDAVIT OF FRANK C. SHAFER

COMES NOW, Frank Shafer of proper age and duly sworn, and states that the foregoing Answer Testimony and Exhibits were prepared by him or under his supervision and control, that they are true and correct to the best of his knowledge and belief, and would be the same if given orally under oath.

Frank C. Shafer  
Name

STATE OF COLORADO )  
CITY AND COUNTY )ss.  
OF DENVER )

SUBSCRIBED AND SWORN to before me this 23rd day of February, 2009. Witness my hand and official seal.

My Commission expires: 4/14/2011

Dale Hutchinson  
Notary Public