

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

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**IN THE MATTER OF THE APPLICATION OF            )**  
**PUBLIC SERVICE COMPANY OF COLORADO        )**        **Docket No. 02A-158E**  
**FOR AN ORDER TO REVISE ITS INCENTIVE        )**  
**COST ADJUSTMENT.                                )**

**DIRECT TESTIMONY OF RONALD J. BINZ**

ON BEHALF OF

COLORADO ENERGY ASSISTANCE FOUNDATION

AND

CATHOLIC CHARITIES OF THE ARCHDIOCESE OF DENVER

**FILED APRIL 17, 2002**

**DEFENDED APRIL 19, 2002**

**DIRECT TESTIMONY OF RONALD J. BINZ**

1 **Q. What is your name and address?**

2 A. My name is Ronald J. Binz. My business address is 333 Eudora Street, Denver,  
3 Colorado 80220-5721.

4 **Q. On whose behalf are you testifying in this case?**

5 A. I am testifying on behalf of the Colorado Energy Assistance Foundation (CEAF)  
6 and Catholic Charities of the Archdiocese of Denver (Catholic Charities).

7 **Q. Please describe CEAF and Catholic Charities.**

8 A. CEAF is a foundation established pursuant to legislation passed in Colorado in  
9 1992. CEAF makes grants for and facilitates various kinds of energy assistance to help  
10 low-income people pay the costs of necessary energy services. Catholic Charities is a  
11 non-profit organization with a long history of providing services to indigent people in  
12 need of energy assistance. Both CEAF and Catholic Charities are signatories to the 1996  
13 merger settlement agreement that the applicant seeks to modify, and that I will discuss  
14 further, below.

15 **Q. What is your occupation?**

16 A. I am President of Public Policy Consulting, a consulting firm specializing in  
17 energy and telecommunications matters. I provide consulting services to a variety of  
18 public-sector and private-sector clients in the energy and telecommunications industries,  
19 primarily in the regulatory arena. My clients include both small and large consumers,  
20 telecommunications carriers and state consumer advocate offices. My consulting practice  
21 dates to 1977, except for the period of 1984-1995 when I served as Colorado Consumer  
22 Counsel.

1 I am also the President of the Competition Policy Institute (CPI) in Washington,  
2 D.C. CPI is a non-profit organization that Debra Berlyn and I founded in March 1996  
3 and describe as a combination consumer group and “think tank.” CPI’s activities have  
4 included advocacy before regulators and lawmakers, education, research and working  
5 with other consumer organizations. We recently suspended our federal advocacy work,  
6 focusing our efforts on the educational role of the organization, with plans to host several  
7 symposia this year on telecommunications and energy policy for state regulators and state  
8 legislators.

9 **Q. Please summarize your experience in utility regulation.**

10 A. For eleven years prior to Public Policy Consulting and CPI, I was Consumer  
11 Counsel for the State of Colorado. In that role, I represented the interests of residential  
12 and small business consumers of telecommunications and energy before the Colorado  
13 Public Utilities Commission, the Federal Communications Commission (FCC), the  
14 Federal Energy Regulatory Commission (FERC), the courts and legislative bodies.

15 During my tenure as Consumer Counsel I served as the President of the National  
16 Association of State Utility Consumer Advocates (NASUCA) for two years and chaired  
17 the organization’s Telecommunications Committee for three years. In those roles (and at  
18 CPI) I have testified fifteen times before Congressional committees on energy and  
19 telecommunications matters.

20 Prior to my work with the Office of Consumer Counsel, I was a consulting utility  
21 rate analyst. Over the years I have testified before regulatory commissions, courts and  
22 arbitration panels in Colorado and other states on behalf of a variety of clients. These  
23 include consumer organizations, senior citizen groups, agricultural utility consumers,

1 homebuilders, telecommunications resellers and local governments.

2 I am a frequent speaker and presenter at industry, regulatory and legislative  
3 conferences and symposia. I am a member of the Harvard Electricity Policy Group and  
4 recently served on two advisory commissions to the Federal Communications  
5 Commission. My resume is attached as Appendix A to this testimony.

6 **Q. What is your educational background?**

7 A. I received a B.A. in Philosophy from St. Louis University in 1971. I was awarded  
8 an M.A. in Mathematics from the University of Colorado in 1977. I entered the Masters  
9 Program in Economics at the University of Colorado in 1980 and completed 27 hours of  
10 graduate work, but did not complete the degree. While researching my thesis in 1983,  
11 my academic work was interrupted when Colorado Governor Richard Lamm appointed  
12 me to the Colorado Public Utilities Commission. I was not confirmed to the position on  
13 the Commission, but was subsequently named Colorado Consumer Counsel. In addition  
14 to my academic training, I have taken the Advanced Regulatory Course offered by  
15 Michigan State University through the National Association of Regulatory Utility  
16 Commissioners.

17 **Introduction and Summary of Testimony**

18 **Q. What is the purpose of your testimony in this case?**

19 A. I was asked by CEAF and Catholic Charities to review the application of Public  
20 Service Company of Colorado to revise its Incentive Cost Adjustment mechanism and to  
21 make recommendations to the Commission on their behalf as to the correct regulatory  
22 policy.

1 My testimony is organized in five sections. First is a summary of my testimony.  
2 Second, I explain the Company's proposal and examine the arguments supporting and  
3 opposing that proposal. Third, I review the results of economic research concerning  
4 personal discount rates and discuss their applicability to this case. Fourth, I describe  
5 other adjustments to the ICA mechanism (in addition to the change advocated by the  
6 Company) that the Commission should adopt to improve the Company's proposal;  
7 finally, I summarize my conclusions and formulate recommendations to the Commission.

8 **Q. Please summarize the conclusions of your review.**

9 A. After reviewing the application, testimony and exhibits in this case, as well as  
10 other materials I will refer to, I have drawn the following conclusions about the  
11 Company's application:

12 ☞ The Company requests that the Commission modify one term of an  
13 agreement reached by a group of parties in settlement negotiations and  
14 accepted by the Commission in 1996. Changing the agreement in the  
15 manner sought by the Company, over the objections of all the other  
16 parties to the settlement, will do substantial violence to a valuable  
17 feature of the Colorado regulatory landscape: the willingness of  
18 parties to settle cases. This has profound long-term implications for  
19 the Commission's practice with respect not only to PSCo but other  
20 regulated companies as well.

21 ☞ The Company's two major arguments in support of its proposal are  
22 flawed and not persuasive. First, the company's claim that its proposal  
23 benefits consumers is completely undercut by the fact that every  
24 consumer party to the original agreement opposes the modification. It  
25 is simply not credible to assume that these parties do not know their  
26 clients' best interests.

27 ☞ Second, the Company's assertion that the proposal provides "improved  
28 price signals" is at best overstated and may be wrong. In any event,  
29 gains in economic efficiency are likely to be quite small. Moreover,  
30 leaving the stipulation intact will not impede or even delay the efforts  
31 of the Commission, the Company or any other party to advocate  
32 reformed rate electric rate structures.

1           ✍ If the Commission elects to modify the agreement, it should reject the  
2           Company’s proposed interest rate. The 4.32% “cost of money” used  
3           by the Company is inappropriately low. Adjusting for the current rate  
4           of inflation in Colorado, this means the real interest rate used by the  
5           Company is between *negative* 0.38% and positive 1.72%. No one  
6           could seriously take this to be the interest rate exhibited by consumers.

7           ✍ If the Commission modifies the agreement as requested by PSCo, it  
8           should strive to maintain the equities of the original agreement. To be  
9           fair to the settling parties and the consumers they represent, the  
10          Commission should use consumers’ personal discount rate when  
11          accelerating the recovery of ICA costs. Although this is not normally  
12          done in traditional ratemaking, it is appropriate when restructuring an  
13          existing rate agreement.

14          ✍ Recent economic research estimates personal discount rates (D) and  
15          the effects of a variety of socio-economic factors on D. If the  
16          Commission moves the ICA costs forward in time, it should employ a  
17          nominal discount rate of at least 19.0%. This is at the low end of the  
18          range suggested by research; larger discount rates can also be justified.

19          ✍ The “unforeseen circumstances” that moved the Company to file this  
20          application apply equally to other parties to the original settlement. As  
21          a policy matter, it is wrong to open the agreement to the modification  
22          sought by the Company without considering other modifications to  
23          balance the equities of the parties to the original settlement and to  
24          improve the accuracy of any new price signals. Modifying the  
25          Company’s proposal by changing the ICA base would allow the  
26          Company to collect more ICA dollars in 2002 that would otherwise be  
27          deferred for collection beyond 2002; it will also improve the accuracy  
28          of price signals and is fairer to the parties than the Company’s  
29          proposal. The ICA base should be set at \$17.18, the projected cost of  
30          power in 2002. Alternatively, the sharing mechanism should be  
31          modified.

32          **Q.     What alternatives does the Commission have in this case?**

33          A.     The Commission has three alternatives: 1) grant the Company’s application;  
34          2) reject the application; 3) craft a middle-ground position from the analysis introduced  
35          by the parties. As an adjunct to its process, the Commission could also instruct the  
36          parties to attempt to negotiate a resolution of the matter in advance of a decision,  
37          signaling its willingness to approve a revised negotiated amendment.

1 **Q. What recommendations do you make to the Commission?**

2 A. PSCo's proposal is an attack on the settlement process that should be parried by  
3 the Commission. Even if the proposal had substantial merit (it does not), the  
4 Commission would have to weigh very carefully whether to jettison two decades of trust  
5 and goodwill among parties that has permitted them to bring forward settlement  
6 proposals to the commission. Given the weak support offered by the Company for its  
7 proposal, the correct policy course is clear: the Commission should preserve the future of  
8 the settlement process and deny the Company's application.

9 If the Commission does not wish to deny the Company's primary proposal at this  
10 point, it should require the parties to attempt negotiations to arrive at a revised  
11 stipulation. This is a distant second best, because it still carries the risk of damaging  
12 parties' willingness to engage in settlements in the future. The Commission can reduce  
13 that risk if it is careful not to pre-ordain the outcome of these negotiations. Instead of  
14 signaling a desired outcome, the Commission should dispatch the parties to negotiate  
15 with the knowledge that either side might lose when the Commission makes its final  
16 decision.

17

18 **The Company's Proposal and Its Effect on Settlement Negotiations**

19 **Q. Please explain the Company's proposal.**

20 A. Public Service Company proposes to put in place a rate for the Incentive Cost  
21 Adjustment mechanism in the current year that collects over \$100 million more than the  
22 mechanism would recover under its normal function. Without discussing the accounting  
23 detail underlying the proposal, PSCo essentially asks that the Commission accelerate by

1 one year the recovery of costs calculated under the ICA mechanism if it operated as  
2 agreed in the parties' stipulation. In other words, consumer rates would be about \$100  
3 million higher this year than otherwise; rates next year would be lower by the same  
4 amount (ignoring a small difference due to a 4.32% interest rate adjustment.)

5 The Company characterizes the proposal as its reaction to "unforeseen  
6 circumstances," *viz.*, higher costs for fuel and purchased power costs in 2001 and 2002.  
7 The Company also says it is concerned about the coincidence of higher ICA costs in 2003  
8 and new electric rates following a Commission decision in a general rate case that the  
9 Company will soon file. PSCo argues that its proposal more nearly matches the ICA  
10 costs to their incurrence in time and that it smoothes out, over time, a scheduled increase  
11 in rates driven by higher fuel and power costs.

12 **Q. How has the Company asked the Commission to view this case?**

13 The Company presents this case much like a normal application for a rate change.  
14 In only one paragraph in Mr. Stoffel's testimony does the Company discuss the fact that  
15 the proposal is being made over the objections of all the parties to an existing agreement  
16 that governs the functioning of the ICA in its final year. The agreement was reached  
17 among Public Service Company and a group of parties to the case in which the  
18 Commission approved PSCo's merger with Northern States Power. The stipulation in  
19 that case specified the timing and formula of the functioning of the ICA for the period  
20 under discussion in this case. The Company is asking the Commission, in view of the  
21 "unforeseen circumstances" now presented, to modify the agreement and put in place the  
22 increased ICA rates one year earlier than the stipulation specifies

23 Assuming that the Commission has the legal authority to make the change

1 requested by the Company, there are strong policy reasons not to do so. These relate to  
2 the role of settlement process in regulation and the damage this proposal will do to the  
3 willingness of parties to negotiate.

4 Further, as I explain later, the Company's proposal disrupts the equities drawn in  
5 the settlement agreement. Even if the Commission is convinced that the public interest  
6 requires it to modify the agreement by changing the timing of the ICA increase, it still  
7 must, to be fair to the consumers who are party to the agreement, set aside the Company's  
8 time-value-of-money calculation and replace it with one that attempts to offset the extra  
9 costs imposed on consumers in the Company's proposal. As I will show later, the  
10 Commission should make other changes to the ICA in 2002 that improves on the  
11 proposal advocated by PSCo.

12 **Q. Please discuss the role of the settlement process in Colorado utility**  
13 **regulation.**

14 A. Beginning in the mid-1980's parties to cases before the Commission began more  
15 frequently to negotiate and settle aspects of major cases before the Commission. Prior to  
16 this time, settlement of major cases was rare, if not unheard of. As director of the  
17 Colorado Office of Consumer Counsel, I was party to numerous settlement agreements  
18 with Public Service Company. The first such major settlement resolved litigation in  
19 seven Commission and court cases related to the operation of the Fort St. Vrain nuclear  
20 generating station.

21 There are several obvious advantages to the Commission and to the parties of the  
22 use of a settlement process as an adjunct to the standard regulatory process. First,  
23 settlement is sometimes more efficient than litigation. Information tends to flow more

1 readily in negotiation; meetings of small groups of interested parties are more easily  
2 arranged than structured hearings; parties may be more willing to advance their  
3 unvarnished positions in negotiations. Second, the settlement process can often result in  
4 decisions that better meet the particular needs of various parties. Settlements, perhaps  
5 more easily than decisions within litigation, can “fine-tune” an outcome. Third,  
6 settlement can be less costly, especially to smaller parties. Finally, the process of  
7 settling often has the spillover effect of reducing other differences between parties. This  
8 can have a subtle, longer-term effect on the regulatory process. Although it would be  
9 difficult to quantify, I believe the culture of negotiation that arose out of agreements like  
10 the FSV agreements (in the case of PSCo) served the Commission and consumers well.

11 The success of settlement negotiations depends on at least three conditions:

- 12 ? parties must have a reasonable expectation that each side will abide by the  
13 agreement (or pay a price for non-compliance);
- 14 ? settling parties need the assurance of a regular Commission review and  
15 enforcement process;
- 16 ? parties must have relative assurance that the deal will not be unwound (to  
17 their detriment) by regulators except under extreme circumstances.

18 **Q. What about modifications of settlement agreements?**

19 Settlement agreements in utility regulation need not be immutable. Although the  
20 Fort St. Vrain agreements were reached in 1986 (and are still in place today), they have  
21 been substantially modified over time. The original agreement was modified a few years  
22 after first entered in order to accelerate the collection of decommissioning costs. This  
23 permitted PSCo to decommission and dismantle the plant on a preferred schedule. This

1 amendment was also triggered by unforeseen circumstances – new technical problems at  
2 the plant that required the shutdown of the plant. The agreement was modified again a  
3 few years later to enable Public Service Company to repower the plant.

4           Importantly, these substantial amendments to the original agreement were  
5 supported (or not opposed) by all the parties to the original agreement. To be sure, the  
6 equities of the original agreement were rearranged, but in a fashion that suited the needs  
7 of all the parties, not just the utility. The Commission Staff, OCC, Concerned Citizens of  
8 Northeast Denver and other parties negotiated in good faith to arrive at modifications that  
9 could be supported by all parties. The Commission held hearings on the revisions in  
10 each case and found that the revised agreements served the public interest.

11 **Q. In your experience, has this Commission ever modified a settlement**  
12 **agreement over the objections of one of the settling parties?**

13 A. No. I am not aware of any requests by utilities or other settling parties for the  
14 Commission to revise a contract or a settlement agreement over the objections of one of  
15 the parties. Neither am I am aware of the Commission having revised a settlement  
16 agreement on its own initiative under such circumstances.

17 **Q. What would be the effect on the Colorado regulatory process if the**  
18 **Commission approves the Company's application in this case over the objections of**  
19 **the other parties to the agreement?**

20 A. I think that there would be two effects. First, the willingness of parties to  
21 negotiate settlements of contested issues would be severely reduced. This would apply  
22 not only to matters involving Public Service Company, but to other regulated companies  
23 as well. If parties perceive that the Commission's threshold for modifying an agreement

1 is relatively low, they will be much less willing to compromise issues in such a way that  
2 the equities of an agreement could be upset by future commission action. While parties  
3 probably understand today that it is possible for the Commission to modify an agreement  
4 in the future, the threshold for doing so is perceived as fairly high.

5 The second effect would be that future settlements, to the extent they will be  
6 possible at all, will take a different form. Intervenor parties would insist that their  
7 benefits in the agreement would have to be queued early. This militates against  
8 agreements with longer-term effects. To borrow a term from economics, the risk of a  
9 future modification increases the parties' discount rate.

10 I can illustrate this second effect from my history as Consumer Counsel. The  
11 parties that amended their original agreements on the Fort St. Vrain plant traded short-  
12 term costs (increase rates to recover decommissioning costs) for longer-term benefits (a  
13 relatively long period of levelized rates and increased support for low income energy  
14 assistance). In other words, PSCo's benefit came early in the term of the agreement, the  
15 intervenors' benefits came later. I doubt the agreement would have been possible if the  
16 risk of it being undone in the future were seen as being any higher.

17 These effects have an obvious impact on the Commission's process. Fewer  
18 agreements will mean more work for the Commission and, in light of the considerations  
19 described above, agreements that lack any meaningful timeframe. Costs will rise for the  
20 parties if settlements are not possible and the other salutary effects – more finely tuned  
21 outcomes – will be lost.

22 **Q. What arguments does the Company offer in support of its request that the**  
23 **Commission change the agreement in this case?**

1 A. The Company advances two major arguments. First, that the proposal is better for  
2 consumers than the functioning of the stipulation. PSCo argues that the proposal avoids  
3 the “double whammy” of a postulated rate increase on January 1, 2003 from a new  
4 general rate case, followed by a second increase on April 1, 2003 due to recovery of  
5 deferred ICA costs. Second, the Company argues that its proposal improves customers’  
6 price signals by better aligning costs with their incurrence.

7 **Q. Do you agree with the Company’s arguments in support of its proposal to**  
8 **change the mechanism?**

9 A. No. The first argument (that consumers are better off) is completely at odds with  
10 the analysis of the other parties to the stipulation, all of whom represent end-user  
11 consumers. These representatives understand that consumers have a preference to delay  
12 increases in rates: accelerating a scheduled increase costs them money.

13 PSCo acknowledges this effect by attaching a discount of 4.32% to the  
14 accelerated rate increase, arguing that “Ideally, the rate chosen should reflect the cost of  
15 the Company to borrow money for one year and the earnings the customer would obtain  
16 on their money for one year.” (Stoffel testimony, p. 20) I will show later that this is the  
17 wrong standard to use when modifying an existing agreement. The correct standard  
18 should reflect the customers’ personal discount rate—the rate at which a customer  
19 compares a current dollar to a future dollar. It turns out that 4.32% is a ridiculously low  
20 value.

21 The price-signal argument might have some theoretic appeal, but closer analysis  
22 shows that it is at odds with the facts in this case and inconsistent with the purposes and  
23 design of an “incentive” mechanism. Further, increases in economic efficiency (if any)

1 triggered by the Company's proposal are likely to be very small. It is possible that  
2 raising rates in the manner requested by the company might even worsen the situation.

3 **Q. Please discuss the Company's argument that its proposal improves price**  
4 **signals to consumers.**

5 A. In general, consumers respond to the price of goods and services by adjusting the  
6 quantities they purchase. The function that describes the relationship between price and  
7 the quantity purchased is the familiar demand curve from economics. From a societal  
8 point of view, it is desirable, as a general matter, that prices reflect the marginal cost of  
9 producing a good or service. In that way, consumers will demand the "correct" level of a  
10 good or service. This concept lies at the very base of microeconomics.

11 I take PSCo's use of the term "price signals" to refer to the relationship between  
12 price and demand. Unfortunately, there are numerous complicating factors in this case  
13 that render the Company's simple claim almost meaningless. Here are some of those  
14 complications:

15 ? Marginal electric costs vary with time of day and time of year, but the  
16 Company's prices do not.

17 ? The costs used to compute the time-averaged price of electricity are not  
18 marginal costs. The variable portion of the Company's prices recovers  
19 fixed costs, not simply marginal costs.

20 ? The ability of prices to affect demand in the short run and the long run is  
21 related to the price elasticity of demand for consumers. Especially for the  
22 low income customers represented by CEAF and Catholic Charities, price  
23 elasticity of demand is likely to be low, leading to a relatively small

1 change in consumption. This means that any (accidental) coincidence of  
2 the Company's proposed prices and marginal costs is not likely to change  
3 consumer behavior very much at all during the time period under  
4 discussion.

5 ? The Incentive Cost Adjustment (and similar cost recovery mechanisms) is  
6 by definition at odds with a regime of efficient prices. The mechanism  
7 entails delayed recovery of costs from past periods, "shares" cost overruns  
8 and under runs between the Company and consumers, and collects costs  
9 for power that are not related to real-time markets. It would be merely  
10 coincidental if the prices flowing from the ICA agreed with marginal  
11 costs. Like lipstick on a pig, the change to the ICA proposed in this case  
12 might improve the appearance of prices, but only relative to other "pigs."

13 So, while PSCo witnesses Stoffel and Darnell are theoretically correct that it is  
14 better to align prices with the incurrence of costs, that statement has little to do with the  
15 facts at hand.

16 Given how compromised the existing price signals are, it is difficult to predict  
17 even the sign (positive or negative) of the effect of PSCo's proposal on economic  
18 efficiency. Raising prices in 2002 beyond the level that will otherwise obtain, and then  
19 lowering them in 2003 may or may not increase efficiency: it depends on whether raising  
20 prices across all time periods will produce the correct responses from consumers.  
21 Consumers might reduce consumption in off-peak periods (by reducing lighting, for  
22 example) without affecting the on-peak consumption when costs to the Company are  
23 higher. This behavior could well raise average costs by causing the Company's load

1 factor to deteriorate. I hasten to repeat my point from earlier: whatever the sign of the  
2 change in efficiency (positive or negative) I think the effect will be small in absolute  
3 terms.

4 I would also reiterate an earlier point. Even if the “price signal” effect were clear  
5 and likely to be significant (it is not), the Commission must weigh this potential benefit  
6 against the certain costs to the future of the regulatory process if it proceeds as PSCo  
7 proposes.

8 **Q. What effect would maintaining the Stipulation ICA have on the**  
9 **Commission’s ability to consider alternative rate designs in the future?**

10 A. There would not be much practical effect. Under any of the proposals in this case  
11 – the stipulation ICA, the Company’s revised ICA or another proposal described below –  
12 a deferred amount for the ICA would be recovered in the twelve-month period beginning  
13 April 1, 2003. We may also assume that a rate change (either an increase or a decrease)  
14 will be put in place about January 1, 2003 following a decision in the Company’s soon-  
15 to-be-filed rate case.

16 If the Commission, the Company or any party wishes to consider alternative rate  
17 designs, that would happen in a Phase II (rate design) case filed after a decision in the  
18 upcoming general rate case. This means that the implementation of the cost allocation  
19 and revised rate design would likely occur after collection of the ICA deferral is complete  
20 on March 31, 2004. In other words, a decision in the instant case – whether to accelerate  
21 the ICA recovery – will not affect the consideration of alternative rate designs in the  
22 future case.

23 **Q. If the Commission decides to modify the stipulation, what standard should be**

1 **used to decide whether the modification is fair?**

2 A. I have already stressed that a unilateral modification of the agreement similar to  
3 that advocated by PSCo disturbs the balance that was struck in negotiations among the  
4 parties in 1996. It would be difficult to catalog all of the trade-offs made by the parties  
5 in the original stipulation, but it is important now for the Commission, if it intends to  
6 modify the Stipulation, to attempt to retain those equities.

7 The Company's proposal offers the settling parties nothing but an accelerated rate  
8 increase offset by 4.32% -- the statutory interest rate for customer deposits. The main  
9 benefit PSCo obtained in the settlement -- approval of its merger -- has already been  
10 realized. And now at least one of the benefits obtained by the consumer parties --  
11 functioning of the ICA in a predictable way through 2004 -- is proposed by PSCo to be  
12 taken away. The Commission can limit the harm to the these parties, or at least attempt  
13 to re-establish the equities of the original agreement, only if it modifies the proposal  
14 submitted by the Company.

15 The Commission's proper focus, therefore, is the effect that accelerating the rate  
16 increase will have on the welfare of the consumer parties, for whom the "deal" is being  
17 changed. Although this approach is not necessarily used in traditional ratemaking, it is  
18 appropriate here when determining how to rebalance a settlement. This may mean that  
19 the Commission should depart from some of the traditional regulatory methods, in much  
20 the same way that the settling parties would do in negotiation. In this case, the  
21 appropriate focus is how much consumers value a future rate increase compared to a  
22 current rate increase. In other words, the Commission should consider a consumer's  
23 personal discount rate.

1 **Discount Rates and Their Application in This Case**

2 **Q. Please explain what is meant by “personal discount rate.”**

3 A. The personal discount rate (D) measures the relationship that a consumer makes  
4 between a current dollar and a future dollar, expressed as an annual percentage rate. If a  
5 consumer is exactly indifferent between receiving \$100 today or \$120 one year from now  
6 (with no risk of default), we say that the consumer has a discount rate of 20%, since the  
7 current amount would have to be increased by 20% to equal the future amount. If the  
8 consumer prefers the \$100 now, we say the consumer’s discount rate is greater than 20%;  
9 if the future value is preferred, the discount rate is lower than 20%. This is represented  
10 algebraically by the equation  $V_{t=0}*(1+D) = V_{t=1}$  where D is the discount rate,  $V_{t=0}$  is the  
11 current value and  $V_{t=1}$  is the value one year later.

12 **Q. How is the personal discount rate estimated or measured?**

13 A. Economists have used a variety of techniques to estimate D, drawing evidence  
14 from several sources. Surveys, interviews, and observations of consumer behavior have  
15 all been used to estimate how consumers relate current dollars to future dollars.

16 Perhaps the most comprehensive research on the topic was released last year by  
17 economists John T. Warner and Saul Pleeter.<sup>1</sup> They availed themselves of a large  
18 “natural experiment” that provided an extensive source of data about consumers’ time  
19 preferences. Warner and Pleeter analyzed the choices made by 65,000 persons leaving  
20 the military in a force reduction program in 1993 and 1994. In order to induce them to  
21 leave military service, the “separates” were offered a separation benefit, not unlike the

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<sup>1</sup> John T. Warner and Saul Pleeter, “The Personal Discount Rate: Evidence from Military Downsizing Programs.” *American Economic Review*, March 2001, Vol. 91, No. 1, pp. 33-53

1 practice in the private sector. Each separatee was offered a choice between two options:  
2 a lump sum payment or a payout over time. The design of the severance package varied  
3 between enlisted personnel and officers; within each group, each individual offer  
4 depended upon the person's grade and the years of service. The resulting matrix of  
5 choices provided a rich data set on which Warner and Pleeter could develop an estimate  
6 of personal discount rates and discover the factors that influence the rate.

7 **Q. What were some of the relevant findings of this study?**

8 A. First, it is important to know that the "break even" discount rate between the lump  
9 sum and annuity payout over time ranged from 17.5% to 19.8%, depending on the  
10 specifics of a given severance package. On the basis of earlier research on discount rates,  
11 economists from the Department of Defense had predicted that few of the officers and  
12 about half the enlisted personnel would select the lump sum. Instead, over half of the  
13 officers and more than 90% of the enlisted personnel chose the lump sum. This result  
14 showed that the historical estimates of personal discount rates used by the DoD  
15 economists were too low. Based on the behavior of these 65,000 separatees, Warner and  
16 Pleeter note "the vast majority of personnel had discount rates of at least 18%."

17 Warner and Pleeter went on to use the matrix of payout choices, implied discount  
18 rates and socio-economic data about the separatees to develop a model that explains how  
19 the discount rate varies with these factors.

20 **Q. How do socio-economic factors affect personal discount rates?**

21 A. In a market where consumers have perfect information and do not face borrowing  
22 constraints, personal discount rates should be uniform and equal to the cost of borrowing  
23 or lending. Of course, none of us lives in a perfectly efficient market and personal

1 characteristics of consumers, including their understanding of intertemporal choices, will  
2 affect how much each consumer discounts the future. The Warner and Pleeter research  
3 broke new ground but also confirmed other findings. Here are some of the results:

4 ? Discount rates decrease with wealth, education and access to credit.

5 ? Discount rates are negatively related to the amount of money in question:  
6 *i.e.*, consumers apply a higher discount rate to smaller amounts of money  
7 and a lower discount rate to larger sums.

8 ? Prior research indicates that consumers discount the future  
9 “hyperbolically;” that is; they use a higher discount rate for near term  
10 comparisons and a lower rate for comparisons more distant in time.<sup>2</sup>

11 ? Discount rates can be related to cultural or ethnic differences if those  
12 differences are linked to such factors like access to credit.

13 ? Warner and Pleeter detected no effect of gender or geography on discount  
14 rates.

15 **Q. Are there other indicators of D for consumers?**

16 A. Yes. There are several other examples of consumer behavior that provide insight  
17 into discount rates. A large fraction of consumers uses credit cards that carry interest  
18 rates of at least 15% today. By charging a commodity against a credit card and then  
19 paying 15% for the privilege, consumers are revealing information about their time  
20 preference for money. This evidence provides a floor on the discount rate, at least for  
21 amounts of money in the range of those balances carried on credit cards. If a consumer’s  
22 discount rate is D and the interest rate for a credit card is R, the customer would not use

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2 The Warner-Pleeter research was unable to confirm or refute the results of prior research on this point.

1 the card to borrow money if  $D < R$ . Therefore the personal discount rate is at least  $R$ .

2 Another insight into consumers' discount rates can be seen in consumer behavior  
3 toward energy efficiency measures. Experience (including experience before this  
4 Commission) with demand-side management programs consistently shows that many  
5 consumers discount the future savings of energy efficiency at a relatively high rate. In  
6 other words, the consumers are reluctant to invest in energy saving appliances (e.g.,  
7 energy efficient light bulbs) when the break-even point implies a "hurdle rate" that is  
8 below their personal discount rate.

9 To cite one final example that comports with some of the findings of the Warner  
10 and Pleeter research, some consumers are willing to pay very high rates of interest for  
11 short-term advances (loans) made against their next payroll check. "Payday" loans carry  
12 interest rates that can range up to 520% in Colorado.<sup>3</sup>

13 **Q. What is an appropriate discount rate to use in this case?**

14 A. To begin with, we see that the 4.32% discount rate used by PSCo is  
15 inappropriately low. The cost to the consumer of accelerating the rate increase is not  
16 related to the short-term borrowing costs of the Company or to the rate the consumer  
17 could earn on money in a savings account. Instead, the value to a consumer of not  
18 accelerating the rate increase is the discount rate – the consumer's version of the  
19 relationship between a present dollar and a future dollar.

20 I recommend that the Commission use the lower end of the range identified by

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<sup>3</sup>See, for example, "Small Loans – Big Money; A Survey of Payday Lenders in Colorado And Review of the Colorado Deferred Deposit Loan Act of 2000" Colorado Public Interest Research Group, April 19, 2001, viewed 4/11/02 at <http://copirg.org>.

1 Warner and Pleeter: a nominal rate of 18%. This is a conservative estimate of the  
2 discount rate that is appropriate in this case for three reasons. First, the number is at the  
3 low end of the range identified in the research. Second, the Warner and Pleeter research  
4 established that discount rates are larger for smaller amounts of money. The research  
5 dealt with severance payouts in the range of \$25,000 to \$50,000. The electric rate  
6 increases being considered in this case are much smaller and consumers would be  
7 expected to apply a larger discount rate to them. Third, if consumers discount the future  
8 hyperbolically, the discount rate would be larger for near term valuations (one year in the  
9 ICA case), compared to the time periods used in the analysis. Thus 18% is a quite  
10 conservative estimate.

11 **Q. Have you prepared an exhibit that calculates the appropriate nominal**  
12 **discount rate that the Commission should apply so that consumers are compensated**  
13 **for the effect of accelerating this transaction?**

14 A. Yes. Exhibit \_\_\_\_ (RJB-1) to this testimony shows this calculation. Starting with  
15  $D = 18\%$ , I computed the appropriate real  $D$  by subtracting the average rate of U.S.  
16 inflation for the two-year period 1993-1994. I then added the current inflation rate for  
17 Colorado (using second half 2001 statistics) to arrive at an estimate for the appropriate  
18 nominal discount rate for Colorado consumers. The result is  $D=19.0\%$ .

19 **Q. If the Commission opens the original agreement to changes in the timing of**  
20 **the ICA rates, are there other aspects of the ICA that could be adjusted to achieve**  
21 **the same result in a way that improves the accuracy of price signals and is fairer to**  
22 **the other parties to the settlement?**

23 A. Yes. The “unforeseen circumstances” that moved the Company to file this

1 application apply equally well to other parties to the original settlement. I have suggested  
2 that the Commission should not give much weight to the Company's argument about  
3 price signals. However, if the Commission is persuaded by the claim that the  
4 modification of the agreement improves price signals, then it should adopt another  
5 change to the Stipulation ICA that further improves the accuracy of price signals and  
6 simultaneously improves the fairness of the outcome.

7           Specifically, the Commission should modify the basis on which the ICA is  
8 calculated in 2002 so that it reflects the actual costs of electricity projected by the  
9 Company for 2002—not the 2001 historical costs that are now known to be much higher  
10 than projected 2002 prices. This change would reset the elements of the ICA for 2002 in  
11 a way that moves the total costs closer to those that are expected while retaining the  
12 “incentive” feature. To the extent that the Company is able to lower its fuel and power  
13 costs below the projected level of \$17.18 per Mwh, it would retain 50% of the difference;  
14 if its costs exceed \$17.18, the Company splits the cost overrun with consumers. This  
15 proposal will allow the Company to accelerate the collection of 2002 ICA costs in a way  
16 that is fundamentally fairer than the method proposed by the Company.

17 **Q.     What are the advantages of this approach, compared to the Company's**  
18 **proposal?**

19 A.     By using a more realistic base for the ICA calculation, this proposal retains the  
20 incentive feature of the ICA, but lowers the total amount of deferred costs that would be  
21 split between the two ICA years: May 1, 2002 to March 31, 2003 and April 1, 2003 to  
22 March 31, 2004. The Company will still share 50% of the cost overruns or under runs  
23 with consumers, but based on a breakpoint of \$17.18/Mwh. What is missing, of course,

1 is the unearned “incentive” payment of 50% of the difference between the inflated base  
2 of \$19.00/Mwh and the projected actual cost of power, \$17.18/Mwh.<sup>4</sup>

3 By eliminating this unearned “incentive” payment from rates, this proposal allows  
4 the company to design rates in 2002 or 2003 (or both) that will more nearly track the  
5 average cost of power in those years and be less distorted by ICA amounts. Stated  
6 another way, the “unforeseen circumstances” of sharply higher energy costs in 2001,  
7 followed by lower costs in the next calendar year have produced a bonus for the  
8 Company. This bonus, since it is driven by the market prices in effect a year earlier,  
9 distorts rates in whatever period it is recovered. The Company’s proposal keeps the  
10 bonus; the modification I suggest eliminates it and begins the incentive payments at the  
11 expected actual energy costs. The result is that price signals are improved more than  
12 under the Company’s proposal.

13 **Q. Please summarize your recommendations to the Commission.**

14 A. The Commission should consider the substantial value *to the Commission* gained  
15 from the willingness of parties to negotiate and present settlement agreements to the  
16 Commission. The Colorado regulatory landscape has been shaped for the better for more  
17 than two decades by this willingness.

18 The Company’s proposal is a direct assault on this culture of negotiation and  
19 settlement. While the Commission may have the legal authority to modify an agreement  
20 such as the ICA stipulation, it should consider whether the substantial costs of doing so  
21 outweigh the null-to-meager benefits that would be gained in this case.

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<sup>4</sup> It is at best curious to use the term “incentive” to refer to a before-the-fact award of \$23 million. If the Company is projecting its power costs to be \$17.18 in 2002, it is misleading to call 50% of the difference between actual costs and \$19.00 an incentive. These funds are an artifact of a volatile energy market, not the efforts of the Company in 2002. “Windfall” is more appropriate than “incentive.”

1 In summary, here are my recommendations to the Commission:

2 ✍ The Commission should deny the Company's application. While it  
3 may be preferred by the Company, and perhaps offer some attractive  
4 features to the Commission, the damage to the regulatory process is  
5 not worth the cost.

6 ✍ If the Commission is not inclined to deny the application at this time, it  
7 should dispatch the parties to attempt to modify the ICA stipulation in  
8 a consensus manner. To avoid damage to the future willingness of  
9 parties to negotiate, the Commission should take care not to pre-ordain  
10 the outcome of such negotiations.

11 ✍ If the Commission decides to modify the ICA stipulation based on the  
12 record in this case, it should not adopt the Company's proposal intact.  
13 Instead, the Commission should improve the equities of the  
14 Company's proposal by using an appropriate consumer discount rate  
15 as proposed in this testimony.

16 ✍ If the Commission decides to accelerate recovery of the ICA costs by  
17 opening the stipulation as proposed by the Company, it should modify  
18 the functioning of the ICA in its last year of operation to improve price  
19 signals as well as fairness.

20 **Q. Does this conclude your testimony?**

21 A. Yes.

**Calculation of Nominal Personal Discount Rate**

<b>D from Warner and Pleeter Research</b>	<b>18.0%</b>
<b>Minus 1993-1994 US CPI-U<sup>1</sup></b>	<b>-2.8%</b>
<b>Real D</b>	<b>15.2%</b>
<b>Plus Colorado CPI-U for Second Half of 2001<sup>2</sup></b>	<b>+3.8%</b>
<b>Nominal Personal Discount Rate for Colorado in 2002</b>	<b>19.0%</b>

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<sup>1</sup> Bureau of Labor Statistics, viewed 4/10/02 at <http://data.bls.gov/servlet/SurveyOutputServlet>

<sup>2</sup> "State of Colorado Consumer Price Index," website of the Colorado General Assembly, viewed 4/10/02 at [http://www.state.co.us/gov\\_dir/leg\\_dir/lcs/Econ/CPItest.htm](http://www.state.co.us/gov_dir/leg_dir/lcs/Econ/CPItest.htm)