BEFORE THE PUBLIC UTILITIES COMMISSION OF COLORADO

DOCKET NO. 08I-113EG

ORDER OPENING INVESTIGATORY DOCKET AND NOTICE OF INQUIRY

COMMENTS OF DR. ROBERT A. (ANDY) BARDWELL

In accordance with Decision C08-0448, Dr. Robert A. (Andy) Bardwell submits the following comments on existing utility incentives and the regulatory structure. Dr. Bardwell's expertise is in econometric modeling, especially cost-benefit analyses for engineering feasibility studies. However, having worked on a program to replicate Public Service Company of Colorado's (PSCo's) model and parameters to determine its resource generation mix, Dr. Bardwell submits these comments to improve the effectiveness of regulatory rate incentive structures. Dr. Bardwell's comments address the following:

A. PSCo Incentives Maximize Shareholder Value Over Ratepayer Benefits

B. PSCo Has Little Incentive to Reduce Its Fossil Fuel-Based Resources and Account for Rapidly Rising Fuel Costs

C. PSCo Should Be Required to Compete with Other Providers of Demand Side Management, such as Demand Reduction Aggregators and other Third Party Administrators

D. The Discount Rate Used by PSCo Favors Fossil Fuel Resources Over Renewables

E. A Realistic Analysis Should Include Externalities Such as Water Use, Health Costs, Environmental Degradation and Global Warming

A. PSCo's Incentives Prioritize Shareholder Value Over Ratepayer Benefits

It appears to me that the Commission often accommodates PSCo in ways that compromise the interest of ratepayers. Proceedings are managed to advantage PSCo over other

intervenors, in spite of the fact that ratepayers pay PSCo's expenses and sizeable legal costs. PSCo is a regulated monopoly that exists to serve ratepayers, not the other way around. Many intervenors are at a significant disadvantage, which compromises the proceedings' intent: to leverage input from all parties to maximize benefits to ratepayers and provide stable and cost-effective electricity service. A few examples:

(1) PSCo's responses to discovery are doled out piecemeal by email, resulting in hundreds of emails that it is difficult to process without substantial resources. Could PSCo post these responses in one location, to reduce the resources wasted by intervenors attempting to keep track of these responses?

(2) PSCo files its direct testimony as a scanned PDF. This makes accessing and searching documents difficult, and the memory requirements for all documents cumbersome. Could PSCo post all filings as searchable PDFs or Word documents?

In short, some of the procedures at the PUC are counter to the public's interest. The accepted but unfair assumption is that PSCo must have lucrative incentives to make decisions in the public's interest. PSCo's monopoly operates under Constitutional and statutory authority, but the idea that we must "bribe" them to serve the public's interest is offensive at best. This is particularly true in Demand Side Management (DSM) and other load reduction programs, where we are facing a future of paying the utility to deliver less of its commodity – electricity and gas. Climate change, fossil fuel resource depletion, and rapidly rising fuel costs demand that we must operate differently, and that business as usual cannot continue without dire consequences.

B. PSCo Has Little Incentive to Reduce Its Fossil Fuel-Based Resources and Account for Rapidly Rising Fuel Costs

PSCo's profit currently derives from returns on capital included in rate base, plus regulated profits from operations, while fuel costs are passed directly through to consumers through the Energy Commodity Adjustment and ratemaking procedures. As a result, PSCo has substantial incentives to maximize its capital and operating costs and disregard rising fuel costs. The model I constructed as part of my Answer testimony quantifies the large proportion of fuel costs for fossil-fueled power plants. The model shows that natural gas fuel costs are roughly offset by the additional capital costs required for Concentrating Solar Power (CSP), while wind is lower cost than fossil fueled resources. Substantial incentives for PSCO to invest in the more capital intensive renewable energy already exist, yet PSCo continues to favor fossil fuel resources. Even for wind, which does not have as high a capital cost as CSP, capital costs of additional transmission and smart grid technology other technology needed to extend the penetration of wind, require significant capital investment.

Current incentives are not working. Despite legislation such as C.R.S. 40-2-123 and 40-2-124, and this year's HB08-1164, which promotes CSP and allows the Commission to take future carbon dioxide (CO2) regulation into account, PSCo operates like our auto industry has for the past three decades: refusing to look beyond the short-term, continuing to build gas-guzzlers, and resisting the transition to new technologies.

C. PSCo Should Be Required to Compete with Other Providers of Demand Side Management, such as Demand Reduction Aggregators and other Third Party Administrators

Since clearly the carrot is not working, perhaps we must turn to the stick. One of the most effective incentives for PSCo is competition. Citizens in Colorado and the rest of the U.S. are waking up to the fact that electrical resource generation plays an enormous role in CO_2

emissions. Currently, Colorado gets over 70% of its electricity from coal. Reducing coal-based electricity is the quickest and easiest way to immediately reduce CO_2. However, PSCo's plan would only reduce its share of energy from the current 64% coal-based to 61% coal based in 2015 – eight years from now! PSCo's current DSM proposal is to spend less than 1% of revenues on demand reduction. This is simply not good enough. Competition can provide the incentive PSCo obviously needs to do things differently.

D. The Discount Rate Used by PSCo Favors Fossil Fuel Resources Over Renewables

As detailed in my Answer testimony submitted April 28, 2008, PSCo's present value cash flow analysis includes two serious flaws: (1) *only the resource expense stream* is included, and, (2) PSCo uses a discount rate which skews the analysis to select fossil fuel-based generation. PSCo's present value analysis also fails to take into account rapidly rising fuel costs, environmental degradation, global warming, water use, and other critical considerations.

Typically, investments are compared to determine which investment will *maximize* the present value of future cash flows. However, PSCo is a protected monopoly, its profits are regulated, and its risk is substantially limited. As a result, the usual objective of maximizing profits from a capital investment does not apply. Appropriate evaluation criteria should include: 1) stabilizing costs over the life of the plant; 2) reducing future rate escalation risk; 3) minimizing financial risks due to the choice of resources; 4) minimizing environmental degradation, pollution, water use and the health costs; and 5) reducing reliance on limited and depleting fossil fuel resources, as well as risks due to shortages, price volatility, consideration for future generations.

The selection of a proper discount rate is key. Because the discount rate used by PSCo is far above inflation, PSCo will select fossil-fueled resources that will cost ratepayers far more

over its lifetime. In other words, PSCo's high discount rate inappropriately values our cost of electricity in 2018 only *half* as much as the rate we will pay this year. PSCo's strategy incorporates the assumption that rates will double every ten years, and that this doubling of rates every decade acceptable in their resource selection.

E. A Realistic Analysis Should Include Externalities Such as Water Use, Health Costs, Environmental Degradation and Global Warming

In order to make decisions in the public's interest, the framework should include "externalities" that are mentioned in statute, but substantially ignored by PSCo.[1] In the same way, faithfully reflecting realistic fuel cost escalation, health and environmental costs is necessary to establish a framework within which PSCo and the PUC can make decisions in the public interest. In particular, all of these factors add substantially to future risks. Not including these critical elements in this process prevents PSCo and the PUC from taking these risks into account. We can no longer afford to ignore risks such as reduced availability of water, increasing temperatures, crop damage from acid rain, cancer and other health risks borne by those living near power plants. Colorado Revised Statute 40-2-124 recognizes some of these currently ignored costs, and it requires[2] that we consider these "seven benefits."

Respectfully submitted this 29th day of May 2008.

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[1] See C.R.S. 40-2-123 and 40-2-124, particularly the "seven benefits" in 40-2-124.

CERTIFICATE OF SERVICE

I hereby certify that on May 29^{h}, 2008, the original and seven copies of the foregoing **COMMENTS OF DR. ROBERT A. (ANDY) BARDWELL** was served by hand delivery on:

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and copies were e-mailed, faxed, hand delivered, FedEx'ed, or placed in the United States Mail, postage prepaid, addressed to:

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