

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

DOCKET NO. 07A-447E

**IN THE MATTER OF THE APPLICATION OF
PUBLIC SERVICE COMPANY OF COLORADO
FOR APPROVAL OF ITS 2007 COLORADO RESOURCE PLAN**

Interwest Energy Alliance Statement of Position

Introduction and Summary

The Interwest Energy Alliance again commends Public Service Company of Colorado (“PSCo,” “Xcel” or “the company”) for filing a progressive and responsive resource plan. We support the plan’s coal plant retirements, additional DSM and renewable energy resources, and carbon valuations. We think company witnesses Bonavia and Hyde made a compelling case that the company’s management is trying to respond to Colorado’s new policy framework that emphasizes diversification away from sole reliance on fossil fuel to produce electricity.

Interwest requests that the commission encourage the company to acquire more renewable energy. To achieve that goal, Interwest’s witnesses testified about overreliance on fossil fuel in current generation portfolios. Interwest continues to be concerned that uncertain future fossil fuel costs, risks, and liabilities not only threaten consumers’ abilities to pay today, but also risk consumers’ abilities to afford utility services over the long term. Diversifying generation portfolios more

rapidly to manage costs and risks will benefit consumers as soon as more cost-stable wind energy can be obtained, and will protect consumers over the long term as solar energy finds its place among economic system level resources.

Craig Cox and Carl Hunt made a case for consumer benefits from expanding the company's plan for acquiring more renewable energy than the proposed levels of 850 megawatts (MW) of wind and 250 MW of solar. Dr. Hunt continued the valuable work of previous Interwest analysts Binz and Pater, showing that consumers are likely to benefit in a wide range of natural gas fuel price and wind cost circumstances.

Mr. Cox asked the commission to help resolve two critical issues that confront Colorado's move toward a "New Energy Economy": lack of adequate transmission and costs for integrating naturally variable renewable energy output. Brendan Kirby brought his electrical and systems engineering expertise in testimony that refined the commission's record with regard to wind integration costs. He testified about the correct relationships between naturally variable output from renewable energy facilities and system reliability. Interwest's solar witnesses Rick Gilliam and Hank Price developed proposals for acquiring and treating both customer-sited and large bulk power solar systems fairly and provided output information based on Colorado's best solar resources and the timing of Xcel's system needs.

At the end of the hearings, Commissioner Baker asked that parties provide a list of key modeling parameters that the commission should require as the resource selection process moves into bidding. Interwest believes that this request goes to the heart of this case. According to the Commission’s decision on the emergency rules, the purpose of Phase 1 is to “...resolve the primary issues surrounding a utility’s resource plan before the utility solicits bids for resources...”¹

Key Planning Issues

Interwest offers the following list of key planning issues and modeling parameters for consideration by the Commission:

- Use the highest fuel projections and fuel escalation rates from among a range of reasonable values.²
- Use long contract terms for renewable energy projects.³
- Determine integration costs for naturally variable output resources by requiring peer-reviewed, published and publicly available integration cost studies to define these costs.⁴
- Reject claims that “reliability” requires limits on renewable energy acquisitions until the utility completes work that clearly defines such limits

¹ Colorado Public Utilities Commission, “Decision Adopting Emergency Rules,” Docket No. 07R-0368E, Decision No. C07-0829, page 12, paragraph 32.

² Hunt Answer Testimony Page 19, Lines 4-22

³ Price Answer Testimony Page 9, Line 16

⁴ Cox Answer Testimony Page 20, Lines 1-9; Cox Cross-answer Testimony, Page 7, Lines 17-23, Page 8, Lines 2-10; Kirby Cross-answer Testimony, Page 13, Lines 10-17

and takes reasonable measures to relieve them. Peer-reviewed, and publicly available studies, work plans, priorities, time lines, and periodic reports should be required to make certain that this work gets done in a timely and professional manner.⁵

- Require geographic diversity among renewable energy projects that are considered for acquisitions to offset and ameliorate variable output.⁶
- Require professional, state-of-the-art weather-related power output forecasting to be put in place immediately for wind resources. Assume for planning and modeling purposes that such forecasting will significantly reduce naturally variable output resource impacts on the electric system. Again, work plans, priorities, time lines, and periodic reports should be carefully monitored to ensure this work is accomplished.⁷
- Require resource costs to be determined by market values established in fair, open, carefully supervised, and competitive bidding.⁸
- Account for grid-related benefits of distributed solar electric resources.⁹
- Consider the widely accepted cost reduction expectations of photovoltaics in future energy planning.¹⁰
- Assign ten percent additional value to renewable energy projects to account for their “non-utility” benefits, rather than continuing to value these

⁵ Cox Answer Testimony, Page 27, Lines 7-13

⁶ Kirby Cross-answer Testimony, Page 11, Lines 9-23

⁷ Kirby cross-examination replies, July 9, 2008

⁸ Cox Answer Testimony, Page 10, Lines 16-18; Gilliam Answer Testimony, Page 4, Lines 15-17

⁹ Gilliam, Page 18, Lines 3-6

¹⁰ Gilliam Answer Testimony, Page 8, Line 17 through Page 12, Line 14

benefits at zero. Even as a sensitivity analysis, this would be better than ignoring these benefits.¹¹

- Assign capacity value to naturally variable resources based on peer-reviewed, published studies of effective load carrying capability.¹²
- Assume that resource acquisition through bidding produces a market signal and leads to consumer benefits by disciplining utility incentives to gold plate utility proposals for utility owned projects.¹³
- Assume that carbon valuations will be at the high end of a reasonable range of projections and that carbon values will escalate at rates significantly higher than the consumer price index.¹⁴
- Allow all forms of solar technologies to compete for and win bulk power production contracts so technology advances can be used to the advantage of utility consumers.¹⁵
- Incorporate “sustained orderly development” assumptions for solar markets, so firms can plan for and execute business development consistent with continuous and predictable solar market expansion.¹⁶
- Allow renewable energy acquisitions to exceed renewable energy standard minimums, using cost savings from all projects that are counted toward compliance to net against all projects that require additional costs:

¹¹ Cox Cross-answer Testimony, Page 8, Lines 14-20

¹² Cox Answer Testimony, Page 27, Lines 9-11

¹³ Cox Answer Testimony, Page 6, Lines 6-10

¹⁴ WRA Nielsen Answer Testimony

¹⁵ Gilliam Answer Testimony, Page 19, Line 5 through Page 20, Line 4

¹⁶ Gilliam Answer Testimony, multiple references

no “time fence,” no “sunk resources,” use net compliance savings against compliance costs. Change commission rules to make this happen.¹⁷

- Maintain the commission’s announced policy that section 123 resources are outside the two percent rate cap, because the people and the legislature want maximum feasible renewable energy development in Colorado.¹⁸
- Assume that SB07-100 transmission will reach each “generation development area” and allow those transmission costs to be spread to all consumers to achieve lowest cost provision of transmission for beneficial generation projects.¹⁹
- Require utilities to plan for and provide transmission that is in concert with the timing of beneficial generation projects and is planned on a statewide “one-utility” concept.²⁰
- Consider the benefits of institutionalizing a “Colorado Model” of community wind ownership in which smaller community-based projects are able to leverage the economies of scale of nearby utility-scale projects.²¹

Consumer Benefits

¹⁷ Cox Answer Testimony, Page 5, Line 18 through Page 6, Line 10; Cox Answer Testimony, Page 8, Line 15 through Page 9, Line 2; Gilliam Answer Testimony, Page 7, Lines 15-22, Page 8, Lines 8-15

¹⁸ Cox Answer Testimony, Page 8, Line 15 through Page 9, Line 2; Gilliam Answer Testimony, Page 14, Lines 16-23; Hunt Answer Testimony, Page 3, Line 22 through Page 4, Line 3

¹⁹ Cox Answer Testimony, Page 7, Lines 14-19; Hunt Answer Testimony, Page 8, Lines 8, Lines 4-7; Cox Cross-answer Testimony Page 9, Lines 1-9

²⁰ Cox Cross-answer Testimony, Page 9, Lines 11-16

²¹ Cox Cross-answer Testimony, Page 20, Line 12 through Page 23, Line 2

Expanding the roles of efficiency and renewable energy in the company's resource plan could provide many consumer benefits, including lower long-term consumer costs; hedges against fossil fuel costs, risks, and liabilities; health and environmental improvements; economic development benefits, particularly in rural areas; water savings; and additional generation portfolio diversity. These are the fundamental strategic responses to an electrical future full of uncertainties and hard choices. Dr. Hunt's testimony provides evidence about how wind can provide consumer benefits across a wide range of wind and natural gas costs. Two barriers prevent PSCo from moving more rapidly in the direction that they, and almost every party in the case, want them to move: lack of adequate transmission to bring beneficial resource to serve consumers, and fears about reliability.

More Transmission

Despite passage in 2007 of legislation that grants very significant financial incentives, and despite being on the public record at the commission with evidence of lack of sufficient transmission since 2004²², PSCo's transmission planning and implementation still lag the speed at which renewable energy projects, primarily wind, could be built to the benefit of all consumers. While planning procedures are underway, progress is still too slow to match either

²² Curtailment payments were authorized in 2004 in Docket No. 04A-214-216E because PSCo's 5 transmission system was insufficient to bring all cost-effective wind energy resources to market to offset high natural gas prices. Following PSCo's 500 MW renewable energy RFP in late 2004, it awarded only 60 MW of the 130 MW cost effective wind bid by Invenergy, due to lack of adequate transmission capacity. Following Xcel Energy's 2005 all-source solicitation, only 75 MW of a larger wind bid was awarded to PPM Energy — again due to lack of transmission capacity. .

consumers' needs for new clean energy resources or the pace at which new clean energy projects can be developed. The commission should require accelerated planning and implementation for transmission projects to each "Generation Development Area" identified by the SB07-91 task force report to the Colorado General Assembly, "Connecting Colorado's Renewable Resources to the Markets."²³

Interwest's witness Cox requested more commission involvement in, and oversight of, these transmission planning efforts. Xcel witness Mogensen testified in favor of streamlining the commission's transmission rules.²⁴ We support her request that the commission get more involved in transmission planning and signal how much transmission and what regions to serve earlier in the planning process, so planners can get their work done more rapidly and with less regulatory uncertainty.²⁵

Solve Integration Issues

PSCo proposed limits on the amounts of wind and solar resources in its plan, and on the pace of future acquisitions, based on concerns about reliability. But these limits were not based on quantified study or research results that had been

²³ http://www.colorado.gov/energy/in/uploaded_pdf/RenewableResourceGeneration.pdf

²⁴ Supplemental Direct Testimony of Teresa Mogensen.

²⁵ As Interwest has commented in the commission's transmission investigation docket, the Commission's Rules at Section 3206 "Construction or Extension of Transmission Facilities" are not well adapted to the new framework of SB07-100. The unfortunate circumstances that required the company to file for reconsideration of the Pawnee-Smoky Hill CPCN approval are another concern to Interwest. The commission's staff needs to play a leadership role in both transmission planning and in transmission CPCN cases, rather than wait for others to solve Colorado's problem with inadequate transmission or function mainly as a surprise litigator of noise and EMF issues.

publicly presented, analyzed, or scrutinized. They amounted to a company “judgment call.” While the limits may, or may not be, a good “judgment call” by the company, there is a lot at stake for consumers in making sure that the company’s “judgment call” is taken at the correct levels and identifies the correct pace for future acquisitions.

Testimony by Interwest’s experts and others leads to the conclusion that the commission should not take Xcel’s proposal to limiting the pace and level of resource acquisitions at face value. We believe that the commission should require a thorough and expedited analysis of the limits proposed by Xcel.

The company should be required to show exactly how and why its 850 MW wind and 250 MW solar limits make sense for consumers. In addition, the company’s plans for addressing integration with better forecasting, operational improvements, and plant and equipment changes should be carefully analyzed. The company should be required to put its plans in priority, so the most cost-effective and simplest measures can be taken first. Work plans should be developed with deadlines and the commission should require periodic reporting on progress, with the goals in mind of both improving reliability and efficiency and expanding Xcel’s proposed acquisition timeframes and limits to the extent that progress on implementation measures, rather than arbitrary limitation “judgment calls”, drive resource acquisitions that benefit consumers.²⁶

²⁶ For just one example, forecasting wind by using the National Weather Service “grid point locator,” coupled with power production models for wind plants, appeared at hearing to be a very

As with transmission planning and investment, the commission must take a more active oversight role, requiring priorities to be set, work plans to be developed in more detail²⁷ with priorities for the most important work to be done first, and then require periodic reporting so the work gets done and reported in a timely fashion.²⁸ If company personnel and resources are not sufficient to accomplish these tasks, the commission should require it to be outsourced to competent professionals. This is too important to be ignored or further delayed.

The scope of integration work needs to be expanded. Mr. Kirby testified that the company should open the scope of work to include other utilities, regional market issues, and to engage national and international expertise.²⁹ This would counter the unfortunate tendency that was revealed on cross examination of Mr. Imbler for the company to assume that no other utility firm had any experience that could be relevant to Xcel's situation.³⁰ To the contrary, a number of other states, utilities, and countries have as much, or more, experience with wind integration as Xcel, Xcel's situation is not entirely unique, and there is much to be learned

primitive and preliminary response to integrating the 775 MW of wind that Xcel added in 2007. The commission should be asking why a much more professional and sophisticated wind forecasting process was not ready at the time the wind plant acquisitions were made. If wind plant errors are 20 percent a day ahead, while load forecast errors are 2.5%, and both are driven by weather that must be forecasted, the commission should require very substantial progress on wind forecasting immediately.

²⁷ In more detail than those presented in Hyde Exhibit KTH-2 and focusing on high priority "low hanging fruit" among the work items.

²⁸ A twenty percent wind integration study was delayed and led to a great deal of discussion in the hearings. The same delay in presenting outcomes from the study work Ms. Hyde presented should not be acceptable to the commission.

²⁹ Kirby Cross Answer Testimony, Page 6, Lines 7 through 21, and Kirby cross examination replies, July 9, 2008

³⁰ Exhibit 161, IEEE Power Engineering Society, "Power and Energy, Wind Integration: Driving Technology, Policy, and Economics," Volume 5, Number 6, November/December, 2007.

from others' experience, if Xcel will open its collective mind to the possibility of learning from the best experience and thinking that has been collected here and abroad.³¹

Asymmetrical Risks in Fuel Price Forecasting

Interwest supports the testimony of LaPlaca's and WRA's fuel forecasting witnesses who detailed risks to consumers that arise from assuming low-priced fossil fuel for the future.³²

The commission has a duty to protect consumers, and in exercise of that duty must require utilities to use fuel price forecasts that accomplish that goal: to protect consumers. To do that, the commission should consider the difference between impacts on consumers of fuel forecasts that are wrong, and either too low or too high. If the fuel price forecast is wrong and too low, consumers are not invested in enough efficiency or renewable energy to hedge the impact of higher than anticipated fuel costs. They simply have to pay, endure shut offs, ask for charitable contributions, and at the economic margins, become homeless, hungry, sick and die.

By contrast, if the fuel price forecast chosen for planning purposes is wrong and too high, consumers are protected. First, they benefit from the hedge that is

³¹ See, for example www.uwig.org, the web site of the Utility Wind Integration Group.

³² We were also glad to see that the ACSF witnesses and Xcel's witness Haeger had a different view, based on the idea that the future holds abundant natural gas supplies and steady prices. We frankly don't know what fossil fuel prices will do in the future, except we are convinced that they will vary unpredictably.

erected with more efficiency and renewable energy in the portfolio than was required, even though they paid more than was required, because they are protected from any future fuel price spikes. They have purchased some very useful insurance. Second, fuel prices have turned out to be lower than anticipated, so consumers have more of their income to spend on housing, food, health care, and fun. This can be considered a benefit to consumers. The commission should not erect any hedges against consumers enjoying their benefits. The commission's job is to prevent unnecessary harm to consumers. It can do its job best by requiring fuel projections at the high end of a range of reasonable values. Since any fuel price forecast will likely be wrong, the commission should try to ensure that the forecasts are wrong and too high, rather than wrong and too low. The former protects consumers; the latter is how we come to today's failure of Colorado utilities to provide low, stable prices for consumers' utility services.

Non-utility benefits

"The utility shall also propose and other interested parties may provide input as part of the resource plan proceeding, criteria for evaluating the costs and benefits of resources such as the valuation of emission and **non-utility benefits.**"³³

(emphasis added)

Mr. Cox testified that the commission should add ten percent to the value of renewable energy projects to account for the non-utility benefits they provide,

³³ 4 CCR 723-3, "Rules Regulating Electric Utilities, Resource Planning Rules" Section 3610 (d)

based on the same rationale that led the commission to find that a ten percent extra value should be ascribed to DSM projects. While some non-utility benefits have been quantified in this docket, such as carbon risks, others have not. The commission apparently wants to handle these on a judgment call basis, to which we do not object. However, ten percent added to the value of these projects, or any other positive number, is better than either ignoring them or valuing them at zero. The state and its people have different values than the franchise monopoly utility, as the legislature and the people of the state through the initiative process have made abundantly and repeatedly clear. It only remains for the commission to make it happen.

Utility Incentives, Ownership and “Make or Buy”

While Interwest believes that there are rational claims on both sides of the debate about utility ownership, imputed debt, and lease accounting, we think the right answer is a “both and” rather than an “either or” solution. Generation projects created by both independent power producers, as represented by Interwest and CIEA, and utilities can bring benefits to consumers. The real question is “what is the right mixture?”

The correct regulatory venues for solutions about imputed debt and lease account claims are in rate cases and possibly in the commission’s new incentive docket. No assumptions about relative market shares for the utility and IPPs should be put in cement by the commission in this Phase I. Let the bids and

utility proposals determine what relative market shares should be. In this manner, there will be pressure on both the utility and IPPs to bid, or propose, the lowest-priced resources. Until IPP bids and utility proposals are in hand and the independent evaluator (IE) has analyzed them, the commission should not rule anything out.

Development of the On-Site Solar Market

There was no disagreement that on-site solar provides benefits to the utility system, only questions about the extent of those benefits in specific locations around the PSCo system. We agree that these location benefits will be greater in some places than others. However, PSCo is the only party with access to information about beneficial locations. The company does not provide this information in its competitive procurement process, effectively preventing developers from locating solar resources where they would provide the most grid support. Indeed, an on-site solar development zone map of the utility grid, similar to the generation development areas resulting from the SB07-91 process, would be helpful in this regard. In addition, non-utility costs and benefits should be considered, as outlined in Mr. Gilliam's testimony.

Given the benefits of developing on-site solar, and the popularity of such systems with the citizens of this state, we urge the Commission to require the company to work with representatives of the solar industry to develop a viable market that continues to drive installation costs down. As noted during the cross-

examination of Mr. Gilliam, as much as half of the installed costs of a solar electric system are **local** costs, e.g. marketing, sales, installation, support, permitting and financing. Global markets drive down hardware costs, but sustainable local markets are required to drive down local costs. As hardware costs decline, Colorado needs to take steps to drive the local costs down as well.

PSCo, in the rebuttal testimony of Pam Newell, increased its proposed on-site solar acquisition plan somewhat, and we applaud the positive move.

Year	Original Filing MW	Rebuttal Testimony MW	Year to Year Change in Rebuttal Testimony
2008	16	18	---
2009	4	12	-33%
2010	1	8.5	-29%
2011	2	3	-65%
2012	1	8	167%
2013	2	3	-63%
2014	1	8	167%
2015	2	3	-63%
2016	0	8	167%
2017	0	2.5	-69%
2018	1	7.5	200%
2019	1	2.5	-67%
2020	1	7.5	200%

While this proposal is a step in the right direction, this plan, like the originally filed plan, is tied to minimum compliance with the renewable energy standard, and does not provide the basis for viable, long term Colorado solar markets.

We urge the commission to recognize the potential for solar cost reductions over the life of the PSCo plan, as projected by the U.S. Department of Energy (DOE),

Deutsche Bank, and others and plan for success for the growing Colorado solar market. Not only are costs of existing solar technologies falling, but there are many new solar energy technologies that will be coming to market in the next 5-10 years that will support declining cost curves. For these reasons, the company should be required to file an on-site solar acquisition plan in its 2009 resource plan filing that is sufficient to maintain sustained, orderly development of solar markets here and drive local costs down. The commission should require PSCo to work with experts in the solar industry to develop such a plan. Without such a plan, the seesaw market will lead to short-term planning in the industry and to higher than necessary costs.

Solar Bids should be Technology Ecumenical

There is no downside for PSCo's central solar bids to be technology ecumenical. The company has acknowledged likely technological advances between 2008 and 2015. There is significant risk that a 200 MW carve-out in the all-source bid in 2008 will miss such advances. Eliminating an entire technology at the outset compounds this problem. We urge the commission to require the company to make its solar resource acquisitions technology-neutral.

Scenario Planning

Ms. LaPlaca's witness Steve Andrews testified about the benefits of scenario planning based on the methods first developed by Shell Oil Company and now

widely used by industry and government.³⁴ The method differs from the use of sensitivities, which answer the question “what if the future is bigger or smaller than we expect?” Sensitivities assume that current or historical trends continue but intensify or lessen. Scenarios are a method to plan for different futures, based on assumptions about fundamental changes. Proponents of this planning technique suggest that it provides a way to see “around the corner” and to anticipate breaks in current trends.

Interwest supports this form of planning. We think it would be good to have a contingency plan in place in Colorado in case the current trends toward public concern about climate break down and mass species extinctions intensify, leading to proposals for electric systems to transition to renewable resources in a short period, like over the next ten years.

Carbon Goals Require Coal Plant Retirements

Interwest supports the WRA, GEO, CDPHE, La Placa and Glustrom advocacy in this case for retiring coal plants in favor of more energy from renewable sources and carefully specified additional natural gas plants to provide needed capacity and flexibility to assure system reliability. Renewable energy can provide low-cost energy with minimal environmental or public health-related impacts. Natural gas can provide needed capacity. Together, these resources provide a way forward for Colorado.

³⁴ Schwartz, P. “The Art of the Long View: Planning for the Future in an Uncertain World,” Doubleday, 1991. Peter Schwartz founded the planning and consulting firm Global Business Networks after leaving Shell.

Modeling and Discount Rates

There is no great downside risk, and little real additional work involved, in running sensitivities with discount rates at lower and higher levels than the WACC. One way to look at this would be from a generational perspective. Commissioner Tarpey might be used as an exemplar of one of the generational interests, those who need a speedy return on investment if they are to personally enjoy the benefits of investments utilities make on their behalf. Commissioner Baker's progeny might provide an example of the other set of generational interests—those who have a long time to enjoy the benefits of utility investments made on their behalf.

Putting aside the obvious interest that Commissioner Tarpey's generation might have in the welfare of Commissioner Baker's child (something we all know about grandparents and their grandchildren), running sensitivities to explore the discount rate alternatives, as proposed by Dr. Bardwell, would provide a more complete context in which the commission (and utility executives) can exercise their best judgment. In general, Interwest believes that it is the job of the public sector, and the commission in this docket, to take care that the long term is adequately valued. Private interests are sufficiently focused and motivated to make sure that there is adequate attention paid to the short term.

Conclusion

Interwest requests that the commission act to encourage more renewable energy in the PSCo resource plan to the benefit of consumers.

Respectfully submitted on July 21, 2008,

A handwritten signature in black ink that reads "Ronald L. Lehr". The signature is written in a cursive style with a large initial 'R'.

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