

BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF COLORADO

IN THE MATTER OF THE PROPOSED RULES )  
IMPLEMENTING RENEWABLE ENERGY ) DOCKET NO. 05R-112E  
STANDARDS 4 CCR 723-3. )

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**INITIAL COMMENTS OF THE COLORADO OFFICE OF CONSUMER COUNSEL**

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The Colorado Office of Consumer Counsel (“OCC”), by and through its undersigned counsel, hereby submits the following comments with regard to the Rules Implementing Renewable Energy Standards 4 CCR 723-3.

**INTRODUCTION**

1. On March 29, 2005, the Colorado Public Utilities Commission (“Commission” or “PUC”) issued Decision No. C05-0314, Notice of Proposed Rulemaking, commencing the instant case. In its Notice, the Commission stated that interested parties may file written comments prior to the hearing. The Commission further requested that initial comments be submitted no later than May 18, 2005.

2. This rulemaking is the result of the passage of Amendment 37 by the Colorado voters at the 2004 general election. Amendment 37 dealt with renewable energy standards for large providers of retail electric service. Pursuant to the provisions of Amendment 37, the Colorado Legislature enacted § 40-2-124, C.R.S., effective December 1, 2004. Section 40-2-124(1) requires that the Commission initiate on or before April 1, 2005 a rulemaking process to establish renewable energy standards. As a result of this legislation, the Commission initiated this rulemaking docket.

3. Prior to initiating this docket, the Commission Staff conducted two informal workshops on March 4 and 10, 2005 regarding the renewable energy standard rules. The OCC submitted written comments and participated in the workshops.

4. The OCC's initial comments are attached.

**CONCLUSION**

WHEREFORE, the Colorado Office of Consumer Counsel submits its Initial Comments regarding the Commission's proposed rules implementing renewable energy standards.

DATED this 18<sup>th</sup> day of May 2005.

Respectfully Submitted,

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**Initial Comments of the OCC  
Docket No. 05R-112E**

**General Comments**

On 21 March 2005, PVNow—a consortium of solar manufacturers, developers, and suppliers, wrote a letter to Public Service Company of Colorado (“PSCo”) and Aquila (that letter is attached to these comments as Attachment A). In its letter, PVNow stated its belief that it is possible to meet the Amendment 37 goals—in a timely manner, and within the 1% of utility revenue budget—but only if the utilities involved (PSCo and Aquila) commence planning and implementation by the second half of 2005—which may be prior to the completion of this rulemaking process.

The OCC is concerned by the representation in the PVNow letter because it points to two possible undesirable outcomes to the Amendment 37 implementation process if the utilities involved wait to begin implementation activities until 31 March 2006—the date by which the rulemaking process must be completed, according to statute. First, there is the possibility—the likelihood, according to the PVNow consortium—that the utilities will be in violation of the statute by failing to acquire sufficient PV generation to meet the statutory requirement. This is a concern because it is unlikely that any party to this proceeding would advocate that a utility violate the statute, or that the Commission permit a utility to violate the statute.

Second, the OCC has another concern—a concern that is of a more traditional type, for the OCC. This concern is that a utility, by failing to perform adequate planning in a timely manner, will find itself in a situation in which acquisition of the PV generation required by the statute will end up costing more than if it began the process sooner. This is a typical paradigm: if one must acquire generation (for example) resources under an emergency procurement schedule (*i.e.*, under severe time pressure), those resources are likely to be significantly more expensive than if

one were able to acquire them under a normal procurement schedule. In PSCo's 1999 IRP, we saw precisely that phenomenon: PSCo had a need for additional capacity with only about a one-year lead-time, and a need for other additional capacity with a four-year lead-time. The one-year lead-time capacity was far more expensive (in terms of dollars per kW-month) than the four-year lead time capacity.

It is the OCC's position that, if a utility can reasonably avoid acquiring capacity under an emergency procurement schedule, and if it fails to do so, and if such behavior results in higher costs for ratepayers, then the utility has not acted prudently. Under such circumstances, the OCC would argue that the utility should not be permitted to recover all of its costs, if it could have acquired similar resources at lower cost to ratepayers.

This position of the OCC's might suggest that the OCC is advocating that utilities proceed to spend time and money on the Amendment 37 implementation process prior to obtaining approval from the PUC. This suggestion is correct, but the OCC's advocacy is not for anything different than a utility's normal planning process. For example, PSCo spent between one and two million dollars on studying and planning the expansion of its Comanche generating station, *prior to* receiving a CPCN from the PUC. There was always the possibility that the PUC would disallow those costs, when PSCo attempted to recover them in rates, but such a disallowance would require evidence that those costs had not been incurred in a prudent manner. Similarly, it is difficult to imagine a scenario in which costs that a QRU *reasonably* incurred in an effort to implement Amendment 37 would be disallowed—even if those costs were incurred prior to the PUC's adopting rules governing implementation of Amendment 37.

Thus, while the OCC's comments on specific rules are, sometimes, detailed, one of the OCC's major concerns is that the entire process be implemented in a manner that makes it as

likely as possible that QRUs will generate as much renewable energy as possible for each dollar of ratepayer money that they spend. It is partly for this reason that the OCC has systematically recommended the Options that *don't* use QRU-specific plans. It appears clear that the process will be slowed by at least 60 days, if QRUs are required to construct their own plans. The process could be slowed by much more than 60 days if the Commission finds any particular QRU's plan to be deficient.

The second major reason that the OCC has recommended for prescriptive rules and against QRU-specific plans can be generally characterized as a desire to reduce customer confusion (or, to increase clarity). Some large customers, with multiple sites, may be served by different QRUs at their different sites. It would appear simpler for such customers to make decisions on whether to install customer-sited generation using a single set of rules, rather than using one set of procedures for one QRU, and a different set of procedures for another QRU. Similarly, with a single set of rules, customer education and marketing would be simpler: there would be (mostly) a single message for all customers in the state, rather than multiple messages for different customers, depending on each customer's serving QRU.

### **Specific Rule Comments**

#### **Rule 3650 Special Definitions**

(j) "On-site Solar System" means a solar Renewable Energy System located on the customer's premises wherein the customer qualifies for net metering *and has annual net excess generation* [emphasis added].

The way this definition is written, an on-site solar system would have to have annual net excess generation. Many small rooftop PV systems will not have annual net excess generation. Consider an average PSCo residential customer, with average annual consumption of 7,500 kilo-

Watt hours (“kWh”).<sup>1</sup> Next, assume that a rooftop PV system has a 25% capacity factor. A typical residential customer would have to install a system larger than 3.42 kW to have annual net excess generation.<sup>2</sup> The OCC recommends that the rule be re-written to either eliminate the italicized phrase, or to modify it to read “and may have annual net excess generation.” The rule, as it stands, would preclude residential customers with one or two (or three) kW systems from qualifying as on-site solar systems.

(y) “Utility Discount Rate” shall be equal to the QRU’s last Commission authorized rate of return on rate base.

If the purpose of a utility discount rate is to reflect the cost of capital to the utility, then this definition should be modified to state “the QRU’s last Commission authorized *after-tax* rate of return on rate base.” The after-tax rate of return on rate base reflects the fact that the interest paid on the debt component of the utility’s capitalization is an expense that is deductible on the utility’s income tax returns. Therefore, a utility’s true cost of capital is actually lower than its (nominal) weighted average cost of capital (the weighted average cost of capital is a utility’s Commission authorized rate of return on rate base).<sup>3</sup> The calculation of a utility’s after-tax weighted average cost of capital is demonstrated in Attachment B to these comments.

### **Rule 3654 Renewable Energy Standard**

(g) The simple language of the statute does not lend itself to Option #1 of the proposed rules. Rather, the simple language of the statute suggests that the intent was for a QRU to generate 3%, 6%, and 10% of its retail electric sales during each year. For example, under

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<sup>1</sup> 625 kWh per month times 12 months = 7,500 kWh per year.

<sup>2</sup> 8,760 hours per year ÷ 4 = 2,190 kWh per kW of installed PV capacity. 7,500 kWh per year ÷ 2,190 kWh per kW = 3.42 kW.

<sup>3</sup> The effect of calculating a utility’s after-tax weighted average cost of capital is symmetrical to (but opposite in sign from) the effect of calculating a utility’s revenue requirement. The symmetry arises from the fact that the tax effects of a utility’s return on equity are taken into account when calculating revenue requirement from return on rate base.

Option #1, a QRU could generate 0 kWh of renewable energy in 2007, 2008, and 2009, and then 12% of its sales from renewable energy in 2010, and still be compliant with the statute. It is unlikely that this is what voters understood the requirement to be, when they voted for this ballot initiative.

Assuming that a utility—and the solar industry—would find it most efficient (and least cost) to “ramp” its customer-sited PV generation, a simple reading of the statute suggests that a utility would acquire 0.02% of its sales from on-site PV in 2005, 0.04% in 2006, and 0.06%—the statutory requirement—in 2007.<sup>4</sup> The statute then requires a steady 0.06% for the years 2007, 2008, 2009, and 2010, and then 0.12% (one-half of 4% of 6%) for the years 2011 through 2014. However, a utility would nevertheless be likely to continue to ramp its on-site PV (more or less smoothly), so that it would acquire something more than 0.06% in the years 2008 through 2010, and reach 0.12% in 2011. If we assume that a utility would choose a ramping process regardless of whether the Commission decides that the statute requires 0.03% in 2007, or an average of 0.03% during the years 2007-2010, then the effect of using an average would likely be to delay the ramping process by about two years. Thus, if the Commission were to adopt Option #1, a QRU could (and, presumably, would) meet the 0.06% average requirement during the years 2007 through 2010 by acquiring something like 0.03% in 2007, 0.05% in 2008, 0.07% in 2009, and 0.09% in 2010.<sup>5</sup>

### **Rule 3655 Competitive Bidding**

The OCC is not prepared, at this time, to support either “The Administrator Approach”

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<sup>4</sup> The statute requires 3% of sales from renewable energy. Of that 3%, 4% must be from solar (3% of 4% is 0.12%), and one-half of that 0.12% (0.06%) must be from customer-sited PV generation.

<sup>5</sup> These numbers, of course, are for illustrative purposes only. While it is likely that a QRU would ramp acquisition, it is unlikely that the actual acquisition curve would be as smooth as those illustrated.

(Option #1) or “The LCP Approach” (Option #2). However, there are two reasons that the OCC is leaning toward recommending Option #1. First, the standard offer (Rule 3655(e)(ii)) that is incorporated into Option #1 is likely to be a more efficient method of acquiring SO-RECS than a process that is conducted as part of a Least Cost Plan acquisition. This is so because it is unlikely to be worthwhile for the utility, or even for the customer, to go through a bid process for customer-sited PV generation of 10 kW or less. Second, it is difficult to see how a QRU could meet the statutory requirements of renewable generation for 2007, under Option #2. This is because the next LCP is scheduled for October of 2007. For these reasons, the OCC leans toward recommending that the Commission adopt the rules implementing Option #1. It is certainly possible to create an “Option #3,” which prescribes certain features—such as a standard offer for customer-cited PV generation of 10 kW or less—and permits a QRU to select other features. However, the OCC continues to be concerned that using utility plans is likely to be slower, and more confusing for potential generators, than using a single (administrator-driven) plan throughout the state.

#### **Rule 3657 QRU Plan of Administrator**

Because the OCC suspects that the utility plan option (Option #1) will result in greater delays, the OCC recommends Option #2—a Plan Administrator—over an individual utility plan, for each QRU.

#### **Rule 3658 Solar Electric Generating Technologies**

(b) Without commenting on the specific rules proposed, the OCC recommends adoption of Option #2. Once more, it is more likely that a QRU will be able to meet its 2007 goal if interconnection rules are set in the rulemaking process, rather than after the end of it.

(f) The OCC recommends adopting Option #2 rules for net metering. For small generators (10 kW or less) it is economically irrational to use more than a single meter. In addition, the statute requires “net metering,” and the universally accepted meaning of that term (for small generators) is something like “a single bi-directional electric revenue meter that has only a single register for billing purposes.” (Rule 3658(f)(v))

(g) The OCC recommends adopting Option #2 rules, with a Standard Rebate Offer. This is likely to be more efficient (at least for installers of smaller PV systems). It is also likely to result in a more timely acquisition of PV generation.

### **Rule 3659 Renewable Energy Credits**

(a) The OCC recommends Option #2 in order to ensure that the renewable energy being acquired by a Colorado QRU is not being counted twice. Thus, the OCC is not proposing that QRUs be required to acquire *only* RECs (and not renewable energy); rather, the OCC is proposing that QRUs be required to acquire *at least* RECs. The OCC’s recommendation is based upon the belief that while there may be ways—other than using RECs—to prevent multiple counting of renewable generation, it is probably more efficient to use an established method. Efficiency is especially important in these early years, when QRUs will have to exert considerable effort to comply with the statutory requirement in a timely manner.

(RECs Accounting) It is not quite clear what the difference is between Option #1 and Option #2, with regard to the use of WREGIS. Nevertheless, since the OCC favors (for reasons of efficiency) *not* using a utility-specific plan, the OCC appears to be limited to choosing Option #1. However, the OCC is not particularly wedded to using WREGIS, and the language of Option #1 expressly permits a QRU to use WREGIS “or an equivalent system of tracking.”

### **Rule 3660 Cost Recovery**

Because the OCC suspects that the utility plan option (Option #1) will result in greater delays, the OCC recommends Option #2 for cost recovery.

### **Rule 3661 Retail Rate Impact**

(c) The OCC recommends inclusion of the proposed language. While this could be confusing to some customers—customers who may have thought that their bills would increase only 1%, no matter what—it is clear that there is no plausible scenario, given growth in electric demand and increases in prices of natural gas, under which a customer’s bill would increase only 1%, if only the QRU would acquire renewable resources. Even if a QRU acquires a strictly least-cost resource portfolio (presumably, one that does not include any PV generation), customers’ bills could increase by more than 1%, if the QRU must deal with increased demand and increasing fuel prices.

(e) The OCC recommends modifying the last sentence to read, “In this case, the Commission will not impose any administrative penalties or take any other enforcement action against the QRU, so long as its failure to comply with the standard is not due to the imprudence of the QRU.”

### **Rule 3662 Annual Reports**

The OCC recommends Option #2. However, the OCC is concerned that the requirements of Rule 3662(a)(v)(1) and (2) may raise privacy concerns for residential customers who install rooftop PV systems. The OCC recommends that either small systems be aggregated in the QRU’s annual report, or that the owner and location of the system be omitted from the annual report, for residential customers.

(c) The OCC recommends adding language to this rule that requires the QRU to place its annual report on its (the QRU's) web site, and to include a notice on its next bill (or in its next "newsletter" that accompanies its bill) stating that the report has been filed, and containing a link to it on the QRU's web site. If the QRU does not maintain a web site, then the language on the bill and "newsletter" should include a link to the report on the Commission's web site.

(f) The OCC has the same privacy concern for this proposed rule that it stated above: residential customers should be exempt from this requirement, for privacy purposes. In addition, if the Commission mandates the use of RECs, then there would be a certifier of the RECs who would perform the function required by this rule.

The OCC recommends Option #1 for review of the annual reports. This permits interested parties to express any concerns, requires Commission Staff to review the report, and requires Commission action only if Staff (or another party) convinces the Commission that action on the report is warranted.

### **Rule 3663 Commission Actions**

(d) The OCC recommends Option #2. Once the Commission has determined, in an evidentiary hearing, that a QRU is non-compliant, it would be duplicative of effort to require the Commission to then hold another hearing to determine what penalties to assess. It would be simpler, and provide a greater degree of certainty, to have Compliance Penalties be determined according to a formula that is known by all parties before the (hopefully, non-occurring) fact of non-compliance. Option #2 provides adequate opportunity for the Commission to consider any extenuating circumstances (on a case-by-case basis), in determining whether non-compliance occurred.

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March 21, 2005

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VIA FACSIMILE

Dear Mssrs. Stoffel and Kort:

We want to thank you for your company's past discussions with PV NOW on the implementation of the solar component of Colorado's Amendment 37. However, we are becoming increasingly concerned about the inability to identify concrete steps towards identifying a mutually satisfactory program that will ensure the targets required by Amendment 37 are met. From our perspective, there is growing urgency with each passing week that the solar industry (wholesale to retail) will be handicapped in its ability to support the necessary market growth in Colorado until a program has been agreed to by the parties and will then require some reasonable lead time to strengthen and expand the necessary local solar market infrastructure (distribution channels, installer training, etc).

We have no doubt our industry will be able to meet the targets in Amendment 37 and will do so within the monetary limits set forth in that statute – but it is imperative and in the interests of Colorado that a program is instituted that provides for sustained and orderly development without barriers to installations. Agreement by Xcel, Aquila and the solar industry on program rules needs to happen within the next few months to ensure this orderly growth. Longer delays in negotiating program rules will result in a more costly and sub-optimal ramp-up.

The solar industry has analyzed the detailed implementation program provided to you and our analysis shows the program will work within the budgets allowed under Amendment 37. We will share the analytical details with you early this week. Our analysis shows that unless solar installations start by the second half of 2005 and then ramp up significantly in 2006, it will be nearly impossible for Xcel and/or Aquila to meet its 2007 requirements. At least one-fourth of the total Megawatt-hours (MWh) needed to comply in 2007 will have to be generated in 2005 and 2006. We see no feasible method by which to obtain all of the solar MWh needed for compliance in 2007 in that year alone. That leads us to the inevitable conclusion that we cannot wait even three or four months to finalize the program rules.

It is our position that Amendment 37 does not provide relief in the circumstance where delay in early implementation is the root cause of a failure to meet the statutory requirements. To the contrary, we believe there is an affirmative obligation that must be met in the first compliance year – even if that obligation requires solar installations prior to 2007. It is the obligation of the QRU's to initiate whatever actions are needed prior to 2007 to ensure compliance occurs.

Because our analysis shows that action is required almost immediately, we are most concerned about any additional delays in developing the program construct. Accordingly, we will continue to press ahead with all due efforts to have a program developed that can allow for solar installations as soon as possible. This is in



our mutual interest to meet the goals of Amendment 37. It is also the reason for our increasing alarm at the lack of any substantive response or counteroffer to the detailed program rules you received well over a month ago.

We continue to believe that the program we provided can be implemented immediately; will not exceed the monetary caps in Amendment 37; and will allow you to meet the solar requirements. We stand ready to negotiate the details of our plan or discuss any alternative that you think will work. However, we underscore that our plan will not be successful if implementation is further delayed. Moreover we see no alternative plan that can be developed and implemented successfully if implementation occurs after 2005. Time is of the essence if we expect success on meeting the Amendment 37 goals.

On behalf of PV Now,

*Thomas Leyden /s/*

Thomas Leyden,  
Chairman

cc. WRA, CoSEIA, T. Wooley, Esq., Co PUC, PV Now members



The calculation of a utility's *nominal* weighted average cost of capital is a simple three-step procedure.

1. Weight the cost of long-term debt by multiplying it times the percentage of debt in the utility's total capitalization;
2. Weight the cost of common equity (which is its authorized return on equity) by multiplying it by the percentage of equity in the utility's total capitalization;
3. Add the weighted cost of debt to the weighted cost of equity.

The sum is the utility's weighted average cost of capital, which is also its authorized return on rate base. The following example illustrates this calculation for a hypothetical utility with a capital structure of 50% debt and 50% equity, with a 7% cost of debt and an authorized return on rate base of 10.5%.

Capitalization	Capitalization Ratio	Cost	Nominal Weighted Cost
Long-Term Debt	50%	7.00%	3.50%
Common Equity	50%	10.50%	5.25%
Total	100%		8.75%

### Example 1. Calculation of Nominal Weighted Cost of Capital

When calculating a utility's revenue requirement, one must take into account the fact that the utility pays income tax on its earnings (return on equity). It is common regulatory practice in Colorado to "gross up" a utility's return on rate base (weighted average cost of capital) in setting rates so that the revenue requirement results in the authorized return *after* the utility has paid income taxes on its return on equity. Thus, Colorado regulators permit a utility to earn a *pre-tax* return on rate base that is higher than its nominal return on rate base, so that after the utility pays income tax, it is left with its authorized ("nominal") return.

One way to calculate a utility's pre-tax weighted average cost of capital is to calculate the gross-up factor. The gross-up factor may be calculated in the following manner.

1. Determine the utility's state and federal income tax rates;
2. Calculate the utility's effective tax rate (the effective tax rate reflects the fact that state income tax payments are a deductible expense on a utility's federal income tax return);
3. Calculate the gross-up factor.

Suppose that a utility's Colorado income tax rate were 4.63% and its federal income tax rate were 35%. If  $C$  is the Colorado income tax rate and  $f$  is the utility's federal income tax rate, then the following formula will calculate the effective tax rate:

$$((1 - C) * f) + C$$

Substituting the hypothetical tax rates, we get

$$((1 - .0463) * .35) + .0463 = (.9537 * .35) + .0463 = .333795 + .0463 = .380095$$

This is 38.0095%, which we might round to 38.01%.

If  $e$  is the effective tax rate, then the gross-up factor,  $g$ , may be calculated by the following formula:

$$g = 1 + \frac{e}{1 - e}$$

Substituting .3801 for  $e$ , we find that

$$g = 1 + \frac{.3801}{1 - .3801} = 1 + \frac{.3801}{.6199} = 1 + .61316 = 1.61316$$

The next step is to use the gross-up factor (1.61316) to calculate the utility's *pre-tax* weighted average cost of capital. The gross-up factor applies only to the utility's authorized return on equity, and it is applied as an additional "weight" to the weighted cost of equity. Thus, looking back to Example 1, we would create a new table, with two additional columns.

Capitalization	Capitalization Ratio	Cost	Nominal Weighted Cost	Tax Factor	Pre-Tax Cost
Long-Term Debt	50%	7.00%	3.50%	1	3.50%
Common Equity	50%	10.50%	5.25%	1.61316	8.47%
Total	100%		8.75%		11.97%

### Example 2. Calculation of Pre-Tax Weighted Average Cost of Capital

As we have just seen, we consider the effects of income tax when calculating a utility's revenue requirement. Similarly, we must consider the effects of income tax when calculating a utility's discount rate—the cost to the utility of obtaining capital. When calculating a revenue requirement, we "gross up" the earnings to account for the taxes the utility will pay on the earnings. When calculating the cost to a utility of obtaining capital, we must "gross down" the cost to reflect the fact that the interest paid on long-term debt is an expense that is deductible from the utility's tax return. This is a straightforward calculation: the "true" cost of a utility's debt is the nominal cost of debt weighted by  $1 -$  the utility's effective tax rate. In our hypothetical example, the effective tax rate was 38.01%, so  $1 - .3801 = .6199$ , so we weight the cost of debt by .6199 to find the utility's after-tax weighted average cost of capital, which is the appropriate discount rate for the utility. Using the figures from Examples 1 and 2, we find the after-tax weighted average cost of capital, and the discount rate, is 7.42%

Capitalization	Capitalization Ratio	Cost	Nominal Weighted Cost	Tax Factor	Post-Tax Cost
Long-Term Debt	50%	7.00%	3.50%	.6199	2.17%
Common Equity	50%	10.50%	5.25%	1	5.25%
Total	100%		8.75%		7.42%

### Example 3. Calculation of After-Tax Weighted Average Cost of Capital