ITEM NO. 2

PUBLIC UTILITY COMMISSION OF OREGON
STAFF REPORT
PUBLIC MEETING DATE: December 18, 2012

REGULAR X **CONSENT** ____ **EFFECTIVE DATE** **January 1, 2013**

DATE: December 5, 2012

TO: Public Utility Commission

FROM: John Crider JC JE

THROUGH: Jason Eisdorfer and Maury Galbraith MWF

SUBJECT: OREGON PUBLIC UTILITY COMMISSION STAFF: (Docket No. UM 1505) Adoption of Oregon Solar Photovoltaic Volumetric Incentive Program 2013 Legislative Report required by HB 3039 (2009) to be delivered to the Legislature by 1/1/2013.

STAFF RECOMMENDATION:

Staff recommends that the draft 2013 biennial Legislature report on the Solar Photovoltaic Volumetric Incentive Program be revised for delivery to the Oregon Legislature on January 1, 2013.

DISCUSSION:

The 2009 Legislature enacted House Bill 3039 to establish a pilot program to examine the effectiveness of a production-based incentive in the development of solar photovoltaic (PV) systems. The bill allows customers in the Portland General Electric (PGE), PacifiCorp and Idaho Power service territories to be paid directly for energy produced from their solar systems at a rate defined by the Commission. The bill requires three biennial reports on the program, to be delivered to the Legislature on January 1 of 2011, 2013 and 2015.

Docket UM1452 was established in 2009 to develop the Volumetric Incentive Rate (VIR) program parameters and to allow input from parties interested in the program design. Several candidate designs were discussed before the Commission resolved to implement a net-metering and competitive-bidding based solution. Order 10-198 established the pilot program design. Docket UM 1505 was opened to present the draft legislative reports and provide an opportunity for parties to offer comments for inclusion in the final reports.

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Summary of Comments & Staff Response

The 2013 biennial draft report was released for comments to all parties in both Docket UM 1452 and UM 1505, on November 21, 2012. Parties replied with comments on December 5, 2012. Comments were received from Oregonians for Renewable Energy Policy & Oregon Interfaith Power and Light (OREP/OIPL), Citizens Utility Board (CUB), Renewable Northwest Project (RNP), Energy Trust of Oregon (ETO), Oregon Solar Energy Industries Association (OSEIA), Oregon Department of Energy (ODOE), Industrial Customers of Northwest Utilities (ICNU), Idaho Power Company (IPCO), and Portland General Electric (PGE).

Comments received from parties centered on eight general topics.

1) Cost to Participants: All legitimate cost components to the participant have not been included in the net cost calculations used to determine payback times and internal rate of returns (IRRs).

OREP notes that operational expenses for project participants have not been included in the total net cost calculations. In turn, failure to capture these costs results in shorter calculated payback times and an overstatement of potential IRRs. OREP further notes that the net cost to a participant will be affected by the degradation of the solar panels over time. It is a fact that a solar panel will produce less output as time goes by and in the case of the VIR this implies a reduction in the incentive revenue stream over time (thereby increasing the net cost of the project).

OREP is correct in noting that the simplified payback and IRR calculations used to compare the rebate/tax-credit incentive approach to the VIR did not include all the possible costs incurred by participants in either program. As OREP points out costs to the participant for meter charges and additional insurance were not included.

Staff believes that there are numerous incidental maintenance costs associated with the operation of a solar PV system, such as cleaning, electrical maintenance and such, and that these costs will be borne independent of the incentive program. Since these costs may occur regardless of which incentive program the system is installed under, it is simpler to disregard these costs without affecting the overall comparison between

programs. However, Staff recognizes that OREP is correct in identifying several costs which are unique to the VIR program, namely an additional insurance requirement and meter charge. Staff has included an estimate of these costs in compiling revised cost calculations for the final report.

Staff notes that both rebate/tax-credit systems and VIR systems will suffer panel degradation over time. However, only those systems under the VIR will realize a reduction in the incentive due to this fact. Therefore, Staff agrees with OREP that the decreasing nature of VIR payments over time should be accounted for in calculating the net cost. Based on a cursory literature review, Staff assumes an average degradation for panels is 0.8 percent/year[1] and has recalculated cost statistics accordingly.

2) Administrative Cost Calculations: Assumptions regarding future projected administrative costs are not clearly stated and the cost estimates appear to be imprecise.

ICNU suggests a more detailed cost presentation, especially of administrative costs, to allow readers a better understanding of how the expenses are allocated.

OREP appreciates the reporting detail of PacifiCorp's biannual reporting format. PacfiCorp has broken program costs into categories of "VIR payments", "enrollment costs", "meter installation costs", "ongoing costs", "energy value" and "meter revenue." This categorical accounting of costs allows the reader to quickly assess the relative magnitudes of cost items, and to better grasp the components of the rate impacts.

OREP notes that such detailed accounting will allow readers to identify cost estimates that seem counter-intuitive, and may present an opportunity to revisit the cost estimates that at first reading do not appear intuitive or logical.

OREP suggests that the incentive payments and administrative costs should be clearly and separately identified in the report.

Staff agrees that a separation of administrative costs from VIR payments would add clarity to the discussion and will incorporate the suggestion.

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[1] According to *Photovoltaic Degradation Rates — An Analytical Review*, Dirk C. Jordan and Sarah R. Kurtz; To be published in Progress in *Photovoltaics: Research and Applications*, Journal Article, NREL/JA-5200-51664, June 2012

Staff agrees that the more itemized the cost account reporting, the more clearly the actual administrative costs can be presented. Staff joins with OREP in suggesting that PGE adopt a cost reporting format similar to PacifiCorp that allows for clear and transparent categorical accounting of all administrative costs. A standard reporting format would allow Staff and others to more easily track the significant cost components of the programs. Staff suggests that more complete reporting on these cost components will positively inform the final report on the pilot program in 2015.

3) Presentation of Rate Impacts: The rate impact estimates lack detail and clarity.

RNP notes that without all costs and system benefits identified, rate impact estimates should be considered preliminary, and cost accounting should be ongoing. OREP also notes that more detailed and categorized administrative cost reporting will allow for more accurate estimation of rate impacts, and provide transparency

RNP recommends clarifying language to the effect that the accounting methodology for determining costs is still evolving and any results contained herein are preliminary and indicative only. RNP correctly notes that not all costs to administer the program are included in the draft report, and that all system values due to the solar resource have yet to be identified. Without this data, total program costs and resulting rate impacts are difficult to determine accurately.

ICNU recommends that Staff revise the draft report to include a more substantive discussion of the retail rate impacts, and is concerned that the report may not meet the statutory reporting requirement. ICNU suggests a finer breakdown of the rate impact data including a presentation of how each rate schedule is impacted.

PGE suggests that further evaluation of how costs of the VIR program are borne by rate classes should be undertaken to evaluate whether certain rate classes bear a disproportionate share of the costs. PGE wonders whether there is unfair shifting of costs between rate classes. PGE also believes that the report should evaluate the rate impacts of the VIR program in more detail, and to determine if fixed costs are shared equitably among rate classes.

Staff agrees with the parties that a rate impact evaluation is one of the most important aspects of the pilot program reporting requirements. However, Staff notes that most of the rate impact information provided by the utilities thus far has been based on assumptions and projections. With only two years of actual data available, Staff believes that a complete and accurate analysis of rate impact to the detail suggested by the parties is not possible at this time. However, Staff notes that the vast majority of the

program cost is represented by the VIR payments, and these can be estimated accurately since the total capacity allocation is known.

Staff will expand the Rate Impact section of this report to the extent possible with the current data and cost projections. Staff will note in the draft report that the current projections of program costs are rough estimates and are subject to change over the course of the next several years as actual data becomes available.

Staff recommends that a comprehensive analysis of rate impact as suggested by ICNU and PGE be undertaken after the last pilot enrollment season, at which time a more complete accounting of the costs involved will be available. For this report, Staff believes it is appropriate and adequate to present the utility rate impacts as currently projected, with clear descriptive text indicating the preliminary nature of the estimation.

4) Solar Resource Value: Energy values and additional benefits to the utility represented by the solar resource are not consistent between utilities and are not all-inclusive.

One part of the rate impact calculation relies on estimating the value of the solar resource to the utility. There is a core value of the solar energy produced, but the Companies differ greatly in their valuation of that energy. Further, the Companies do not include any additional system benefits of distributed solar generation, such as line-loss savings, capacity value, peak-reduction benefits, and the like. OREP has commented that failure to include these offsets will overestimate the net cost of the program, and thus overstate the resulting rate impact of the program.

RNP also points out that system benefits to the utility remain unassigned, and until these can be accurately estimated, the rate impacts will be difficult to quantify.

OREP also points out that although PGE's estimated energy value increases over time, as one might expect, PacifiCorp's estimation is constant over time – an unlikely scenario.

Staff agrees that the utilities' estimates of program costs at present do not include all the potential offsets. Properly valuing the energy, including line losses, and the non-energy attributes of distributed solar generation will reduce the overall net cost of the program. At this time, however, there is little agreement among the parties regarding the

process for determining these benefits. This issue is currently being examined in Commission Docket UM 1559 and Staff assumes that determinations made under UM 1559 will be available to inform the final cost analysis of the pilot program in 2015. Staff also notes that Order 12-396 clearly states that the Commission is not ready at this time to take action regarding these non-energy attributes. For the purpose of this report Staff suggests no change to the utilities' calculation of cost offsets, and reiterates the need to clearly identify all cost projections as "preliminary" and as estimates in the text.

5) Comparison of Rebate/Tax-Credit Incentives and VIR: Further analysis of the role of performance incentives vs. capacity incentives should be undertaken

CUB raises a concern that the VIR program does not address the issue of upfront-cost reduction and that this remains a major obstacle to PV system installation. CUB is concerned that if the VIR program were chosen to replace the rebate/tax-credit incentive program, it could act as a disincentive to those participants whose primary concern is upfront cost. CUB further points out that through the survey answers, the participants themselves find the upfront costs and the payback times very important in their decision making.

RNP points out that the implementation of an incentive program has as much bearing on the administrative burden and cost as the incentive type. RNP suggests a more technical and economic comparison of a production incentive program to a rebate/tax credit program be undertaken.

OSEIA reiterates the importance of economics in the decision to choose an incentive program. OSEIA asserts that upfront capital costs are sometimes too high for commercial customers to carry, and that obtaining financing is often not a viable alternative.

PGE suggests producing a direct cost comparison between net metering and the VIR program, noting that the cost to the utility ratepayers is much higher under the VIR than under traditional net metering.

Staff agrees that the two incentive programs offer different types of financial relief. The rebate/tax-credit system offers assistance on a capital-cost basis; the VIR offers assistance on a cash-flow basis. Staff believes that the fact that both programs are well-utilized reflects a need for both kinds of financial assistance in the community.

Staff believes the draft report is clear in stating that for many participants covering upfront costs is more important than future cash-flow and for this reason it is advantageous to have a choice of incentive programs that meet different needs.

Staff reiterates its belief that a complete calculation of costs and rate impacts is not possible at this time due to incomplete data; however, when this actual data is available at the end of the pilot, a complete cost analysis and rate impact study should be performed.

6) Rebate/Tax-Credit Incentive and VIR Comparison: The descriptive comparison of current programs to the VIR program is somewhat simplified.

CUB notes that the survey results point to the fact that many VIR participants are not aware of the nuances of the program requirements. This fact runs counter to the statement in the draft report that the VIR is easier to understand.

The draft report suggests one reason the VIR program may appear "easier" is that the contractor completes the application and paperwork for the participant.
ETO and OSEIA both point out the fact that this is true under *both* incentive programs.

ETO raises a question as to whether the report implies that VIRs are inherently more stable and thus administrative changes to streamline the rebate/tax-credit program should be abandoned.

ETO offers examples of how these two incentive systems often offer complementary options to participants. ETO mentions that a property owner may be anticipating a sale of the property in less than 15 years and would perhaps prefer an incentive that is fully paid out in 5 years. If, on the other hand, the owner of the property is certain of holding that property for 30 years, they may find that the VIR program offers a higher incentive amount over time. ETO offers a second example where one program might have capacity caps or other limits which do not apply to the other program, again offering a participant an alternative based on their circumstance.

ETO suggests that the "...complete independence of the VIR and the ETO incentive rate-setting processes diminishes the value of comparing participants financial payback or return on investment in the two programs".

RNP notes that when comparing the two incentive systems, the implementation rules can have as great an effect on the perceived stability, certainty and administrative

burden as the nature of the incentive itself. RNP notes further that in either incentive program, the ability to react quickly to a dynamically changing commodity environment is critical to avoid paying more than necessary for incentives.

Staff agrees with Parties that the contractor's assistance with necessary paperwork is common to both incentive programs and will remove the comparison from the final report.

Staff respectfully disagrees with ETO about the value of comparing financial payback between the programs, noting that the ultimate measure of success of either program is the amount and deployment rate of solar generation resources, given each program's limits. As revealed in the survey data, financial considerations such as capital cost and future cash-flow issues are important considerations to virtually all of the participants. It stands to reason that participants will take into account such financial metrics as IRR and simple payback when they are deciding whether or not to build and which incentive to pursue. Staff believes the comparison of the two programs on an IRR/payback basis is reasonable and constructive.

Staff recognizes the general truth of RNP's statement regarding implementation rules but believes that the inherent responsiveness of an automatic mechanism (such as the VIR ARAM) provides an efficient and flexible rate adjustment.

Staff reiterates, and believes the report states, that both programs have administrative merits and drawbacks. Contrary to abandoning the rebate/tax-credit program, Staff believes that each program can be improved by assessing the strengths of the alternative program, and attempting to incorporate these aspects if possible.

Staff recognizes CUB's valid point that some nuances of the VIR program are not understood as shown by the survey results. However, Staff's point is that the calculation of a performance-based incentive is often simpler than the calculation of a capacity incentive, due to the potential added complexity of understanding tax code when determining a capacity incentive. Staff will rephrase this section in the final report to better clarify this idea.

7) VIR is not a Feed-In Tariff: A true feed-in tariff would be more efficient, certain and transparent if designed without the constraints of the "net-metering plus" approach of the VIR program

OSEIA disagrees with the report assertion that the VIR incentive is "simple, transparent and easy for anyone to understand". OSEIA continues to point out that many

participants in the survey were unaware of some of the aspects of the VIR program, and that in fact the rebate/tax-credit system of incentives is more straightforward.

Staff reiterates that the intention of this phrase was to highlight that the calculation of the incentive amount may be much more straightforward with a performance-based incentive than a capacity-based incentive. In the latter it may be necessary to understand additional nuances of tax code, both federal and state, before calculating the incentive amount. In the former, the incentive is calculated simply as the rate times the energy output. Staff will rephrase this section to provide clarity.

8) Corrections: Factual corrections and editorial changes

OREP correctly notes that income taxes, although used as an input to the original VIR evaluation model, were not ultimately a factor in determining VIR rates. Staff will remove the phrase in question.

OREP has requested clarity in the presentation of the VIR Bid History tables. Staff concurs with OREP's recommendations and has incorporated these changes in the report.

RNP suggests including an executive summary in the final report and offers suggestions as to its content. Staff concurs that an executive summary would be an excellent addition and will include one in the final report.

ETO suggests noting which of the bid projects received capacity reservations and which did not. Staff sees the value in this suggestion and will incorporate this into the final report.

ODOE correctly notes that the subtitle of section III Data Analysis should be revised to include RETC/BETC incentives as a package with ETO incentives. ODOE suggests the term "legacy incentives" be used throughout the report to mean the combination of ETO cash incentives and RETC/BETC tax credits. Staff recognizes the need for consistent and descriptive term for the existing program of incentives and will use the term "rebate/tax-credit" throughout the draft report to describe the combination of ETO and tax credit incentives.

The draft report states that the "...participant must incur a high enough tax liability in order to fully utilize the benefits of the tax credits." ODOE correctly notes that this statement is only partially true since the BETC does allow for pass-through of tax

benefits. Staff concurs that there is need for clarification of this fact and will include such in the final report.

OREP contends that the reason for the adoption of four different geographic zones in the pilot plan was to ensure consistent financial viability of projects across the state. Staff will include this clarification.
OREP suggests there may be confusion in understanding the Bid History chart. Staff concurs and will provide different graphics for this information in the final report.

ETO believes that the installed cost data presented in Figure 4 is not consistent regarding the time at which the costs are calculated. Staff will research this issue further and revise the values in Figure 4, if necessary.

IPCO clarifies that while the report states VIR participants "will" receive VIR payments and "will" receive payments equal to the resource value after termination of the original contract, the term "will" should be changed to "may" to be consistent with the applicable statute. Staff concurs that this change should be made in the final report.

IPCO notes that the report refers to Idaho Power's pilot program being restricted to residential systems but that this is not technically accurate. Instead, the Idaho program is restricted to "small-scale" systems, but these could include commercial installations. Staff will correct this error in the final report.

IPCO also notes that although a lottery system was instituted for PGE and PacifiCorp service areas, Idaho's program remained a "first come, first served" system throughout and no lottery system was mandated. Staff will correct this misstatement in the final report.

PROPOSED COMMISSION MOTION:

The draft 2013 biennial Legislature report on the Solar Photovoltaic Volumetric Incentive Program be revised as indicated above for delivery to the Oregon Legislature on January 1, 2013.

UM 1505