BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

Investigation of the cost and benefits of distributed generation and the effect of distributed generation on utility provision of electric service	Docket No. UE-131883

COMMENTS OF THE ALLIANCE FOR SOLAR CHOICE

The Alliance for Solar Choice ("TASC") respectfully submits these comments pursuant to the Washington Utilities and Transportation Commission's ("Commission's") October 15, 2013 Notice of Recessed Open Meeting and Notice of Opportunity to file Written Comments ("Notice") in the above-captioned docket. The Notice requests comments designed to assist the Commission in understanding the costs and benefits of distributed generation (DG) with respect to Washington's investor-owned utilities ("IOUs"). In particular, the Commission identified an interest in "examining the effects of DG, including that of net metering on the relationship between revenue from rate schedules and between revenue derived from individual customers within a rate schedule."[1] The Commission has also scheduled a workshop on these topics for November 13, 2013. TASC appreciates the opportunity to file these comments on the topics identified by the Commission, and we look forward to discussing the topics raised in the Notice further at the workshop.

I. The Alliance for Solar Choice

TASC advocates for maintaining successful distributed solar energy policies, like retail net metering, throughout the United States. Members of TASC represent the majority of the nation's rooftop solar market and include REC Solar, SolarCity, Solar Universe, Sungevity, Sunrun and Verengo Solar. These companies are important stakeholders in net metering policies

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1 Notice at pg. 1.

and programs at both the state and national levels, and are responsible for thousands of residential, school, government and commercial solar installations.

TASC was formed on the belief that everyone should have the option to benefit from distributed solar power and to realize the financial benefits thereof. The rooftop solar market in Washington has been driven by the desire of citizens to assert control over their electric bills and to promote economic development through the creation of a robust solar market, which are objectives that TASC fully supports. TASC is committed to vigorously defending and promoting retail net metering, which provides a fair credit to residents, businesses, schools, and public agencies in exchange for the benefits their solar systems provide when they export excess energy to the grid.

To support this effort, TASC's member companies have developed extensive experience concerning the assessment of the costs and benefits of distributed generation, such as solar, and have participated in stakeholder or regulatory proceedings in Arizona, California, Colorado, Minnesota, Nevada, New Mexico, Vermont, and Virginia that have pursued answers to the same questions as those the Commission poses here. As such, TASC is uniquely and intimately familiar with the technological, operational and ratemaking elements of net metering.

II. Comments

a. Examination of the Costs and Benefits of Distributed Generation in Washington Are Premature

TASC appreciates the Commission's interest in understanding the costs and benefits of DG with respect to Washington's IOUs and the impact that the growth of DG resources can have on revenue from particular rate schedules and between individual customers within a particular rate schedule. As the Commission notes in the Notice, stakeholders are engaged in these discussions across the country. In particular, these conversations are taking place in states that have a relatively high penetration of net metered DG resources such as California, with 495 megawatts (MW) of net metered systems installed in 2012[2] for a cumulative total of 1863 MW[3], and Arizona, with 135 MW of net metered systems installed in 2012[4]. In contrast, the installation of net metered DG in Washington is at much lower levels with 7.2 MW of net metered DG was installed in Washington during 2012.[5] To the extent the Commission's examination of the costs and benefits of DG resources and how DG resources impact utility revenue is motivated by concerns over the existence of a significant cost shift from non-participating ratepayers to ratepayers who invest in DG resources, TASC believes the Commission's concern appears premature as the penetration of net metered DG in Washington is still very small, and, therefore, any revenue impacts from these resources are likely to be quite limited.

b. Accurate and Transparent Analysis of the Costs and Benefits of Net Metered DG Requires Careful Consideration

In order to accurately and fairly understand the costs and benefits of net metered DG, careful attention must be paid at the outset to understanding what is going to be measured and then determining what are best practices for doing so. Because the "field" of cost-benefit studies of net metering and DG has changed and improved greatly in recent years, we appreciate the Commission's identification for discussion at the workshop of studies performed in Washington or other states that estimate the costs and benefits of DG to utility customers and methodologies those studies used to arrive at their conclusions. The most recent studies include:

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2 See Sherwood, L., *U.S. Solar Market Trends 2012*, July 2013, Interstate Renewable Energy Council at pg. 20. Available at http://www.irecusa.org/wp-content/uploads/2013/10/Solar-Rpt_Oct2013_FINAL.pdf.

3 See Installed MW tracker at http://gosolarcalifornia.org.

4 See Sherwood, L., *U.S. Solar Market Trends 2012*, July 2013, Interstate Renewable Energy Council at pg. 20.

5 See id. at 21.

- California PUC / E3 2009-2010 Net Energy Metering Study.[6]
- California PUC / E3 2010 CSI Study.[7]
- Perez/Hoff, Solar in U.S. – "Too expensive or a Bargain?"(2011).[8]
- Austin Energy Value of Solar, Clean Power Research (CPR), Updated in 2012.[9]
- NYSERDA, Solar in NY, January 2012.[10]
- Value of Solar DG in PA and NJ, CPR, November 2012.[11]
- State of Vermont, January 2013 Net Energy Metering study.[12]
- Crossborder Energy, California Net Energy Metering Study, January 2013.[13]

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6 *Net Energy Metering Cost Effectiveness Evaluation*, E3 Consulting, March 2010. Available at http://www.cpuc.ca.gov/NR/rdonlyres/0F42385A-FDBE-4B76-9AB3-E6AD522DB862/0/nem_combined.pdf.

7 *CSI Cost-Effectiveness Evaluation*, E3 Consulting, April 2011. Available at ftp.cpuc.ca.gov/gopherdata/energy_division/csi/CSI%20Report_Complete_E3_Final.pdf.

8 Perez, R., Zweibel, K., Hoff, T., *Solar Power Generation in the US: Too Expensive, or a Bargain?*. Energy Policy 39, 2011. pp. 7290-7297. Available at http://cleanpower.com/wp-content/uploads/Solar-Power-Generation-in-U.S.-too-expensive-or-a-bargain.pdf.

9 Rabago, K., Norris, B., Hoff, T., *Designing Austin Energy's Solar Tariff Using A Distributed PV Calculator.* Clean Power Research & Austin Energy, 2012. Available at http://www.austinenergy.com/About%20Us/Newsroom/Reports/solarGoalsUpdate.pdf.

10 "New York Solar Study: An Analysis of the Benefits and Costs of Increasing Generation from Photovoltaic Devices in New York," New York State Energy Research and Development Authority (NYSERDA), January 2012. Available at http://www.nyserda.ny.gov/Publications/Program-Planning-Status-and-Evaluation-Reports/Solar-Study.aspx.

11 Rabago, K., Norris, B., Hoff, T., *Designing Austin Energy's Solar Tariff Using A Distributed PV Calculator.* Clean Power Research & Austin Energy, 2012. Available at http://www.austinenergy.com/About%20Us/Newsroom/Reports/solarGoalsUpdate.pdf.

12 "Evaluation of Net Metering in Vermont Conducted Pursuant to Act 125 of 2012," Vermont Public Service Department, January 15, 2013. The staff of the Vermont PSC performed an extensive literature search in its January 2013 Evaluation. The report, along with a matrix of other studies it reviewed can be found at http://publicservice.vermont.gov/sites/psd/files/Topics/Renewable_Energy/Net_Metering/Act%20125%20Study%2020130115%20Final.pdf .

13 "Evaluating the Benefits and Costs of Net Energy Metering in California," January 2013, Crossborder Energy. Available at http://votesolar.org/wp-content/uploads/2013/07/Crossborder-Energy-CA-Net-Metering-Cost-Benefit-Jan-2013-final.pdf.

- Crossborder Energy, Cost-Benefit Study of Solar DG in Arizona Public Service (APS) territory, May 2013.[14]

- SAIC, APS Net Energy Metering Study, May 2013.[15]

- Crossborder Energy, Idaho Power testimony, May 2013.[16]

- RMI, Solar Valuation Meta-Study, July 2013.[17]

- IREC and Rábago Energy, LLC, "A Regulator's Guidebook: Calculating the Benefits and Costs of Distributed Solar Generation," October 2013. (Regulator's Guidebook)[18]

Careful review of these studies will show significant variation in the methodologies used to evaluate the resources being studied. Good starting points on understanding the differences between these studies are the Rocky Mountain Institute's recent comparative, meta-analysis of the main DG cost-benefit studies completed in the last several years and the detailed literature review that the Vermont Commission assembled in support of its January 2013 net metering study.[19] In addition, the Interstate Renewable Energy Council and Rábago Energy, LLC recently

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[14] "The Benefits and Costs of Solar Distributed Generation for Arizona Public Service," Crossborder Energy, May 8, 2013. Available at http://www.seia.org/sites/default/files/resources/AZ-Distributed-Generation.pdf.

[15] "2013 Updated Solar PV Value Report, Arizona Public Service," by SAIC Energy, Environment and Infrastructure, LLC. Available at http://www.solarfuturearizona.com/2013SolarValueStudy.pdf.

[16] "Direct Testimony of R. Thomas Beach" for the Idaho Conservation League, May 10, 2013. Submitted in Case No. IPC-E-12-27. Available at http://www.puc.idaho.gov/fileroom/cases/elec/IPC/IPCE1227/intervenor//IDAHO%20CONSERVATION%20LEAGUE/20130510BEACH%20DIRECT.PDF.

[17] "A Review of Solar PV Benefit & Cost Studies," Rocky Mountain Institute, 2013. See http://www.rmi.org/Knowledge-Center/Library/2013-13_eLabDERCostValue.

[18] Keyes, Jason B., Rábago, Karl R., Regulator's Guidebook: Calculating the Benefits and Costs of Distributed Solar Generation, Interstate Renewable Energy Council, Inc. and Rábago Energy, LLC, October 2013. Available at http://www.irecusa.org/wp-content/uploads/2013/10/IREC_Rabago_Regulators-Guidebook-to-Assessing-Benefits-and-Costs-of-DSG.pdf.

[19] "A Review of Solar PV Benefit & Cost Studies," Rocky Mountain Institute, 2013. Available at http://www.rmi.org/Knowledge-Center/Library/2013-13_eLabDERCostValue.

published a guide to assessing the costs and benefits of solar DG.[20] In this guide, the authors present a standardized approach to assessing the various benefits and costs of DG solar with an explanation of how to calculate them building off all of the studies done to date.

A number of important conclusions can be drawn from review of these studies that informs the Commission's request for discussion of the methods used to evaluate the costs and benefits of customer-sited DG and net metered DG (collectively "DG resources"): (1) net metered DG is not the same as customer-sited DG; (2) a diverse set of perspectives should be utilized to fully evaluate DG resources; (3) a long-term perspective on the value of DG resources is important to fully capture the benefits DG resources bring to the grid over their useful life; and (4) a comprehensive set of costs and benefits is essential to accurately valuing DG resources. Each of these conclusions is discussed below.

1. Net Metered DG is not the Same as Customer-sited DG

In TASC's view, one of the key conclusions from reviewing these studies and the analysis undertaken by RMI and IREC/Rábago Energy, LLC is that in discussing valuation of DG resources is important for all stakeholders to understand what specifically is going to be evaluated. Clarity on this point early on is essential because an analysis of the costs and benefits of "net metering" is frequently conflated with an analysis of the costs and benefits of "customer-sited DG". These terms should not be confused. Net metering is a billing policy, and customer-

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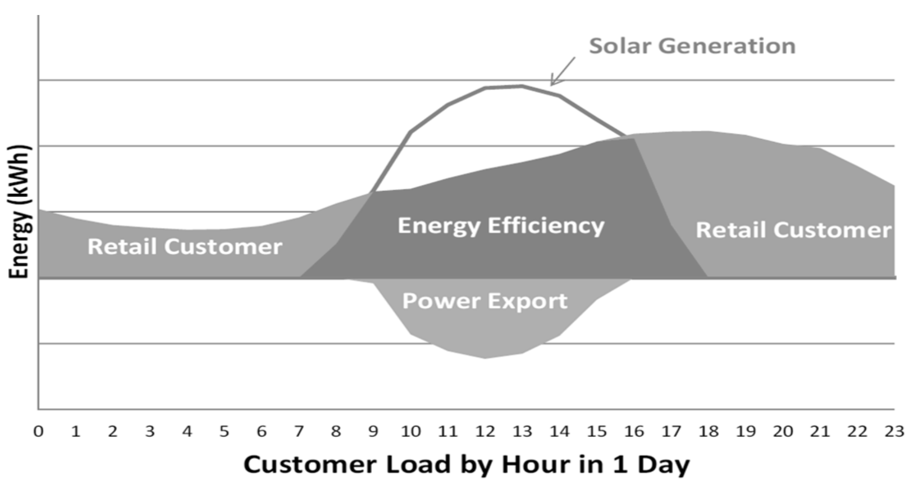
"Literature review summary for Vermont Act 125 evaluation of net metering," September 17, 2012, Vermont Public Service Department. See http://publicservice.vermont.gov/sites/psd/files/Topics/Renewable_Energy/Net_Metering/NM%20Lit%20Review%20011513.pdf.

20 Keyes, Jason B., Rábago, Karl R., Regulator's Guidebook: Calculating the Benefits and Costs of Distributed Solar Generation, Interstate Renewable Energy Council, Inc. and Rábago Energy, LLC, October 2013. Available at http://www.irecusa.org/wp-content/uploads/2013/10/IREC_Rabago_Regulators-Guidebook-to-Assessing-Benefits-and-Costs-of-DSG.pdf.

sited DG is an energy resource. While net metering has facilitated the installation of a significant number of customer-sited DG resources, only a portion of the costs and benefits from these resources can be attributed to net metering. We believe it is critical for stakeholders to recognize the difference between net metering and customer-sited DG in order to fully understand the nuances between appropriate methods for evaluating the costs and benefits of net metering as a policy tool to promote customer-sited DG.

Net metering is a billing arrangement that provides compensation through a bill credit at the applicable retail rate for power that is exported from a customer-sited DG system when that system produces more power than the host customer needs in any given moment. To illustrate how net metering works, Figure 1 shows the three different "states" of a residential net-metered PV system over the course of a day:



- **The "Retail Customer State."** There is no PV production at night. At this time, the customer is a regular utility customer, receiving all of its electricity from the grid.

- **The "Energy Efficiency State."** In this state, the sun is up, and there is some PV production but not enough to serve all of the homeowner's instantaneous load. The customer is supplied with power from the solar PV system as well as with power from the grid. The onsite DG reduces the customer's load on the grid in the same fashion as an energy efficiency measure. None of the solar customer's output flows out to the utility grid.

- **The "Power Export, or Net Metering, State."** In this state, the sun is high overhead, and PV production exceeds the customer's instantaneous use. The onsite solar power serves the house's entire load, and excess PV generation flows onto the grid, running the customer's meter backwards. As a matter of physics, this power will serve neighboring loads with 100% renewable energy, displacing power that the utility would otherwise generate at a more distant power plant and deliver to that local area over its transmission and distribution ("T&D") system. This state is the only one in which the customer's generation touches the grid.

These states demonstrate the two essential components of the net metering billing arrangement. The first component is that net metering only compensates the customer for power *exports*. Onsite generation from customer-sited DG that is not exported, *i.e.*, electricity generated in the Energy Efficiency State in Figure 1 when 100% of PV generation is consumed onsite, is not compensated through net metering. In that case, the customer simply uses her DG system to reduce her load, and the operation of the onsite DG system appears as a simple load reduction similar to that from the installation of a more energy-efficient air conditioner. Thus, the customer is only compensated in the Power Export State in Figure 1.

Where the first component relates to when the customer is compensated, the second essential component of net metering relates to how the customer is compensated. In net metering, "the meter runs backwards" based on the amount of kWh exported, compensating the customer for excess electricity through a bankable kWh bill credit based on the retail rate schedule on which the customer pays for energy.[21] Net metering does not involve a wholesale transaction where the utility buys the electrical output from a customer-sited DG facility at an avoided-cost price.[22]

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21 Wash. Rev. Code § 80.60.030

22 *Id.*

Thus, an analysis of the costs and benefits of net metering only addresses the Power Export State, the light gray area in the center of Figure 1. On the other hand, an analysis of the costs and benefits of customer-sited DG addresses the sum of the Power Export State and the Energy Efficiency State, that is, the sum of the light gray area and the dark gray area in the center of Figure 1.

Because net metering only addresses the compensation that the customer-generator receives for exports, any analysis of the costs and benefits of net metering should solely focus on those exports. The quantity and timing of net-metered exports from a solar DG unit depends on the hourly profiles of the customer's usage, the hourly profiles of the PV production, the relative size of the customer's load, and the relative size of the customer's DG system. Accordingly, a comprehensive and definitive analysis of the costs and benefits of net metering will require the modeling of exports with assigned costs and benefits on an hourly basis.[23]

2. Perspectives Used to Measure the Costs and Benefits of DG Resources Should Be Comprehensive

Another important take away from review of the studies enumerated above is that the best studies evaluate the costs and benefits of DG resources under a variety of perspectives:

(a) Society (e.g. The State of Washington);

(b) Customer-generators who participate in net metering;

(c) Customers of a utility who do not participate in net metering; and

(d) Each utility that offers net metering.

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[23] *See* "Evaluating the Benefits and Costs of Net Energy Metering in California," January 2013, Crossborder Energy. See http://votesolar.org/wp-content/uploads/2013/07/Crossborder-Energy-CA-Net-Metering-Cost-Benefit-Jan-2013-final.pdf; *Net Energy Metering Cost Effectiveness Evaluation*, E3 Consulting, March 2010. Available at http://www.cpuc.ca.gov/NR/rdonlyres/0F42385A-FDBE-4B76-9AB3-E6AD522DB862/0/nem_combined.pdf.

The perspectives enumerated are those that are typically examined in the cost-effectiveness tests used in Washington and many other states to evaluate other types of demand-side programs, including demand response and energy efficiency.[24] In the lexicon of such widely used cost-effectiveness tests, these perspectives comport with the following:

(a) Societal Cost Test[25]

(b) Participant Cost Test

(c) Ratepayer Impact Measure ("RIM") Test, and

(d) A Program Administrator Cost ("PAC") Test.

The Regulator's Guidebook provides further discussion on the differences between these tests so we will not repeat that discussion here.[26]

3. A Long-Term Perspective is Critical to Accurately Assessing the Costs and Benefits of DG Resources Especially When Considering Deferred T&D Costs.

When assessing the benefits and costs of DG resources, it is important to use a time frame that corresponds to the useful life of DG resources, which are typically 20 to 30 years. A long-term analysis is necessary in order to treat DG resources equally with other utility resources, both demand- and supply-side. When a utility assesses the merits of adding a new power plant, or a new energy efficiency program, the company will look at the costs to build and operate the plant or the program over their useful lives, compared to the costs avoided by not pursuing other

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24 *See California Standard Practice Manual: Economic Analysis of Demand-Side Programs and Projects*, October 2001. Available at http://www.energy.ca.gov/greenbuilding/documents/background/07-J_CPUC_STANDARD_PRACTICE_MANUAL.PDF.

25 The Societal Test is the Total Resource Cost Test including various externalities. Energy Division, California Public Utilities Commission, *Overview of Societal Cost Test Proposal*, June 6, 2013. Available at http://www.cpuc.ca.gov/NR/rdonlyres/B534A7BE-EF8D-4383-9FFC-42D69F1396EF/0/EnergyDivisionSCTProposalJune2013_DRAFT.pdf.

26 Regulator's Guidebook at pg. 14.

resource options. Thus, a key factor is that the analysis of net metering in Washington must cover the full 20- to 30-year life of typical DG resources.

DG resources can reduce peak demands on the utility grid, and thus allow the utility to avoid or defer long-term investments in T&D infrastructure. However, utilities often do not assess the impacts of demand-side resources with 20 to 30-year useful lives on their long-term need for T&D infrastructure capacity. For example, although integrated resource plans for generation typically look ahead for 15 to 30 years, utility transmission and distribution plans often have a much shorter time horizon of 3 to 5 years. Accordingly, it is often useful to use calculations of long-term marginal T&D costs to determine the T&D capacity costs that can be avoided if DG resources reduce peak utility loads. A standard approach to calculating long-term marginal T&D costs uses a regression of ten years of historical and five years of forecasted transmission or distribution investments as a function of the cumulative growth in peak demand over this period. Utilities often include such calculations in the marginal cost studies that they submit in rate cases.

4. Clearly Defining the Benefits and Costs of DG Resources From the Onset will Increase Transparency and Clarity of Any Subsequent Analysis

Review of the studies enumerated above will show that each study employed a different set of costs and benefits. However, the Regulator's Guidebook provides a thorough review of the common inputs used in each study and guidance on how each should be measured. Because identification of costs and benefits is such an important aspect of understanding the impacts DG resources have on utility revenue and customers in a transparent fashion, it is vital that the benefits and costs used in each test are clearly defined early in the stakeholder process. As a starting point for discussion on the methods used to value the costs and benefits of DG resources, TASC recommends the costs and benefits identified in the tables below, and provides a definition for each. Which costs and benefits should be included will depend on which perspective is being taken.

Costs	**Definition**[27]
Bill Credits	The bill credits or monetary value of kWh credits at the retail rate the utility provides to solar customers as compensation for net metered exports.
Administrative Costs	Any utility-incurred costs that exceed the comparable metering and billing costs for regular utility customers.
Ancillary Services and Grid Support	Ancillary services and grid support enable the reliable operation of a grid hosting customer-sited DG. The value of ancillary services and grid support can be either a net cost or a net benefit when compared with the costs that would otherwise be incurred without customer-sited DG. Therefore, these services are included in both the Costs Table and the Benefits Table. Such services include reactive supply, voltage control, frequency regulation, energy imbalance, operating reserves and scheduling/forecasting.

Benefits	**Definition**
Avoided Energy Costs	The cost of energy that would have otherwise been generated to meet customer needs.
Avoided Energy Losses	The value of the additional energy generated by central plants that would otherwise be lost due to inherent inefficiencies in delivering energy to the customer via the transmission and distribution system.
Avoided Capacity Costs for Generation	The cost and amount of generation capacity that can be deferred or avoided due to customer-sited DG.

27 The definitions provided in these tables have been taken from a variety of cost-benefit studies related to net metering and customer-sited DG.

Benefits	Definition
Ancillary Services and Grid Support	Ancillary services and grid support enable the reliable operation of a grid hosting customer-sited DG. The value of ancillary services and grid support can be either a net cost or a net benefit when compared with the costs that would otherwise be incurred without customer-sited DG. Therefore, these services are included in both the Costs Table and the Benefits Table. Such services include reactive supply, voltage control, frequency regulation, energy imbalance, operating reserves and scheduling/forecasting.
Avoided and Deferred Capacity Costs for T&D	The value of the avoided or deferred T&D infrastructure investments due to customer-sited DG.
Environmental Benefits	The saving realized from reduced air emission control or allowance costs, including those related to carbon, criteria air pollutants and reduced water use.
Avoided Renewables Costs	When customer-sited generation reduces onsite load, a utility does not have to procure as much renewable generation capacity to meet renewable portfolio standards (RPS). This reduction in procurement obligations results in cost savings. In addition, in Nevada, the utility today receives a direct credit (with a multiplier) toward its RPS requirements when it interconnects customer DG, and thus avoids the cost premium that it would incur to procure a comparable amount of renewable generation itself. Finally, customer-owned DG satisfies customer demand to be served with a penetration of renewable generation in excess of the utility's RPS requirements, and thus can avoid the costs which the utility would incur to meet such customer preferences through green pricing programs or other initiatives.
Fuel Price Hedge	The avoided costs a utility would otherwise incur to guarantee energy fuel costs are fixed.
Societal Benefits	Please see the next table.

Societal Benefits	Definition
Health Benefits	The reduction in societal costs from health risks, including reduced morbidity and mortality, related to air pollution from fossil-fuel production, transportation, and generation.

Societal Benefits	Definition
Energy Market Impacts	Customer-sited DG reduces the demand for fuel to power central station generators and for wholesale power in the wholesale electricity market. Reduced demands in these markets lowers prices across the entire market served, providing benefits for the general body of consumers who use these markets.
Security and Resiliency of the Electric Grid	The savings realized from (1) the reduction in outages from reduced congestion along the T&D network, (2) the minimization of large-scale outages resulting from a more diverse and dispersed electricity supply, and (3) back-up power provided by customer-sited DG.
Avoided Environmental and Safety Costs	The reduction in costs related to fewer land use impacts because customer-sited DG is installed in the already-built environment; the savings realized from avoided accidents, pollution and economic loss associated with the extraction, transportation, distribution, and processing of fossil fuels; and the reduced compliance costs related to a decrease in the extraction, transportation, distribution and proceeding of fossil fuels.
Effects on Economic Activity and Employment	The value from the increase in jobs and local economic development related to customer-sited DG and the resulting increase in welfare and economic productivity of children and working adults from the above health benefits.
Visibility Benefits	The increased recreation value and economic activity associated with improved visibility due to emissions reductions from power generation.[28]

We note that when conducting the analysis from the societal perspective a lower discount rate than the utility's weighted average cost of capital is appropriate, in recognition that the societal point of view is driven by long-term considerations, not by the utility's financial perspective.[29] For the societal discount rate, TASC recommends the use of the U.S. Treasury bond rate for a term comparable to the system life assumed (*i.e.*, 20 or 30 years).

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[28] This impact has long been quantified in traditional environmental impact analyses. *See, e.g.,* "The Benefits and Costs of the Clean Air Act from 1990 to 2020", Office of Air and Radiation, U.S. Environmental Protection Agency, p. 18 (March 2011).

[29] See Regulator's Guidebook at pg. 15.

c. **Stakeholders Should Recognize That the Findings of Other Studies Are of Limited Value in Assessing the Cost and Benefits of DG Resources in Washington.**

In the Notice, the Commission highlights recent work performed in California to assess the costs and benefits of net metered DG.[30] While it is important to recognize the latest work being done on evaluating the costs and benefits of DG resources, TASC believes it is equally important that the findings of any particular study from another state be considered very carefully and not be used to draw conclusions about what the costs and benefits of DG resources and/or NEM will be in Washington. As the Commission recognized in the Notice, the energy policy landscape of Washington is different from many other states. Most notably in the context of California's recent evaluation of net metering are the distinct differences in retail rates between California and Washington. Retail rate design has a direct and substantial impact on the costs and benefits of customer-sited DG and studies in other states. For example a January 2013 Crossborder Energy study shows that rate design changes, such as greater customer adoption of time-of-use rates, can affect the value of net metering and the economics of installing solar for participating customers.[31] The recent study E3 developed regarding California's NEM program also observes throughout that a key driver of the results is rate design and that significant changes to rate design would significantly impact the results.

Moreover, the E3 Study suffers from a number of serious flaws that detract from it being considered as a solid example of best practices in DG cost-benefit methodologies including:

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30 See "California Net Energy Metering Ratepayer Impacts Evaluation," October 2013. California Public Utilities Commission – Energy Division, technical report prepared by Energy and Environmental Economics, Inc. Available at http://www.cpuc.ca.gov/NR/rdonlyres/6A08D3C5-778B-43A2-80DF-1652968C1C78/0/FinalNEMReport.pdf (E3 Report).

31 "Evaluating the Benefits and Costs of Net Energy Metering in California," January 2013, Crossborder Energy. See http://votesolar.org/wp-content/uploads/2013/07/Crossborder-Energy-CA-Net-Metering-Cost-Benefit-Jan-2013-final.pdf.

- The E3 Study inappropriately included energy used on-site in assessing the impacts of net metering. As discussed above, when assessing the rate impacts of net metering as a policy, it is important that the study be limited to assessing the costs and benefits of energy exported to the grid only.

- The E3 Study used outdated 2011 rates despite significant changes to residential rates in California since 2011. Throughout the study, as mentioned above E3 notes that rate design plays a fundamental role the calculations performed in the Study. Yet, when E3 calculated customer bill savings, E3 utilized outdated 2011 rates. Moreover, rates in California are expected to change substantially in the near future due to enactment of recent legislation that removes rate caps on lower-tiers of energy use and authorizes new fixed charges.[32] As a result, the conclusions from the E3 Study are already out of date.

- The E3 Study failed to include avoided high voltage transmission costs despite numerous studies recognizing that because DG resources are located on or close to load on the distribution system during peak load periods, it decreases peak loading on the transmission system.[33] Of particular note is the findings of the 2009 CSI Impact Evaluation Report that at Californa's current level of installed capacity (1853 MW)[34] the transmission capacity benefit would be equivalent to a 500 kV transmission line.[35]

- The E3 Study used a "snapshot" of DG value versus value over the full life of the net metered DG under study. As discussed above, it is essential that valuation of DG benefits be performed over the full life of the DG resource being studied. This decision dramatically undervalued the benefits DG can provide as a hedge against volatile natural gas prices, the cost of mitigating greenhouse gas emissions and deferral of T&D investments.

III. Conclusion

TASC appreciates the opportunity to file these comments concerning the costs and benefits of DG resources as the Commission begins to explore the topic. We look forward to discussing the topics raised in the Notice further at the upcoming workshop.

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[32] See Assembly Bill No. 327. Available at http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140AB327.

[33] For example, the California Energy Commission's *2009 Integrated Energy Policy Report (IEPR)*, at pages 8 and 95 recognized this benefit , stating "[b]ecause the generation is located near the location where it is needed, distributed generation reduces the need to build new transmission and distribution infrastructure and also reduces losses at peak delivery times."

[34] See http://www.gosolarcalifornia.org.

[35] See Itron, 2009 CSI Impact Evaluation Report, at page 6-11.

Respectfully submitted this 6th day of November, 2013.

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