

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA



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Order Instituting Rulemaking to Develop a
Successor to Existing Net Energy Metering
Tariffs Pursuant to Public Utilities Code Section
2827.1, and to Address Other Issues Related to
Net Energy Metering.

Rulemaking 14-07-002
(Filed July 10, 2014)

**THE OFFICE OF RATEPAYER ADVOCATES'
NET ENERGY METERING PUBLIC TOOL POST-WORKSHOP
OPENING COMMENTS**

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I. INTRODUCTION

On August 11, 2014, Energy Division conducted a public workshop (Public Tool workshop) led by staff and the Energy & Environmental Economics (E3) and Lawrence Berkeley National Laboratory (LBNL) contractors to present their proposed approach for developing a “Public Tool” that evaluates potential customer-generator tariff or contract options to aid in the development of a successor tariff or standard contract for net energy metering (NEM) in this proceeding. On September 5, 2015, the Commission issued a Ruling seeking post-workshop comments with specific questions on different aspects of the Public Tool and its potential use that ORA addresses in these comments.

II. DISCUSSION

A. Threshold Issues To Resolve (Q.29)

Party recommendations have been plentiful for variables and rate design elements to include, scenarios to test, and costs and benefits to consider. Yet the schedule for the development of the Public Tool remains extremely tight (i.e., Final Report on Range of Findings from the Public Tool is due on March 2015). Likewise, the time is short to develop the Successor Tariff (i.e., by the end of 2015). So with only 6 months remaining to design, develop, validate, and run the range of results from the Public Tool, it is of the utmost importance that the Commission prioritize and narrowly scope the effort. This will ensure that the modeling efforts provide the most meaningful and helpful outputs in the short modeling window anticipated.

As was discussed in the workshop, some of the elements recommended to be included in the model may be found to create significant legal or feasibility hurdles that cannot be overcome to ultimately be included in the successor NEM tariff.¹ To the extent that these threshold issues (whether they be specific rate designs, solar PV compensation mechanisms, or individual tariff elements) can be identified, vetting and/or legal briefing of those issues should be addressed prior to including them in the modeling

¹ Public Workshop Minutes, Discussion of Public Tool to Evaluate Customer-Generation Successor Tariff or Contract Options, August 11, 2014, page 11.

effort. Otherwise significant and valuable modeling time and effort and parties involvement may be wasted and stranded on solutions that cannot be implemented in the Successor Tariff. A more prudent approach would be to start the modeling effort with the most likely rate designs (i.e., the rate design alternatives on the table in the residential rates OIR) and most likely NEM tariff elements that do not create significant legal or feasibility hurdles. This approach will also avoid a “Forbidden Fruit” scenario where the Public Tool output shows a favorable result for an infeasible scenario or tariff.

As contentious elements are vetted and/or briefed and found to be feasible for inclusion in the Successor Tariff, then those elements can be folded into the Public Tool modeling effort at that time.

1. Barriers Are Significant To Replace NEM With a Feed-In Tariff for Residential and Commercial Customers

Feed-In Tariffs (FiT) are currently proposed to be included in the Public Tool.² However, barriers to FiT, such as income tax and tax credit implications, and additional hardware infrastructure that could limit investment in FiT by residential and commercial customers has not yet been vetted or briefed. If those barriers are too high or would suppress solar PV growth (thus violating the first of three main objectives of AB 327³), inclusion of the FiT in the Public Tool would provide little or no benefit and the associated work would be stranded.

Under standard FiT programs, electricity generated by customer generators is sold to the utility, rather than used on-site. This compensation could be considered gross income as it has been defined broadly by the IRS, where “gross income means all income from whatever source derived, including (but not limited to) the following items

² R.14-07-002, Question 22 and 27.

³ OIR R.14-07-002, July 10, 2014, p. 4, AB 327 provides that the Commission should meet several objectives. Three of the main objectives are to ensure that customer-sited renewable generation “continues to grow sustainably,” to ensure that the new tariff “is based on the costs and benefits of the renewable electrical generation facility,” and to “[e]nsure that the total benefits of the standard contract or tariff to all customers and the electrical system are approximately equal to the total costs.”

[compensation for services, rents, interest, etc.]”⁴ One interpretation is that “all gains except those specifically exempted” are taxable,⁵ and exempted gains are explicitly defined.⁶ This interpretation is supported by Senate Bill S.1225, introduced by Senator Mark Udall on June 26, 2013 which aimed to add a new section 139E to the Internal Revenue Code to provide an income exclusion for “any gain from the sale or exchange to the electrical grid,” inferring that without this exclusion the gain from sale of electricity would constitute gross income.⁷ Taxing the compensation that customer generators will receive for selling their electricity to the utility will weaken the return on investment for potential distributed generation (DG) owners.

Additionally, it is unclear that the current federal “Residential energy efficient property credit” (the “Section 25D credit”) of 30% for renewable energy projects would still be applicable for FiT development of residential systems.⁸ One restriction of the credit is that solar electric systems must “generate electricity for use in a dwelling unit located in the United States and used as a residence by the taxpayer.”⁹

This could be interpreted to mean that the solar system is intended to offset load at the dwelling rather than be exported. Based on this interpretation, it is likely that a system connected directly to the grid under a FiT would not meet this limitation, and thus would not qualify for this tax credit. Without this tax credit, costs for potential DG

⁴ 26 USC 61. While this section of the code is very short, listing 12 types of income in addition to the three above, the West’s US Code Annotated includes over 1,000 notes to help define how the definition is interpreted.

⁵ Commissioner v. Glenshaw Glass, 348 U.S. 426, 431 (1955).

⁶ 26 USC sections 101-139. Section 71-90 include specific inclusions, including biodiesel fuel credits, section 87.

⁷ August 15, 2013, Public Comment Letter of The Alliance for Solar Choice re Application of Arizona Public Service Company for Approval of Net Metering Cost Shift Solutions, Docket NO. E-01345A-13-0248, p. 4.

⁸ 26 UCS 25D.

⁹ 26 USC 25D(d)(2). Note that this tax credit terminates (25D(g)), whereas the corporate tax credit (ITC) is only reduced to 10%, after which there is no general termination clause.

owners to make the investment would increase and decrease motivation for making the investment.

Another barrier for FiT to replace NEM for residential and commercial customers is the additional infrastructure required for a FiT system. Under NEM, the customer needs only the single meter that also serves their load but under a FiT, customers are required to add a second revenue quality meter and associated hardware. One meter for on-site electricity consumption, a second meter for solar PV export to the grid. This additional infrastructure required under a FiT mechanism will increase costs and increase installation time.

These potential interpretations of gross income and tax credit for FiT along with the added infrastructure requirements of FiT would negatively impact the investment proposition for customers and private capital. These issues could significantly limit sustainable customer-side DG growth and should be resolved prior to designing any proposal for FiT for inclusion in the Tool.

2. System Size To Be Modelled In The Tool Is Unclear

Section 2827(b)(5) of AB 327 states, “In developing the standard contract or tariff, the commission shall do all of the following: (5) Allow projects greater than one megawatt that do not have significant impact on the distribution grid to be built to the size of the onsite load if the projects with a capacity of more than one megawatt are subject to reasonable interconnection charges established pursuant to the commission’s Electric Rule 21 and applicable state and federal requirements.” However, it’s not clear whether the Public Tool will model this requirement since it was simply stated in the August 11th workshop that the proposal is for evaluation of renewable DG systems up to those sized such that annual production equals annual consumption (e.g. sized to annual loads).¹⁰ It was also stated that the Tool could implement a 1.5 MW limit but it’s not

¹⁰ August 11, 2014 Public Tool Workshop Slides, p. 55.

clear that it would or that it would meet the requirements considered in AB 327.¹¹ This issue should be resolved before developing the Tool to enable the Commission to model and consider compensation structures for projects greater than 1 MW.

3. The Schedule Should Allow Time For Stakeholder Feedback And Changes To The Public Tool

The timeline for the Public Tool, as presented in the August 11th workshop, is:¹²

- Kickoff Workshop
 - Workshop - August 11, 2014
 - Workshop Summary – September 2014
- ‘Draft Model’ Workshop Materials
 - Workshop Presentation + Draft Public Tool + Draft User Guide – December 2014
- ‘Final’ Successor Contract/Tariff Public Spreadsheet Tool including User Guide – January 2015
- Final Report on Range of Findings – March 2015 (Pending the Commission’s final Rates OIR decision)

ORA and TURN have previously stated that development of the Public Tool should be an iterative process that allows time for vetting of the methods, assumptions and validation of the Tool.¹³ ORA is concerned that the current schedule will not allow sufficient vetting of the Public Tool and stakeholder feedback. If the Public Tool is to gain acceptance and be used to support Commission decision making, its development must be transparent and the models validated. ORA recommends the following changes to the schedule:

¹¹ *Id.*

¹² August 11, 2014 Public Tool Workshop Slides, p. 16.

¹³ ORA Reply Comments on the July 17, 2014 OIR to Develop a Successor to Existing NEM Tariffs, p. 1-2.

- October 2014: Energy Division and its consultants provide a response to parties' comments on the Public Tool outlining the approach for modeling
- December 2014: Draft model workshop materials provided and workshop held
- Four weeks after Draft Model Workshop: Stakeholders provide specific comments recommending any changes to the draft tool
- March 2015: Final tool provided, with comments from Energy Division and its consultants addressing whether or not changes were made based on stakeholder comments with the reasoning behind the decisions
- April 2015: Final Report on range of findings

This process will enable the transparent development of the tool and allow stakeholders to offer specific recommendations for the Tool that will be addressed, leading to wider acceptance of Tool and greater applicability for this proceeding.

B. Overview of the Proposed Approach

1. Comments On The Proposed Approach (Q.1)

Based on the August 11, 2014 workshop presentation, the approach is for a “balancing act” between two goals of AB 327: (1) Support a growing “sustainable” market for renewable DG in California , and (2) Minimize the cost impacts associated with current NEM policies. A requirement of the second goal is that total benefits of the successor tariff/contract are “approximately” equal to the total costs. Thus, the Public Tool should be capable of doing a Total Resource Cost (TRC) test.¹⁴

¹⁴ Section 2827.2(b)(4) of the Public Utilities Code states that the NEM successor tariff must “ensure that the *total* benefits of the standard contract or tariff to *all* customers and the electrical system are approximately equal to the *total* costs” (emphasis added) The statutory language in this section of the code does not address non-participants.

2. Lessons Learned From Other Public Tools (Q.2)

The modeling effort should seek out any other reputable rate design or solar PV valuing tools that are available, as they could provide the ability to do a “sanity check” on the results being generated by the Public Tool. The ALJ ruling mentions the Nevada Net Metering Public Tool as an example of a public tool that was done well. ORA is also aware of the Environmental Defense Fund (EDF) SolaROI tool.¹⁵ EDF’s SolaROI estimates the return on investment for residential solar PV systems based on the underlying rate design and compensation mechanism. Though the SolaROI tool is quite new, the overlap between SolaROI and the Commission’s Public Tool is clear. As such, comparing model run results of the SolaROI model and the Public Tool should provide useful analysis.

C. Modeling Approach

1. ORA Supports the Primary Evaluation Measures Proposed For The Model (Q.3)

The primary evaluation measures proposed for the model include:

- a. Cost impacts to non-participating customers (\$/year, \$ lifecycle)
- b. Renewable distributed generation (DG) adoption rate (MW per year)
- c. Renewable DG value proposition (e.g. IRR \$, payback period (years))
- d. Calculation of total costs and total benefits (\$/year, \$ lifecycle)

ORA supports the primary evaluation measures proposed for the model and does not propose additional metrics to be considered. However, ORA reserves the right to comment on this question in Reply Comments.

¹⁵ SolaROI: Estimating Returns to Residential Solar. Panels from Underlying Tariff Structures and Compensation Mechanisms. Authors. Kristina Mohlin.

<http://blogs.edf.org/energyexchange/files/2014/09/SolaROI-White-paper-with-appendix.pdf>

2. The Avoided Cost Components Are Sufficient (Q.4)

The proposed avoided cost components to measure the benefits of renewable DG include:

- a. Energy purchases
- b. Generation capacity
- c. Transmission and distribution capacity
- d. Greenhouse gas emissions
- e. Losses
- f. Ancillary services procurement reduction
- g. Reduced Renewables Portfolio Standard (RPS) procurement
- h. Additional value (included as a user defined input in the total resource cost / societal test)

The avoided cost components listed are appropriate and comprehensive. Items a-g were not only included in the 2013 NEM Report but are also included in the avoided cost calculators used to evaluate the cost effectiveness of IOU administered energy efficiency and demand response programs. Item h is appropriate to evaluate scenarios that include additional benefits and costs such as non-energy benefits.

3. The Resource Balance Year Should Be Updated (Q.5)

The 2013 NEM Report uses a resource balance year (RBY) of 2017. This was determined based on the now outdated 2010 LTPP proceeding (R.10-05-006 track 1). While there are debates concerning how short and long run generation avoided costs should be addressed, the E3 model relies on resource balance year methodology. The resource balance year establishes when the capacity and energy markets will reflect the full costs of new plants and is determined by the year in which current and planned

resources will not meet projected load.¹⁶ In order to be consistent with this methodology, the inputs should be updated to reflect what the resource balance year was intended to represent. There is no justification for relying on outdated data in this analysis because more recent data is readily available. E3 has diligently updated other avoided cost inputs and should update the RBY as well.

ORA recommends updating the resource balance year to be consistent with the most recent LTPP proceeding, R.12-03-014. Decision D.12-12-010 adopted long term procurement planning track 2 assumptions and scenarios. In determining the resource balance year, ORA uses the Base Scenario adopted in this Decision. The Base Scenario uses the California Energy Demand mid load, 1-in-2 peak weather forecast adjusted for incremental EE and demand side small photovoltaics (PV) and includes event-based DR in the supply calculation.¹⁷ In order to be consistent with E3's prior calculation of the resource balance year, ORA likewise removes the estimates of incremental EE, event-based DR and incremental demand side PV.¹⁸ ORA uses the data presented in the Base Scenario (adjusted as noted above) and determines the RBY based on when 115% of the load trajectory exceeds supply.¹⁹ As shown in the Table 1 and Figure 1 below, the updated RBY is year 2020 (i.e., the first year that Demand including 15% margin exceeds Net Supply).

¹⁶ 2011 Avoided Cost Update, p. 17.

¹⁷ D.12-12-010, p. 13.

¹⁸ 2011 Avoided Cost Update, E3, p. 17 & *California Net Energy Metering Ratepayer Impacts Evaluation*, CPUC, October 2013, Appendix C, p. C-29 – C-30.

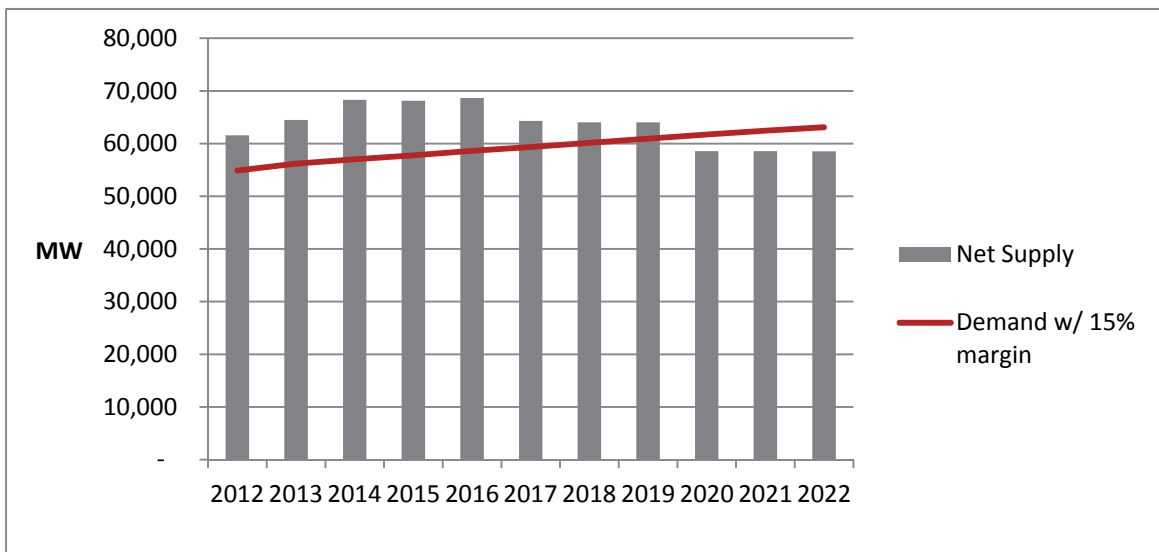
¹⁹ 115% of the load trajectory is used to account for a planning margin of 15%. California Energy Commission Summer 2012 Electricity Supply and Demand Outlook, May 2012, pp. 6-7.

Table 1: Resource Balance Year Determination

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022
Demand (MW)	49,577	50,240	50,981	51,625	52,296	53,000	53,674	54,299	54,871
Demand w/ 15% margin	57,014	57,776	58,628	59,369	60,140	60,950	61,725	62,444	63,102
Net Supply	68,315	68,124	68,659	64,315	64,046	64,046	58,560	58,554	58,524

* Source: D.12-12-010 Base Scenario, Appendix C-1

Figure 1: Resource Balance Year Determination



4. Modification Of The RBY Will Be Sufficient (Q.6)

The calculator should be updated to reflect a resource balance year of 2020 as explained above. With this adjustment, the E3 avoided cost calculator would be comprehensive and sufficient.

5. Proposed Cost Components Are Sufficient (Q.7)

The proposed cost components of renewable DG include:

- a. Renewable power purchase agreement or installed system cost
(Participant cost)
- b. Interconnection cost (Utility cost if exempted; Participant cost if not exempted)
- c. Billing and metering cost (Utility cost)
- d. Integration costs, including increased ancillary services costs (Utility cost)

ORA does not propose to add or remove any items from this list. ORA appreciates the ability to adjust the technology and costs within the Public Tool as explained at the August 11, 2014 workshop.

6. Determination Of Utility Costs (Q.8)

The potential for cost shifting associated with successor tariff proposals will be dependent on utility cost of service analysis. Given the level of interest that there will be in this proceeding associated with potential cost shifting, allowing user specifiable marginal cost inputs is essential.

7. Flexibility In User Defined Inputs And Adoption Rate Scenarios Will Be Valuable (Q.9)

At the August 11, 2014 workshop, E3 proposed the use of the “E3 WECC Market Adoption Tool” to estimate adoption rates.²⁰ The model assumes “S” curves, or logistic growth curves, to estimate market adoption over time. ORA supports the use of logistic growth curves to estimate DG adoption because this approach is the most common method used for estimating market penetration. However, while this approach is common, it is important to note that DG has unique characteristics that differ considerably from many of the products examined in the market penetration studies

²⁰ August 11, 2014 Public Tool Workshop Slides, p. 57.

found in current literature.²¹ That said, there is substantial uncertainty when forecasting DG adoption rates. At the August 11, 2014 workshop, it was stated that DG adoption rates could be determined by direct user defined inputs.²² This option would allow various adoption rate scenarios to be evaluated, which is important given the considerable uncertainty in their estimation. ORA believes that providing model flexibility for user defined inputs and various adoption rate scenarios is necessary and reasonable.

D. Data Sources

1. The Public Tool Should Use the Best Publicly Available Data (Q.10)

ORA agrees with the guiding principle that sourcing data should use the best publicly available data. However, in some cases, the IOUs may have confidential data that is more recent and relevant than what is currently publicly available. ORA recommends that in those cases, Energy Division and its consultants should consider whether the confidential information can be aggregated and made publicly available. If the confidential information can be aggregated and made public, this method would allow the Tool to have access to the most pertinent information while maintaining the guiding principle of using the best publicly available data.

2. Sources of Inputs Are Appropriate(Q.11)

ORA agrees with the proposed inputs to the analysis. In terms of the use of the Lawrence Berkeley National Laboratory (LBNL) Tracking the Sun report, ORA recommends the analysis to rely on the most current version of this report (i.e., Tracking the Sun VII, released in September 2014).²³ ORA also agrees that the most recent

²¹ The Solar Deployment System (SolarDS) Model: Documentation and Sample results. The National Renewable Energy Lab, p.16. <http://www.nrel.gov/docs/fy10osti/45832.pdf>

²² August 11, 2014 Public Tool Workshop Slides, p. 57.

²³ Lawrence Berkeley National Laboratory (LBNL), September 2014, Tracking the Sun VII: An Historical Summary of the Installed Price of Photovoltaics in the United States from 1998-2013; <http://emp.lbl.gov/publications/tracking-sun-vii-historical-summary-installed-price-photovoltaics-united-states-1998-20>.

general rate case settled revenue allocations are the best input for the utility revenue requirement allocations factors to classes. The settlements often do not make explicit the billing determinants used to develop the settled revenue allocations or rate designs. However, parties seldom challenge the billing determinants because of how difficult they are to assemble. Thus, the workpapers that accompany the utilities' applications generally are the best sources for billing determinants.

E. Public Tool

1. The Proposed Term Of Analysis Considers Sufficient Time For Installations and Lifecycles (Q.12)

The proposed term of analysis tracks new renewable DG installations out to 2025 and evaluates their useful lifecycle to 2050, with 5 years snapshots for the later periods due to uncertainties in revenue requirements and usage. This approach provides consideration of installations over a substantial length of time that is reasonable given the alignment with the California Energy Commission (CEC) Energy Demand Forecasts and the Commission's Long Term Procurement Planning (LTPP) process which plan for load and procurement for the next 10 year period. Evaluation of the useful lifecycle to 2050 also more than addresses the expected lifecycle of the DG installations.²⁴

2. Proposed List of Technologies is Sufficient (Q.13)

The proposed list of technologies to be evaluated in the public tool includes solar PV, solar PV coupled with energy storage, wind, and biogas-fueled technologies (including fuel cells). The vast majority of customers on NEM have installed solar PV (99% of customers) while the remaining 1 percent have installed wind and bioenergy generation.²⁵ This list sufficiently captures the technologies that are applicable under the current NEM tariffs and the possible NEM policy modifications and rate reform for future consideration.

²⁴ The 2013 E3 NEM study used an assumed 20-year economic life of NEM generators, p. 6.

²⁵ 2013 E3 NEM Study, p. 4.

3. Non-RPS Eligible Technologies Or Applications Should Not Be Included In The Public Tool (Q.14)

ORA does not see the need to include non-RPS technologies or technology applications in the Public Tool. Given the limited time to develop a tool that will be valuable for informing this proceeding, the addition of non-RPS eligible technologies or applications would add superfluous complexity to the Tool and require time spent on development which should be focused on the more pressing need for modeling RPS technologies and potential rate designs. Attempting to use the Tool to achieve too many goals may make it unwieldy and impractical.

4. Impact Of Smart Inverter Technologies Paired With DG Applications Should Be Examined (Q.15)

In the R.11-09-011 proceeding regarding improvements to distribution level interconnection rules and regulations for certain classes of electric generators and electric storage resources, the Smart Inverter Working Group (Working Group) issued its “Recommendations for Updating the Technical Requirements for Inverters in Distributed Energy Resources” (Recommendations) in January 2014. The Recommendations discussed the issues associated with widespread adoption of DG, such as impacts on the stability, reliability, and efficiency of power grid operations, and the potential for smart inverters to manage and mitigate those problems.²⁶ The May 2014 Assigned Commissioner’s Amended Scoping Memo and Ruling (ACR) in that proceeding determined that the Recommendations are a beginning point for potential modifications to Tariff Rule 21 to capture the technological advances offered by smart inverters.²⁷ These efforts demonstrate that changes will be made to allow for smart inverter capabilities and the Public Tool should examine them to provide realistic modeling that captures the potential of DG.

²⁶ Recommendations, pp. 9-11.

²⁷ May 13, 2014 ACR, p. 4.

5. Examples Of Reduced DR Integration Costs From Smart Inverter Technologies To Be Examined (Q.16)

When examining the impact of smart inverters, the Tool will need to include the costs and benefits of adoption of smart inverters and the consequences of not adopting them. Requiring smart inverters will produce an additional cost equal to the difference in price between regular, non-smart inverters already required and smart inverters. Smart inverters will also provide distribution related avoided costs if they can be shown to help deferral of distribution upgrades as well as decrease distribution operation costs, as opposed to the negative impact of high penetrations of PV on distribution costs without smart inverters.²⁸ Adoption of smart inverters sooner rather than later could also avoid potential future retrofit costs, demonstrated by Germany in its efforts to mitigate issues with grid integration.²⁹

6. Customer Classes Proposed Are Sufficient (Q.17)

The Public Tool will evaluate residential (distinguishing between residential and residential CARE), commercial, industrial and agricultural customers. These customer classes are specific enough to capture the differences in the major customer types while further segmentation could add too much complexity to the Tool, making it unmanageable.

7. Account For Zero Net Energy Goals Implicitly (Q.18)

California's Zero Net Energy (ZNE) goals require all new residential construction to be ZNE by 2020 and all new commercial construction to be ZNE by 2030.³⁰ The ZNE

²⁸ CEC Navigant Report Distributed Generation Integration Cost Study, November 2013
<http://www.energy.ca.gov/2013publications/CEC-200-2013-007/CEC-200-2013-007.pdf>

²⁹ Boemer, et al. *Overview of German Grid Issues and Retrofit of Photovoltaic Power Plants in Germany for the Prevention of Frequency Stability Problems in Abnormal System Conditions of the ENTSO-E Region Continental Europe*, October 2011.
http://www.ecofys.com/files/files/ecofys_2011_paper_on_frequency_stability_challenge.pdf

³⁰ For more information go to: <http://www.californiaznehomes.com/#!/about/cdtl>

goals were adopted in 2007, however, the current market share of ZNE buildings is extremely small and a formal definition ZNE was not adopted until the 2013 IEPR Report.³¹ According to a consultant report prepared for PG&E, which is also posted on the Commission’s website, meeting the residential ZNE goal in 2020 would require installing more PV in a single year than California has installed on residential buildings to date under the CSI and NSHP programs³². It is our understanding that the CEC and CPUC are earnestly pursuing the ZNE goals. Therefore we recommend that the public tool have the ability to model a scenario where the ZNE goals are achieved, with associated adjustments to the market-driven DG adoption forecast in order to account for the ZNE policy and building code-driven influences.

8. The Public Tool Should Include A Cost Of Service Analysis (Q.19)

The 2013 E3 NEM Study included a cost of service analysis, comparing the utility cost of serving NEM customers with their actual bill payments. This evaluation shows whether customers who install NEM eligible systems pay more or less than the cost of providing them electricity service before and after they install a NEM eligible system.³³ This analysis should be included in the Tool and associated with the rate designs the Tool will model because it would be valuable to help identify issues related to specific utility rate designs. If NEM customers also are modeled as their own customer class, as discussed below in response to Question 21, this analysis would also be useful for developing NEM specific rate designs and cost allocation proposals.

Cost of service analysis is made more complicated due to the wide range of marginal costs that the utilities and intervenors typically propose in general rate cases. Thus ORA recommends that default values be set in the model, but that they be

³¹ California Energy Commission. 2013. 2013 Integrated Energy Policy Report. Publication Number: CEC-100-2013-001-CMF.

³² Hescong Mahone Group, Inc., Pacific Gas & Electric Company. The Road to ZNE: Mapping Pathways to ZNE Buildings, CALMAC Study ID: PGE0327.01, p. 106.

³³ 2013 E3 NEM Study, p. 3.

changeable by the user. The default values should be set at the settled numbers if the general rate case settlements included marginal costs. If they do not include marginal costs, the utilities proposals should be used.

The level of cost shifting associated with a successor tariff proposal will be dependent on this cost of service analysis. Given the level of interest that there will be in this proceeding associated with cost shifting, allowing user specifiable marginal cost inputs is essential.

9. The User Should Be Able To At Least Modify A Fixed Charge, Public Purpose Program Charges And Interconnection Costs (Q.20)

The Public Tool should allow the user to apply and modify a fixed charge, minimum bill, public purpose program charges, and interconnection costs. The Residential Rate Design OIR, R.12-06-013, is currently considering whether or not residential rate designs should include fixed charges.³⁴ Likewise, AB 327 states that residential fixed charges are allowed (up to \$10) but not required.³⁵ Many intervenors in R.12-06-013 are opposed to the inclusion of fixed charges while the utilities support them. The Tool should allow the ability to include, exclude, and modify a fixed charge (up to \$10) in relation to the various rate designs modeled by the Tool to allow stakeholders the flexibility to develop their recommended rate designs. Many intervenors support the use of a minimum bill provision instead of a fixed charge, and the model should allow for this capability as well.

³⁴ R.12-06-013, ORA Testimony Chapter 2 Fixed Charge Policy.

³⁵ PUC Section 5, 739.9 (e). The commission may adopt new, or expand existing, fixed charges for the purpose of collecting a reasonable portion of the fixed costs of providing electric service to residential customers... (f) ... the commission may, beginning January 1, 2015, authorize fixed charges that do not exceed ten dollars (\$10) per residential customer account per month for customers not enrolled in the CARE program... (g) This section does not require the commission to approve any new or expanded fixed charge.

In D.03-04-030, the Commission determined that NEM customer generation is exempt from certain non-bypassable public purpose charges.³⁶ In D.02-03-057, the Commission exempted current NEM customers from many interconnection costs.³⁷ R.14-07-002 has been initiated to develop a successor to existing NEM tariffs as required in Assembly Bill 327 (Perea, 2013) and to review and refine existing NEM tariffs, as necessary.³⁸ To allow the examination of a wide range of alternatives, the model should include the option to apply these charges and costs. This would allow the Commission to consider the impact of current exemptions from certain non-bypassable public purpose charges and interconnection costs and whether or not such exemptions are appropriate for the successor tariff.

F. Pricing Mechanisms and Rate Designs

1. Customer-generators Should Be Modeled As A Separate Customer Class (Q.21)

The capability to model customer-generators as a separate customer class should be included in the Public Tool. AB 327 allows the application of a different rate design to customer generators that recognizes that their overall kWh usage may be small compared to the fixed costs of serving them. Modeling them as a separate class for revenue allocation would also allow for reflecting their potentially lower assignment of generation costs because their net usage is largely non-coincident with the system generation peak.³⁹ The option to model them as a separate class would allow the Commission to consider whether they should be treated as a separate class and, if so, also consider how a different rate design could be applied.

³⁶ D.03-04-030, pp. 65-66.

³⁷ D.02-03-057, pp. 14-15.

³⁸ R.14-07-002, p. 1.

³⁹ The typical solar NEM customer will generate more electricity than they consume during a large portion of the summer on-peak period. A large proportion of the marginal generation capacity costs are assigned to the summer on-peak period. Thus, in the revenue allocation process, most of the generation capacity cost revenues would be assigned to a period when the solar NEM customer is not relying on the grid to meet his or her needs.

2. Compensation Structures (Q.22)

a) The Tool Should Accommodate a Hybrid Compensation Structure

Two threshold issues raised by ORA in Section A include whether it is premature to model a FiT as a successor to the NEM tariff and also if the model should accommodate systems greater than one MW. In the event the Commission does the FiT compensation structure and includes systems greater than 1 MW in size, ORA recommends the Tool to accommodate a hybrid compensation structure. For example, the compensation structure would use NEM for systems sized 1 MW and below and FiT or a market-based structure for systems sized greater than 1 MW. This variation allows the option to consider multiple approaches to differently sized systems, recognizing that they have different impacts on the distribution grid, and different primary motivations (i.e., offset on-site load for small systems versus exporting electricity to the grid for large systems).

b) If a FiT Tariff is Modeled, a Value Of Solar Approach Should Also be Modeled

In Section A, ORA raised the threshold issue of whether or not FiT should be considered at this time as a potential compensation structure. Though very similar to a FiT, under a Value of Solar (VOS) tariff approach, a customer-generator is billed for all electricity consumed under their applicable tariff but is given a bill credit for all of the electricity the customer generates. Since experience with VOST is extremely limited, it is unclear whether this structure will have similar or different tax implications than under a FiT compensation model. Also uncertain is whether a VOST will lead to solar DG growth, a requirement under AB 327. A VOS tariff has only been implemented by one Texas utility (Austin Energy). Recently Minnesota approved a Value of Solar Methodology by which utilities can propose Community Solar programs going forward.⁴⁰

⁴⁰ Texas: http://dsireusa.org/incentives/incentive.cfm?Incentive_Code=TX35R&re=0&ee=0

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c) Compensation Mechanisms Modeled Should Allow For Alternative Values For Exported Energy

For all compensation structures modeled in the Tool, the value assigned to exported energy should allow for a range of alternatives including compensation at the full bundled retail rate and compensation at the marginal cost of generation. This will allow the Commission to evaluate the impacts of different values for compensation, as well as the different methods of compensation.

d) Modeling Netting At Hourly Intervals Will Be Sufficient

The current NEM tariffs allow carrying generation credits from month to month within a year. Thus the netting process effectively is performed on an annual basis. But parties have suggested that the NEM successor tariff perform the netting on a more frequent basis. A range of options should be investigated, including monthly, daily, and hourly netting. Hourly netting is probably the shortest interval that is practical. Smart meters do allow billing of non-residential customers based on 15-minute intervals. However, using the 15-minute interval may be overly complex for this model. Thus, for all customers, modeling the netting process at hourly intervals would be sufficient.

3. Specific Rate Design Options (Q.23)

In addition to the nine rate designs proposed, the Public Tool should include the following options:

- a) A variation of option d, which would be a Seasonal Time-of-Use (TOU) (summer 3 periods, winter 2 periods) *with a baseline credit*.
- b) The ability to model Critical Peak Pricing (CPP).

The CPP should be modelled as an overlay that can be placed on top of any rate design as is currently done in PG&E's Smart Rate.

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Minnesota:

<https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={FC0357B5-FBE2-4E99-9E3B-5CCFCF48F822}&documentTitle=20144-97879-01>

For TOU rates, the following time periods should be possible for the summer on-peak periods of: (1) Noon to 6 pm; (2) 3 pm to 8 pm; and (3) 4 pm to 7 pm. The block sizes on 3-tier rates should be: (1) 0% to 100% of baseline; (2) 101% to 200% of baseline, and (3) Above 200% of baseline. For 2-tier rates, they should be: (1) 0% to 100% of baseline; and (2) Above 100% of baseline. Baseline allowances should be set at 55% of average load, which is the mid-point of the statutory range.

4. The Rate Design Features Are Sufficient (Q.24)

The rate design elements discussed in the previous questions are sufficient to address residential customer-generators. In addition, ORA supports the inclusion of non-bypassable public purpose charges and the option to include a grid/network use charge on exports.

5. Additional Elements For Non-Residential Rate Designs (Q.25-26)

The Tool should allow for CPP and Peak Day Pricing (PDP) rate designs since non-residential customers have been or will be defaulted to CPP.⁴¹ PDP is the layering of a CPP rate on top of a TOU rate.

ORA also supports the inclusion of a grid/network use charge for exports and non-bypassable public purpose charges, as discussed in Question 24 for residential customers. These elements will allow for complete deliberation of non-residential rate designs.

6. Threshold Issue of FiT Should Be Addressed Before Developing A FiT Structure For The Public Tool (Q.27)

As discussed in Section A, ORA recommends the resolution of issues with FiT that could preclude it from being a realistic option for a successor tariff before developing a structure for FiT for the Tool. This will ensure that resources are not stranded on developing a capability that would provide no realistic application.

⁴¹ R.13-09-011 OIR, Attachment A, p.12.

G. Disadvantaged Communities

1. The Development Of The Successor Tariff For NEM Can Follow The Approach For CSI (Q.28)

The Commission launched the California Solar Initiative program in January 2007 after developing an analysis of the key issues related to its development and implementation and in an open process for stakeholders to provide input in its design.⁴² The Single-Family Affordable Solar Homes (SASH) and Multifamily Affordable Solar Housing (MASH) program were later established in November 2007⁴³ and October 2008.⁴⁴ This sequential process allowed issues applicable to all customers to be resolved first before handling issues specific to the low-income community. Given the tight schedule for the development of the Tool and this proceeding, the Commission should address the general NEM issues prior to addressing the low income issues, just as it did for the CSI program. Since AB 217 (Bradford, 2013) has extended the SASH and MASH program through December 31, 2021 or until the exhaustion of \$108 million in new funding,⁴⁵ low income communities will continue to have access to funding for renewable DG while the Commission tackles the development of a successor tariff to NEM.

III. CONCLUSION

ORA supports the development of the Public Tool and requests the consideration of the threshold issues regarding FiT, the size of customer-generators modeled and scheduling, as well as the comments regarding the Public Tool itself.

⁴² <http://www.cpuc.ca.gov/puc/energy/solar/aboutsolar.htm>

⁴³ D.07-11-045, p. 46.

⁴⁴ D.08-0-036, p.51.

⁴⁵ <http://www.cpuc.ca.gov/PUC/energy/Solar/sash.htm>

Respectfully submitted,

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