BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking To Integrate and Refine Procurement Policies and Consider Long-Term Procurement Plans.	R. 12-03-014 (Filed March 22, 2012)

COMMENTS OF SIERRA CLUB CALIFORNIA ON THE 2012 ENERGY DIVISION STRAW PROPOSAL ON LTPP PLANNING STANDARDS

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Sierra Club California ("Sierra Club") respectfully submits these comments on the Energy Division's 2012 LTPP Straw Proposal on Planning Standards. Our comments on the Straw Proposal track the Comment Template provided by the Energy Division.

GENERAL

1. Guiding Principles [and Problem Statement]

The problem statement poses questions that the scenario development is intended to answer. It is therefore critical that the problem statement frame these questions in an outcome neutral manner and ensure that the full breadth of considerations relevant to scenario development is articulated. As currently proposed however, the problem statement is skewed toward development of additional fossil fuel infrastructure at the expense of other system resources such as efficiency and storage. In addition, the problem statement omits consideration of the achievement of the State's environmental objectives and overall system benefits in scenario planning. As set forth below, we recommend the problem statement be modified to be outcome neutral and include consideration of California's environmental objectives and overall system benefits.

The problem statement should be cast in a neutral manner that does not suggest or favor one particular outcome over another. The repeated use of the unqualified word "infrastructure"

in the problem statements implies a preference for filling need with new fossil fuel generation, *i.e.* new gas plants. This is inconsistent with the State's greenhouse gas reduction targets and clean energy policies such as the loading order. A simple word change would greatly facilitate a shift to a more neutral approach that does not prejudge a particular outcome. The term "resources" should be substituted for the term "infrastructure" in each of the statements. Resources include energy efficiency and demand response, and thus, provide a greater range of options for improving upon the energy system. Additionally, the use of the word of "resources" would enable compliance with the State's public policy directives such as the loading order. Accordingly, the problem statements should be rewritten to state:

1. What new **resources would** ~~infrastructure needs to be constructed to~~ ensure adequate reliability, both for local areas and the system generally, during the planning horizon?

2. What mix of **resources would** ~~infrastructure~~ minimize cost to customers over the planning horizon?

The second sub-question bullet should also be changed to reflect the change in the use of the words "resources" and "infrastructure." It should read:

- How does the potential retirement of major facilities ~~resources~~ (e.g. once-through-cooling, nuclear) change the resource ~~infrastructure~~ needs~~?~~

The proposed problem statements also ignore the environmental goals related to the energy system and California's near and long term greenhouse gas reduction objectives. For example, while the 33% RPS is part of California's plan to meet AB 32's 2020 emission reduction targets, the State's longer term target of reducing emissions to 80% below 1990 levels by 2050 requires the transition to a carbon free energy supply. In addition, the State's greenhouse gas objectives will require a shift from gas as a load balancing resource to non-carbon emitting alternatives such as energy storage. This proceeding should use assumptions and a perspective that refocus the discussion onto the question of how to achieve a low carbon future and build a system around renewables. To ensure the LTPP does not lose sight of these objectives, the following sub-question should be added:

What mix of resources creates the best path towards a low carbon future?

In addition, the decision criterion repeated throughout the template document is to "minimize cost." While Sierra Club emphatically shares the Commission's concern about cost, we caution that a system that makes judgments solely on "least cost" will actually achieve exactly the opposite. The old adage that "you get what you pay for" is a principle that Californians have repeatedly suffered the consequences of, in the form of "cheap" natural gas that unexpectedly skyrockets in cost, "cheap" nuclear power plants that cost billions of dollars to repair and upgrade, and "cheap" sources of power that have large externality costs in the form of local and global damage to the environment and public health. We are concerned that this dubious application of the principle of "least cost" will repeat the same mistake in converting to renewable energy.

A planning structure that looks only at the cheapest resources will fail to consider *the value* or *the function* that specific resource choices provide to the consumer, to the electric grid, and to the environment. In this context, one of the major concerns about renewable energy is that it will be "intermittent" and thus require extra "infrastructure" to provide backup. An approach that relies exclusively on "least cost" for resource choices fails utterly to provide any planning basis to achieve a different result to solve intermittency. As California increases renewable energy above a minimal amount, it will become increasingly urgent that a planning framework be developed for ensuring *a properly designed renewable energy system*. This needs to be designed *as a system* in order to function efficiently, rather than trying to retrofit a legacy system from the past that must and will be discarded as it becomes obsolete.

The current "least cost/best fit" concept will therefore also have to be redefined to look to the goal or "end-state" of the design system, rather than "fitting" renewable energy "parts" into a legacy fossil/nuclear system. A least cost/best fit approach that fits renewable energy into the legacy system will increase costs because it will result in an inefficient future system that was never planned to be functional on its own. Thus, Sierra Club urges the Commission to consider the LTPP as the proper forum for planning resource requirements on a macro- and strategic-level that will encourage a good outcome in terms of design and value as the state moves to 33%, 55%, and higher levels of renewable energy. At these levels of penetration, which are expected to occur within the planning horizon of the current LTPP, renewable energy will become the dominant energy source in the electrical system into which other conventional legacy

components will then need to "fit." Continuing a "business as usual" approach in this regard would fail to provide the best value for either consumers or for the environment. To address these issues, problem statement 2 should be further refined as to state:

2. What mix of **resources** ~~infrastructure~~ minimizes cost **and optimizes the environmental and energy system benefits** to customers over the planning horizon?

Similarly, the third sub-question bullet should also be changed to reflect the goal of creating the best system possible consistent with the State's policy goals. It should read:

- How can reliability needs be balanced against costs **to create an economically and functionally efficient energy system that meets California's policy objectives?** ~~while also creating opportunities for achieving economically efficient outcomes~~?

The question following the problem statement should also be amended along similar lines.

What synergies exist between generation and transmission resources, and between different types of supply resources that can be used **to increase the benefit to the system while** limiting overall costs?

Finally, the second sub-question bullet should be written to inquire about the specific benefits of distributed generation and the relative value of these benefits to the cost:

- **What benefits does** increased distributed generation **provide to the system in relation to the** ~~reduce~~ overall costs? **(i.e., the benefit/cost relationship)**

With regard to the guiding principles for the 2012 LTPP, the following additional principle should be included:

The planning assumptions and scenarios should be transparent with regard to how each policy-driven goal relates to the assumption in each scenario.

CPUC staff should generate a spreadsheet showing policy-driven objectives with the specific numbers for each year indicating the trajectory toward each goal. The spreadsheet

should identify each of the energy related targets set in the ARB scoping plan (CHP, EE), state law (CSI, 33% RPS) and by the Commission (DR, DG). This would create transparency regarding how each assumption either meets the policy goal or creates a shortfall or excess. Without such a table it is not clear what impact that each assumption will have on state policies and goals since the current proposed framework is to use the CEC forecast as the baseline, and this baseline does not indicate the embedded assumptions about progress toward these state goals.

Guiding Principle A implies that Commission staff does not believe each of the policy driven goals is achievable. It states: "Assumptions should take a realistic view of expected policy-driven resource achievements in order to ensure reliability of electric service and track progress toward resource policy goals." "Realistic view" is not defined, nor is there any burden of demonstration as to why it would not be realistic to assume that the policy targets will be achieved. In past LTPPs, the credibility of the State's policy goals have been undermined by the IOUs treating them as unrealistic or "at risk," but experience—especially in the CSI and RPS programs— has shown that these doubts frequently turned out to be unwarranted. This has been one contributor to the large over-procurement that the 2010 LTPP revealed.

In addition, as explained in the Sierra Club's above recommendations for the problem statements, in Guiding Principle E, the word "infrastructure" should be changed to "resource."

2. Planning area and planning period

The purpose of planning period 2 is unclear. Sierra Club recommends that the straw proposal explicitly state that no new infrastructure, *i.e.* natural gas procurement, will be based on the analysis in the second planning period. The potential demand and available resources in the second planning period are too uncertain—and extend too far beyond any current State forecast—to allow such analysis to be the basis for procurement decisions. The straw proposal confirms the uncertainty: "More generic long-term planning assumptions should be utilized in the second ten years, reflective of increased uncertainties around future conditions."

Examining such factors as potential demand to 2030 and beyond, and the potential retirement of the State's nuclear plants, should invite discussion about setting new and higher policy goals for efficiency, renewables, storage, demand response, and CHP during that second

decade. These generic long-term planning assumptions should include a linear reduction of greenhouse gases based on Executive Order S-3-05 which requires an 80% reduction of greenhouses gases by 2050. This benchmark should be used to ensure that California plans for a low carbon future, even as it deals with future contingencies.

DEMAND-SIDE ASSUMPTIONS

3. Economic & Demographic assumptions

The economic assumptions from the CED 2011 Revised forecast are appropriate to use in this proceeding. Accordingly, the low scenario should be a combination of Moody's Protracted Slump and Below-Trend Long-Term Growth scenarios, not just the Moody's Protracted Slump scenario as described in the Straw Proposal. The mid and high scenarios in the Straw Proposal reflect the CED 2011 Revised forecast assumptions, so they should remain the same.

Sierra Club notes that the demographic assumptions overestimate California's future population growth. The CED 2011 Revised does attempt to account for ongoing decrease in population growth by adjusting the California Department of Finance's projections using Moody's projections, but further adjustments are necessary to produce realistic assumptions. The new projections created in the CED 2011 Revised estimate California's population at approximately 42.5 million people in 2020.[1] However, projections in a study from USC released last month and based on the 2010 census data indicate that California's population will be closer to 40.8 million people in 2020.[2] The CPUC should use the more recent projections from the USC study to inform the population growth assumptions.[3]

4. Load Forecast

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[1] Alcorn, Bryan, Ciminelli, Mark, Fugate, Nicholas, Gautam, Asish, Gorin, Tom, Kavalec, Chris, Sharp, Glen, and Sullivan, Kate. 2012. *DRAFT STAFF REPORT -- Revised California Energy Demand Forecast 2012-2022*. California Energy Commission. Publication Number: CEC-200-2012-001-SD-V1, Figure 1-9, p. 29.

[2] Pitkin, John and Myers, Dowell. 2012. *Generational Projections of the California Population by Nativity and Year of Immigrant Arrival*. Produced by the Population Dynamics Research Group, Sol Price School of Public Policy, University of Southern California. Text and supporting materials are published at: http://www.usc.edu/schools/price/research/popdynamics, p. iii.

[3] For more detailed information about the methodology used and why the USC study results differ from the Department of Finance's population projections, see Pitkin & Myers, 38-39.

Creating a managed forecast based on the Energy Commission forecast is the appropriate method. Sierra Club notes, however, that the average load growth in the managed forecast scenarios appear to be too high especially the high scenario. For example, the average load growth per GWh is 1.60% but the 2000-2010 record growth is 0.25%. This is a significant difference. Even the low scenario is significantly higher than the recorded energy demand in GWh. The estimated growth is shown as 0.87% versus the 0.25% that was actually recorded. Similarly, by MW of capacity, both the medium and high cases have growth rates higher than the recorded rate. The higher numbers in these cases may be the result of underestimating the "incremental impacts of all 'cost-effective, reliable and feasible' demand-side resources."[4] It is hard to analyze this forecast because the embedded numbers are not readily transparent. A table identifying each embedded value should be created.

The Straw Proposal describes the managed forecast as the base demand forecast with the inclusion of incremental impacts of demand-side resources. The Forecast Snapshot simply sums the IOUs forecasted electricity sales from Form 1.1b for the mid and high scenarios' forecast capacity in MW. Form 1.1b does not incorporate any self-generation.[5] The forecast assumptions as described on page xi of the Straw Proposal should be adjusted so that the impacts of demand-side self-generation are more explicit in the scenarios, rather than only using unexplained values that are "incremental" to the CEC forecast. As stated previously, this makes the assumptions opaque in relation to the policy goals.

Extending the annual growth in the linear fashion into the Second Period Forecast will create a situation where the load estimates are too high. This is primarily due to the new and accelerating long term demographic trend to lower population growth in California.

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[4] CPUC ENERGY DIVISION, 2012 ENERGY DIVISION STRAW PROPOSAL ON LTPP PLANNING STANDARDS, AT XI N. 7, (2012).

[5] Form 1.1b Mid – SCE Planning Area. Retrieved from http://www.energy.ca.gov/2012_energypolicy/documents/2012-02-23_workshop/mid_case/03_SCE_Mid.xls; Form 1.1b Mid – SDGE Planning Area. Retrieved from http://www.energy.ca.gov/2012_energypolicy/documents/2012-02-23_workshop/mid_case/04_SDGE_Mid.xls; Form 1.1b Mid – PGE Planning Area. Retrieved from http://www.energy.ca.gov/2012_energypolicy/documents/2012-02-23_workshop/mid_case/02_PGE_Mid.xls; Form 1.1b High – SCE Planning Area. Retrieved from http://www.energy.ca.gov/2012_energypolicy/documents/2012-02-23_workshop/high_case/03_SCE_High.xls; Form 1.1b High – PGE Planning Area. Retrieved from http://www.energy.ca.gov/2012_energypolicy/documents/2012-02-23_workshop/high_case/02_PGE_High.xls; Form 1.1b High – SDGE Planning Area. Retrieved from http://www.energy.ca.gov/2012_energypolicy/documents/2012-02-23_workshop/high_case/04_SDGE_High.xls.

Overestimating load growth will bias the analysis in favor of excessive infrastructure and cost. Only the low case should be extended into the second planning period and this too should be taken with a grain of salt because of the lack of a valid CEC or CPUC estimation of electric power load in the second planning period.

a. Is the most recent revised demand forecast appropriate to use in the absence of a recent adopted demand forecast?

Yes. Sierra Club urges the Commission not to finalize the assumptions in this proceeding until the CEC can complete its current demand forecast, which should include better and more updated assumptions about demographics and other factors. The new forecast will most likely be adopted before the scenario planning process is complete; Staff expects it in the second quarter of 2012. When the new forecast is adopted, the parties should be given an opportunity to comment on it.

5. Incremental Energy Efficiency

The Sierra Club supports the recommendations of NRDC and the Vote Solar Initiative to provide an opportunity to comment on efficiency assumptions once these assumptions are released by the CEC and to include estimates of incremental uncommitted energy efficiency to account for the full impacts of future efficiency.

6. Non Event-Based Demand Response

No comment at this time.

7. Incremental small photovoltaics (demand-side)

Projections for small solar PV significantly understate growth in the sector to 2022. The California Solar Initiative and New Solar Homes Partnership have the respective goals of installing 1,940 MW and 360 MW of solar in IOU service territory by the end of 2016. Even with close to five years remaining in these programs, the CSI is already approaching full subscription in some IOU service territories.[6] Notwithstanding the success of these programs, the low scenario seems to only assume full subscription in the CSI and New Solar Homes

[6] *See,* Go Solar California Program Goals, *available at* http://www.californiasolarstatistics.ca.gov/reports/agency_goals/.

Partnership (2,200 MW), the mid scenario the addition of a mere 300 MW, and the high level scenario an additional 800 MW (3,000 MW). Given the 2022 time horizon for the LTPP and the current and projected growth of the DG market, these scenarios are overly modest and should be revised significantly upward.

Due to continued cost declines and policy support, the Solar Energy Industry Association projects that distributed generation in California will reach 5.3 GW by 2016 alone.[7] This analysis recognizes that while financial incentives for PV are decreasing over time, so too is the cost of installation. As costs continue to decline, financial incentives become increasingly less determinative of the decision to install small scale PV. The de minimis increases in PV beyond the CSI and New Solar Homes Partnership in the mid and high scenarios operate under the misplaced assumption that solar growth will be reduced to a trickle absent financial incentives.

In addition, a recent PUC decision clarified that five percent of "aggregate customer peak demand" for the purposes of calculating the cap in participation in the net metering program means the aggregation, or sum, of individual customers' peak demand as opposed to a coincident measure of system peak demand.[8] Translated to GW, five percent aggregate customer peak demand translates into at 5.2 GW of program capacity.

In light of these considerations, the Sierra Club recommends the following:

Low: 3.0 GW

Medium: 4.5 GW

High: 6.0 GW

8. Incremental combined heat and power (demand-side)

The demand-side incremental combined heat and power assumptions are overly conservative, particularly the low case scenario. The low case scenario assumes no change in net CHP capacity, which appears to conflict with California's energy policy goals. The AB32 Scoping Plan set a policy goal of 4,000 MW of new CHP resources by 2020, and the Governor's Clean Energy Jobs Plan requires 6,500 MW of new CHP by 2030. While it is reasonable to consider contingencies for falling short of goals, assuming that there will be *no progress at all* toward meeting these standards is unrealistic, especially given the Commission-adopted Settlement Agreement on CHP with the IOUs, and resolution of the CHP feed-in tariff at FERC.

[7] SEIA, California DG and Utility Solar Capacity (May 2012) (attached hereto as Attachment A).

[8] Rulemaking 10-05-004, Decision Regarding Calculation of the Net Energy Metering Cap, adopted May 24, 2012.

The state's CHP goals for 2020 and 2030 were established using scenarios and assumptions found in the 2010 ICF CHP Policy Analysis.[9] This proceeding uses the 2012 ICF CHP Policy Analysis, an update of the 2010 version, as the basis for its assumptions. However, instead of using the base, mid, and high scenarios from the 2012 ICF CHP Policy Analysis, the Straw Proposal assigns the ICF base case scenario as the Straw Proposal mid case, and the ICF mid case scenario as the Straw Proposal high case. This proceeding should adopt all of the 2012 ICF CHP Policy Analysis assumptions, using the ICF base case as the low scenario, the ICF mid case as the mid scenario, and the ICF high case as the high scenario. These assumptions are more realistic and also will help to ensure that policy driven objectives are met. Though the ICF mid case doesn't quite meet the scoping plan goal (3,600 MW by 2020); the ICF high case comes closer to modeling the 2030 goal (6,100 MW).

For the second planning period, the CHP policy goal of 6,500 MW by 2030 should be used rather than using a linear growth metric. This number could be linearly continued to 2032, the end of the planning period.

The embedded values should be identified and compared to the 4,000 MW goal of CHP.

a. What capacity factor is appropriate to use?

The 75% capacity factor may be a reasonable assumption; however it is low compared to the ARB Scoping Plan, which has *4,000 MW of CHP generating 30,000 GWh per year*. This is equivalent to an 86% capacity factor. If the capacity factor is only 75%, then approximately 4500 MW of CHP will be needed to meet the ARB GHG goal for this measure.

9. Traditionally, local area and other assessments utilizing a higher peak forecast have been based on a middle forecast for energy and peak. If this should be changed, please explain why.

There is concern that using the middle forecast as the basis for a high peak risks losing the middle case and turning it into yet another high case. The unmodified high case should be considered the test for what happens if there is a higher peak. Otherwise, the LTPP will be

[9] Bill Powers. 2012. *Bay Area Smart Energy 2020.* Pacific Environment. Retrieved from: http://pacificenvironment.org/downloads/BASE2020_Full_Report.pdf.

creating another bias toward excessive procurement by having a low case and effectively two high cases. If there were in reality a risk of higher demand growth in future decades, then this might be justified. But the most updated demographic information shows that the longer one looks out into the future, the less growth there will be. In the current demographic environment, it makes no sense to push redundant scenarios which range from high to very high, when the long trends are going in the opposite direction, and where the IOUs in the 2010 LTPP have already been shown to have grossly excessive resource capacity based upon prior inflated expectations about demand growth.

10. Are there any significant demand-side assumptions that have been missed? If so please identify, provide sources, and the MW and GWh magnitude and likelihood.

See answer 29 regarding energy storage.

11. Other comments on demand-side assumptions.

No comment at this time.

SUPPLY-SIDE ASSUMPTIONS

12. Should all resources be accounted for by their NQC or a forecast of NQC?

There should be a procedure to address the effective load carrying capacity ("ELCC") of distributed generation. The last LTPP assigned a value of zero, which on its face is unreasonable and unfair to distributed generation, and potentially a waste of ratepayer funds if new procurement is authorized due to this valuation. Assigning reasonable ELCC to distributed generation becomes increasingly important, especially as the State ramps up this type of resource. In an effort to "minimize the construction of fossil fuel electrical generation capacity to support the integration of intermittent renewable electrical generation into the electrical grid," Public Resources Code 399.26(d) *requires* the Commission to adopt ELCC values for wind and solar resources and "use those effective load carrying capacity values in establishing the contribution of wind and solar energy resources toward meeting the resource adequacy requirements established pursuant to Section 380." By law, this should already have been accomplished by the Commission.

13. What year and data source should be used for variable resources' production profiles?

It is important that more than one year of data be used for variable resources, because there is significant variation from year to year. Ideally, data should be taken from a geographically representative range of locations that are reasonably expected to be sites for solar and wind power development. Taking data from a range of locations is important because geographic dispersion is an important way to compensate for variability, and current state policies, especially for solar power, are likely to result in thousands of megawatts of variable generation widely dispersed throughout the state.

14. How should transmission capacity be considered?

New transmission should be considered in light of the Garamendi Principles adopted through the state's 33% RPS law, where distributed generation, existing rights of way, and upgrades of existing lines are given priority over new rights of way. Existing transmission capacity should be considered according to its accepted full transfer capacity, rather than derated to historical transfers.

15. Should all "known" and "planned" (non-RPS) resources be used in all supply-side scenarios?

Yes; as in past LTPPs, these need to be included. These critera show relatively high degrees of confidence of these projects coming on line.

a. Are the definitions of "known" and "planned" clear?

Note: At the workshop, "planned" having a contract in place was clarified to mean "approved contract by the appropriate entity" (e.g. Muni approved or CPUC approved). Do you support this clarification?

The definitions are clear, but these definitions disadvantage certain resources such as energy storage that will be incorporated into the energy system during the two planning periods. There needs be another definition or assumption that accounts for resources that are projected to be on the system such as energy storage.

16. Deliverability

a. Are any changes to the definition of future resources considered deliverable warranted?

The deliverability assumptions appear to improperly favor natural gas infrastructure. The test of "deliverability" is whether or not capacity is deliverable to load on the system because of the presence of transmission constraints. The first proposed criteria, whether the resource "fits on existing load or approved transmission," reflects this principle. Yet, the straw proposal goes on to include an alternative criterion of whether the resource is "baseload or flexible." There does not appear to be any legitimate basis on which to allow these resources to be considered "deliverable" absent a determination of whether they can, in fact, fit on existing load or approved transmission.

b. How should information from other sources, such as distribution resource deliverability be incorporated?

First, it is essential that NQC values be assigned to distributed resources, or any "deliverability" will be meaningless in relation to the LTPP. Second, distributed resources should a priori be considered delivered, since 1) the definition of distributed generation is that it is either in the same location or in the same distribution network as the load, and 2) the large number and diverse locations of distributed generation avoid the risk of single points of failure that could restrict deliverability of a single generator.

17. What additional information is needed for resource locations?

The LTPP should have projections for energy storage capacity, and suitable locations for energy storage which maximize the value of the resources on the system and reduce the need for fossil resources.

18. Event-Based Demand Response

Again, this needs to be presented in the context of a parallel data column showing the relation between forecast demand response and the Commission's adopted target for the IOUs, and the capacity balance relative to the goal for 5% of peak demand. The line items should also distinguish between DR and interruptible load.

19. Incremental combined heat and power (supply-side)

The supply-side incremental combined heat and power assumptions should be changed. As discussed in the response to #8, the 2012 ICF CHP Policy Analysis base case should become the low case, the ICF mid case should become the mid case, and the ICF high case should become the high case. The current low case, in which there is no change in net CHP capacity, is highly unlikely and, if included in the planning assumptions, could thwart efforts to meet the policy goals laid out in the AB32 Scoping Plan (4000 MW new CHP by 2020) and the Governor's Clean Energy Jobs Plan (6500 MW new CHP by 2030).

a. What capacity factor is appropriate to use?

The 75% capacity factor necessitates a shortfall relative to the AB 32 ARB Scoping Plan target for having 4000 MW of CHP capacity generating 30,000 GWh of on-site electric generation. If this lower capacity factor is used, consideration should be given to increasing the amount of CHP capacity to offset this loss of GHG benefit.

20. Renewable Resources

a. Establishing the 33% RPS infrastructure target via the LTPP, understanding that other requirements may also need a similar calculation within the RPS proceeding.

No comment at this time.

b. Establishing the RPS supply (i.e. the "highly likely resources") in the RPS proceeding.

No comment at this time.

c. Base Portfolio

It is unclear if the base portfolio includes distributed generation procurements such as the RAM and feed-in tariff. If not already included, these programs should be incorporated into the base portfolio. In addition, participation in the feed-in-tariff program is limited to projects on the distribution system that are strategically located at load centers and do not require transmission

upgrades.[10] Accordingly, the local reliability benefits of this program should be included as well.

d. High DG Portfolio

Sierra Club supports creating a High DG Portfolio. The DG resources should include criteria that maximize system benefits.

e. Sensitivities

No comment at this time.

f. Long-term Target

The long-term target should be consistent with Executive Order S-3-05, which calls for reducing greenhouse gas pollution to at least 80% below 1990 levels by 2050. Given the difficulty in eliminating greenhouse gas pollution in sectors such as transportation and agriculture by 2050, achieving California's 2050 emission reduction target will likely require a zero carbon energy supply.[11] A 40% RPS target by 2030 is far too low and would undermine achievement of this critical greenhouse gas objective. To be on track to a zero/near zero carbon energy supply by 2050, the RPS target for 2030 target should be at least 55%.

In addition, a minimum 55% RPS target for 2030 is consistent with the current growth rate in renewables, which will expand from 12 or 13 percent in 2010 to 33 percent by 2020. A similar growth rate should be assumed for the following decade. Indeed, projecting the current growth in renewables to the following decade is likely conservative given that the cost of solar and other renewable resources is expected to continue to decrease. Accordingly, to maintain consistency with California's greenhouse gas reduction targets and the existing growth rate in renewables, the 2030 RPS goal should be revised from 40% to at least 55%.

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[10] Docket R-11-05-005, Decision Revising Feed-in-Tariff Program, dated May 24, 2012 at 62.

[11] *See, e.g.,* European Wind Energy Ass'n, EU Energy Policy to 2050: Achieving 80-95% emissions reductions (Mar. 2011) at 7 (finding that achieving similar 2050 reduction target in Europe "is only certain if the power sector emits zero carbon well before 2050."); http://www.ewea.org/fileadmin/ewea_documents/documents/publications/reports/EWEA_EU_Energy_Policy_to_2050.pdf; *see also* California Council on Science and Technology, California's Energy Future: The View to 2050 (May, 20 11) at 35 (meeting 2050 target requires that "the electricity generating capacity of the state [] be almost entirely replaced and then doubled, and all with near zero-emission technology."), http://www.ccst.us/publications/2011/2011energy.php;

21. Retirements

The mid and high retirement scenarios for renewables appear unrealistic and inconsistent with prior LTPPs. Unless one of these resources has a specific retirement date, or it is known for certain that a renewable facility will not be repowered, only the low scenario should be applied in this category. The Hydro High Scenario is similarly unrealistic, because it may result in some operational facilities being counted as closed.

Sierra Club supports the retirement scenarios for the nuclear plants; however, it is very important for meeting the State's GHG goals that replacement of the energy and capacity be provided by high loading order resources that have low or zero carbon emissions.

In addition, the Sierra Club supports the recommendation of NRDC and Vote Solar Initiative that the assumption of once through cooling (OTC) plant retirements includes actual implementation plans in order to account for the portion of plants that plan to comply through upgrades as opposed to retirement.

a. How many retirement assumption combinations are needed? If more than one, please list the top two most important retirement assumptions to consider sensitivities on.

No comment at this time.

22. Are there any significant supply-side assumptions that have been missed? If so please identify, provide sources, and the MW and GWh (if appropriate) magnitude and likelihood.

The assumptions should recognize that energy storage is a unique resource that can fill a role both as a generator and as dispatchable demand, and that its real value to the grid has therefore much higher MW capacity than its nameplate.

23. What is a reasonable number of overall scenarios for <u>supply-side</u> assumptions? What is the purpose behind having that number of scenarios?

No comment at this time.

24. Other comments on supply-side assumptions.

No comment at this time.

ALLOCATION METHODOLOGIES

If another allocation methodology is appropriate, parties are encouraged to provide it. It is also appropriate to suggest alternative methodologies to be used in a subsequent LTPP if they may require significant development.

25. Energy Efficiency

While energy efficiency and demand response are demand side resources, it is important that these be considered capable of meeting the same needs that are otherwise met through generation resources. In this way, they should not be completely segregated as they often have in past LTPPs.

26. Demand Response

See answer to 25 above.

27. Other methodologies for assigning resources to busbars.

Wholesale distributed generation should account for the fact that it has higher capacity and energy value relative to a remote central station generator because it avoids line losses.

OTHER

28. What is a reasonable number of total scenarios + sensitivities to consider?

a. Briefly describe the scenarios and sensitivities that are most important to consider. Please refer to the assumptions discussed above to describe and explain this recommendation.

The environmental effects of each adopted sensitivity and scenario need to be analyzed. Different scenarios could have varying environmental effects as well as different greenhouse gas emissions. The analysis should form the basis of a CEQA analysis.

29. Any other comments.

Capacity and energy values for energy storage should be incorporated into the assumptions. For the most part, new energy storage will not meet the criteria for known or planned additions. Yet, in a report entitled "California Clean Energy Future: An Overview on Meeting California's Energy and Environmental Goals in the Electric Power Sector in 2020 and Beyond"[12] the California energy agencies target "1,000 megawatts of additional storage capacity to be brought onto the system by 2020."[13] The Energy Commission's Integrated Energy Policy Report reiterates this goal of 1,000 MW of new storage."[14] The report projects that "[s]everal hundred megawatts of distributed electricity storage facilities may come on-line by 2020 as well, depending on various factors. For example, one factor is the outcome of proceeding (OIR R.10-12-007), which will determine whether and how the CPUC should further encourage storage"[15] Similarly, the Governor's Clean Energy Jobs Plan "envisions[, among other things,] accelerated development of energy storage capacity to support integration of renewable resources into the California grid."[16]

The California Energy Commission's Public Interest Energy Research (PIER) Program released a strategic analysis of energy storage that reports that "[s]tudies indicate that California may require between 3,000 to 4,000 megawatts of fast-acting energy storage by 2020 to integrate the projected increase in renewable energy." [17]

Thank you for your consideration of these comments.

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[12] California Clean Energy Future, CEC-100-2010-002.
[13] *Id.*
[14] "2011 Integrated Energy Policy Report," Lead Commissioner Final Report ("IEPR") California Energy Commission, January 2012, CEC-100-2011-001-LCF, p. 75.
[15] *Id.*
[16] "Renewable Power in California: Status and Issues," Lead Commissioner Report, California Energy Commission, December 2011, CEC-150-2011-LCF-Rev1 ("Renewable Power in CA") p. 27; see also IEPR p. 76 n. 92.
[17] 2020 Strategic Analysis of Energy Storage in California, Public Interest Energy Research (PIER) Program Final Project Report, November 2011, CEC-5000-2011-047 ("PEIR Report"), located at http://www.energy.ca.gov/2011publications/CEC-500-2011-047/CEC-500-2011-047.pdf, last viewed January 30, 2012, p. 6.

Respectfully submitted,

/s/

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