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)

CALIFORNIA ENVIRONMENTAL JUSTICE ALLIANCE'S POLICY COMMENTS ON THE REVISED SCENARIOS

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The California Environmental Justice Alliance (CEJA) respectfully submits these policy comments on the September 25, 2012 Revised Assigned Commissioner's Ruling Setting Forth Standardized Planning Scenarios for Comment ("Revised Scenario ACR"). CEJA applauds the energy division in its continuing work on and refinement of the scenarios. These comments urge the Commission to more explicitly consider the State's greenhouse gas (GHG) and distributed generation (DG) policies, and to revise a few assumptions in the base case scenario to better reflect what is likely to occur.

I. The Commission Should Evaluate Meeting GHG and DG Goals and Requirements.

According to the June 27, 2012 Assigned Commissioner's Ruling, the purposes of developing scenarios are to "understand different possible futures, evaluate the success of various potential plans in the likely scenarios, and select a course of action."[1] Scenarios are thus tools that can help evaluate "reliability, economics, and policy goals."[2] To evaluate policy goals, "[s]cenarios should be designed to inform useful policy information including tracking greenhouse gas reduction goals."[3] The proposed scenarios, however, appear to be designed to only evaluate policies related to renewable integration and nuclear retirement reliability issues.[4] Although those issues should be evaluated, scenarios should also evaluate greenhouse gas (GHG) and distributed generation (DG) policies.

A. One Scenario Should Evaluate Compliance with AB 32 Greenhouse Gas Reduction Requirements and Goals from the CARB Scoping Plan.

California law recognizes that "[g]lobal warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California."[5] California has

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[1] June 27, 2012 Assigned Commissioner's Ruling on Standardized Planning Assumptions, Attachment at p. 5 (hereinafter Planning Assumptions ACR).
[2] Planning Assumptions ACR, Attachment at p. 5.
[3] Planning Assumptions ACR, Attachment at p. 8 (emphasis in original).
[4] September 25, 2012 Revised Assigned Commissioner's Ruling Setting Forth Standardized Planning Scenarios for Comment, Attachment at pp. 16-17 (hereinafter Revised Scenarios).
[5] Cal. Health & Safety Code § 38501(a).

been found to be the twelfth largest GHG emitter in the world, making its GHG mitigation important nationally and globally.[6] To mitigate these impacts, California has made its commitment to reduce GHG emissions clear: AB 32 mandates that California reduce GHG emissions to 1990 levels by 2020,[7] and Executive Order S-3-05 requires an 80 percent GHG reduction below 1990 levels by 2050.[8] These goals are considered aggressive, but achievable.[9] To achieve these reductions, it is imperative to come up with detailed plans and targets, and will require significant emission reductions in the utility sector.[10]

Commission decisions have an enormous impact on greenhouse gas and pollution levels in the State. Yet, GHG goals and requirements do not appear to be considered in the revised scenarios. This is inconsistent with the Assigned Commissioner's Ruling, which requires consideration of GHG policies.[11] Critically, the Commission has committed to study "AB 32 constraints on investor owned utilities' electricity portfolios" in the long term planning proceeding.[12] The Commission has also found that "[s]ince AB 32 was enacted . . . reduction in GHG emissions is a key policy objective for the utility industry."[13] Thus, meaningful consideration of the States' GHG goals and requirements should be evaluated in this proceeding. Otherwise, the significant modeling work done in this proceeding will not be a useful tool for assisting policy-makers with measuring these goals.

The California Air Resources Board (CARB), responsible for implementing many aspects of AB 32, has studied what is necessary to meet GHG reduction goals. In CARB's AB 32 Scoping Plan, it lays out a variety of specific measures that must be undertaken in the utility

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[6] *See* J. Williams, et. al, The Technology Path to Deep Greenhouse Gas Emissions Cuts by 2050: The Pivotal Role of Electricity, Science, Vol. 335, no. 6064 at p. 53 (January 2012).
[7] Cal. Health & Safety Code § 38550.
[8] *See* Executive Order S-3-05 (June, 2005) http://www.dot.ca.gov/hq/energy/ExecOrderS-3-05.htm
[9] *See, e.g.,* Executive Order S-3-05 (designed to require an "aggressive, but achievable" target).
[10] Health & Safety Code § 38505(i); Health & Safety Code § 38561(b) (AB 32 requires "direct emission reduction measures" from sources such as utilities).
[11] Planning Assumptions ACR, Attachment at p. 8.
[12] *See* CPUC and CEC Final Opinion on Greenhouse Gas Regulatory Strategies, at p. 88, http://www.energy.ca.gov/2008publications/CEC-100-2008-007/CEC-100-2008-007-F.PDF
[13] D.10-12-035 at p. 38, *citing* D.07-12-052 at pp. 2-5, 243; D.08-10-037 at pp. 2-3.

sector to significantly reduce GHG emissions.[14] These measures include energy reductions attributable from energy efficiency measures and increased reliance on renewable resources.[15] For instance, to reduce GHGs to 1990 levels by 2020, CARB found that it will be necessary to expand and strengthen existing efficiency programs.[16] Specifically, CARB recommends increased utility efficiency programs, more stringent building and appliance standards, and additional efficiency and conservation programs.[17] These energy efficiency measures will need to reduce demand by *32,000 GWh,* which is equivalent to a reduction of 15.2 million metric tons of CO_2.[18] The Commission should explicitly consider these values in at least one scenario. Utilities have previously been required to reflect AB 32 compliance in their RFO process and in selecting new resources,[19] and, here, it is logical to form a scenario demonstrating such a resource mix. At least one scenario should include the targets and resource specific requirements set forth in the CARB Scoping Plan. The scenario can rely on the recommended actions for the energy sector presented in CARB's AB 32 Scoping Plan.

B. The Longer Planning Period Should Be Utilized to Evaluate Meeting GHG Goals.

The longer planning period envisioned in the revised scenarios should be used to evaluate and provide a trajectory for meeting and exceeding California's energy and environmental policies. Key to this evaluation should be California's goal to reduce GHG emissions by 80 percent below 1990 levels in 2050.[20] To reach this goal, significant reductions are necessary in the energy arena. Indeed, different resource mixes will result in dramatically different GHG

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[14] *See* Climate Change Scoping Plan: Pursuant to AB 32, The California Global Warming Solutions Act of 2006, the California Air Resources Board (Dec. 2008) http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf [Hereinafter Scoping Plan].
[15] CARB Scoping Plan at pp. 41-46.
[16] CARB Scoping Plan at p. 44.
[17] *Id.*
[18] *Id.*.
[19] D.07-12-052 at pp. 3-4 ("utilities will be required to reflect in the design of their requests for offers . . . GHG reduction goals and demonstrate how each application for fossil generation comports with these goals.").
[20] *See* Executive Order S-3-05 (June, 2005) http://www.dot.ca.gov/hq/energy/ExecOrderS-3-05.htm.

emissions,[21] For instance, in CAISO's analysis of Southern California Edison's local capacity needs, it identified 4.25 million tons of CO_2 emissions per year in the SCE area as a result of the added conventional generation it recommends.[22] CAISO's projected resources mix would be contrary to California's GHG reduction goals. California needs to start developing specific milestones to meet its GHG targets and goals. This proceeding is the place to make that projection.

Several well-respected scientists recently published a roadmap that identifies where GHG reductions need to occur to meet the State's 2050 goal.[23] Two of the primary measures necessary to meet the 2050 goal are directly related to energy usage. Specifically, the study found that "energy efficiency had to improve by at least 1.3% per year over 40 years" and that "electricity supply had to be nearly decarbonized, with 2050 emissions intensity less than 0.025 kg CO2e/kWh."[24]

To further reduce GHG emissions from 1990 levels in 2020 to 80 percent below 1990 levels in 2050, significant action is necessary. Even though reductions may occur, it is also crucial to remember CO_2 emissions continue to accumulate in the atmosphere every year, constantly increasing the atmospheric burden, and worsening impacts. CO_2 has a variable, but very long atmospheric lifetime, and a portion lasts for millennia.[25] Consequently, it is essential that we use all practical tools at our disposal to set aggressive targets, and carry them out, to keep as much CO_2 as possible out of the atmosphere. Since it has already been demonstrated that much higher levels of renewable energy can be generated than we are achieving here, even in

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[21] *See* CPUC and CEC Final Opinion on Greenhouse Gas Regulatory Strategies, at p. 34, http://www.energy.ca.gov/2008publications/CEC-100-2008-007/CEC-100-2008-007-F.PDF (finding that "different resource policy scenarios result in very different levels of GHG emissions in 2020.")
[22] Track I, CEJA Ex. 3 (J. May Opening Testimony) at p. 3 (citing CAISO's data request response).
[23] *See* J. Williams, et. al, The Technology Path to Deep Greenhouse Gas Emissions Cuts by 2050: The Pivotal Role of Electricity, Science, Vol. 335, no. 6064 at p. 53 (January 2012).
[24] J. Williams, et. al, The Technology Path to Deep Greenhouse Gas Emissions Cuts by 2050: The Pivotal Role of Electricity, Science, Vol. 335, no. 6064 at p. 53-59 (January 2012).
[25] D. Archer, University of Chicago, Carbon is Forever, Nature Reports, Climate Change, Vol 2, December 2008, www.nature.com/reports/climatechange "The lifetime of fossil fuel CO2 in the atmosphere is a few centuries, plus 25% that lasts essentially forever."

places with far lower natural resources (e.g. solar radiation), such as Germany,[26] it is only right that California complies with its own state policies to reach our state goals.

This LTPP is the opportunity to evaluate the policy road-map to determine what steps are necessary to meet the State's goals. To this end, the long-term target in the scenarios should not be set at a static 40% RPS. Under California's RPS law, California is planning to increase its RPS requirements in the Code from 20% in 2013 to 33% in 2020.[27] If a 13% increase can be achieved in seven years, more than an additional 7% should be a target in the long-run. Not only is a higher target feasible, but a significantly higher target will be necessary to meet California's long-term GHG goals.[28]

C. The High-DG Scenario Should Comply with the Governor's 12,000 MW Renewable Distributed Generation Goal.

The Governor's Clean Energy Jobs Plan established a goal of reaching 12,000 MW of renewable distributed generation by 2020.[29] Even though the Revised Scenarios recognize this goal,[30] it does not appear to be directly incorporated in any of the scenarios. Although the High-DG scenario examines the "general implications of this state policy,"[31] it does not evaluate the actual 12,000MW goal. The Commission should explicitly study the 12,000 MW goal in its High-DG scenario.

Not only are increased levels of DG a goal of the Governor, but recent events demonstrate that this is a reasonable projection of the future. The deployment of large amounts of distributed generation has already begun. Germany has successfully started transitioning its grid to a significant portion of distributed generation.[32] In fact, Germany installed a record 7,400

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[26] *See infra* at p. 6.
[27] Cal. Pub. Util. Code §399.11(a).
[28] *See* J. Williams, et. al, The Technology Path to Deep Greenhouse Gas Emissions Cuts by 2050: The Pivotal Role of Electricity, Science, Vol. 335, no. 6064 at p. 53-59 (January 2012).
[29] Clean Energy Jobs Plan at p. 3 http://gov.ca.gov/docs/Clean_Energy_Plan.pdf.
[30] Revised Scenarios, Attachment at p. 16.
[31] *Id.*
[32] *See generally* KEMA, *Distributed Generation in Europe: Physical Infrastructure and Distributed Generation Connection* (April 2011), http://www.energy.ca.gov/2011_energypolicy/documents/2011-05-

MW of solar photovoltaic facilities in *one* year.[33] Recent estimates show that Germany has installed approximately 20,000 MW of distributed generation resources, providing an example of large-scale deployment of solar photovoltaic resources for the rest of the world.[34] The scale of the installations, while impressive, is not surprising, and similar expansion is feasible in California. As the Commission has recognized, distributed generation projects have many benefits including the "relative ease and certainty of deployment."[35] In addition, prices for solar PV have dropped drastically in the last few years, and projections estimate that PV will further drop in upcoming years as deployment of photovoltaic systems increase.[36] Finally, the Commission's recent net metering decision is expected to significantly increase distributed generation.[37] The other DG assumptions are similarly low due to these developments.

Notably, a recent report found that the 12,000 MW goal is not only achievable, but in addition will provide a number of societal benefits including "the potential to stimulate

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09_workshop/documents/Memo%201_Physical%20Infrastructure%20and%20DG%20Interconnection.pdf (describing the distributed generation system in Germany).

[33] Paul Gipe, *New Record for German Renewable Energy in 2010*, RENEWABLE ENERGY WORLD (March 25, 2011), http://www.renewableenergyworld.com/rea/news/article/2011/03/new-record-for-german-renewable-energy-in-2010??cmpid=WNL-Wednesday-March30-2011. The German installation rates dwarf the installation rates in the United States: "In December alone, Germans installed more than 1,000 MW of solar PV, enough solar capacity to generate 1 TWh of electricity under German conditions. While they represented only half that installed in June 2010, the December installations were 50% greater than total solar PV installed in the USA in 2010 and as much as that rumored to have been installed in Japan last year." *Id.*

[34] *See generally* KEMA, *Distributed Generation in Europe: Physical Infrastructure and Distributed Generation Connection* (April 2011), http://www.energy.ca.gov/2011_energypolicy/documents/2011-05-09_workshop/documents/Memo%201_Physical%20Infrastructure%20and%20DG%20Interconnection.pdf (describing the distributed generation system in Germany); *see also* John Landers, *Germany's Solar Photovoltaic Market: The World's Installed Capacity Leader*, ENERGYTREND (Apr. 10, 2011), http://www.energytrend.com/Germany_Solar_Installation_20111004 (describing Germany as having a total capacity of 17,193 MW at the end of 2010).

[35] D.10-04-052 at p. 19 (April 2010). This benefit is important as viability concerns continue to plague renewable development. *See* D. Huard & J. Stoddard, Murphy's Law and Renewable Energy Products: If It Can Go Wrong, It Probably Will, 42 Envtl. Rep. 1790 (Aug. 5, 2011) (detailing ways energy projects can and have failed).

[36] *See* S. Lacey, *Why Clean Energy Can Scale Today*, CLIMATE PROGRESS (May 9, 2011), http://thinkprogress.org/romm/2011/05/09/208051/clean-energy-scale-stephen-lacey/ (discussing projections of PV prices by industry leaders). Prices of photovoltaic systems dropped by half since 2004 in Germany, and prices in Germany are currently 61 percent prices in the United States. *See* Paul Gipe, *Should California Simply Adopt German Solar Tariffs*, RENEWABLE ENERGY NEWS (July 8, 2011), http://www.renewableenergyworld.com/rea/news/article/2011/07/should-california-simply-adopt-german-solar-tariffs.

[37] D.12-05-036.

enormous economic growth in California."[38] Energy-related benefits include the ability to avoid transmission infrastructure costs, avoided gas market price impacts, and reduction in GHGs and other pollutants.[39] At the very least, the 12,000 MW goal should be fully incorporated into the High-DG scenario. The 2011 Integrated Energy Policy Report (IEPR) established regional targets in meeting this 12,000 MW goal.[40] The High-DG Scenario could use the findings from the 2011 IEPR as a framework for crafting a distributed generation scenario that meets the 12,000 MW DG goal.

D. The Replicating TPP Scenario Does Not Reflect an Expected Future World.

The Replicating TPP Scenario assumes that there is no incremental EE, PV and CHP and includes only low-level DR.[41] This Scenario is not only inconsistent with many State policies and requirements, it is also does not reflect reality. Essentially, this Scenario would assume that several key State policies for preferred resources fail. Because this Scenario is directly inconsistent with State policies, and does not reflect reality, no resource decisions should be based on this Scenario. If this Scenario is run, it should be given low priority and be used solely as a reference point.

II. CHP and EE Assumptions in the Base Case Should Better Reflect the Expected Future World, Import Assumptions Need to Be Better Defined, and Increases in Energy Storage Need to be Evaluated.

A. The CHP Value for the Base Case Should Be the Mid-Level Assumption.

The base case unreasonably assumes that *no* new Combined Heat and Power (CHP) will be developed in the next ten years.[42] This is not a reasonable reflection of the "expected future

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[38] *See* 12,000 MW of Renewable Distributed Generation by 2020: Benefits, Costs and Policy Implications, Interstate Renewable Energy Council, at p. 1 (July 2012) http://www.irecusa.org/wp-content/uploads/Final-12-GW-report-7.31.12.pdf

[39] *Id.* at pp. 4-6.

[40] 2011 Integrated Energy Policy Report, California Energy Commission, at Table 3, p. 33 http://www.energy.ca.gov/2011publications/CEC-100-2011-001/CEC-100-2011-001-CMF.pdf

[41] Revised Scenarios at p. 20.

[42] *See* Revised Scenarios at p. 13 (assuming "low" for incremental CHP); ACR at Attach. p. 18 (low CHP assumption is no change in net CHP capacity).

world."[43] The Commission should at least assume mid-level CHP for its base case. The current proposed assumption for the base case ignores existing CHP programs and is inconsistent with CHP forecasts. For instance, the Governor's Clean Energy Jobs plan calls for an additional 6,500 MW of CHP in the State by 2030,[44] and the AB 32 Scoping Plan sets a goal of 4,000 MW of new CHP by 2020.[45] These figures comport with the economic potential for CHP, which has been identified as 6,500 MW by 2030.[46]

In addition, the 2010 Qualifying Facility and Combined Heat and Power Program Settlement Agreement (CHP Settlement), entered into by numerous parties, "encourage[s] the continued operation of the state's existing CHP facilities, and the development, installation, and interconnection of new, clean and efficient CHP Facilities."[47] In pursuit of this goal, the CHP settlement also sets binding MW targets that utilities must meet.[48] For instance, SCE must procure 1,402 MW of CHP by the end of 2020.[49] Even if a utility breached its settlement obligations in procuring new CHP, CHP representatives can file for reinstatement of Public Utility Regulatory Policy Act purchase obligations with FERC.[50] Pursuant to the settlement, utilities have launched RFOs for CHP facilities and have already begun to submit Advice Letters to the Commission as a result of its RFO for many MW of new CHP.[51]

In addition to pursuing the MW target under the CHP Settlement, utilities are also required to participate in the CHP Feed in Tariff (FIT) under AB 1613.[52] Under the AB 1613

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[43] Revised Scenarios at p. 12 (defining the purpose of the base case).
[44] CEJA Ex. 1 (B. Powers Test.) at p. 3.
[45] *Id.* at p. 26.
[46] *Id.* at p. 26.
[47] D.10-12-035 at p. 37.
[48] *Id.*, Attachment A (Settlement Agreement Term Sheet) at p. 8.
[49] *Id.*, Attachment A (Settlement Agreement Term Sheet) at p. 27.
[50] *Id.* at pp. 23-24.
[51] *See e.g.,* Advice Letter-2772-E (Aug. 31, 2012), *available at* http://www.sce.com/NR/sc3/tm2/pdf/2772-E.pdf (seeking Commission approval for 80 MW new CHP facility); Advice Letter 2770-E (Aug. 31, 2012) *available at* http://www.sce.com/NR/sc3/tm2/pdf/2770-E.pdf (seeking Commission approval for a new 39.2 MW CHP facility).
[52] *See* Cal. Pub. Util. Code § 2841(a)-(b)(1).

FIT, the utilities are required to purchase excess electricity from eligible CHP systems.[53] CHP is also a qualifying facility under the Self-Generation Incentive Program (SGIP) program.[54]

Notably, the Commission has rejected use of a zero MW incremental CHP assumption in the past, finding that:

> CHP comes before conventional fossil generation in the loading order, so SCE's forecast of zero CHP would be credible only if SCE is also forecasting to procure zero conventional fossil generation. . . .Second, there will continue to be a mandatory Public Utilities Regulatory Policies Act program for CHP facilities less than 20 MW that may execute contracts after 2015. And third, while there is uncertainty about how much CHP SCE or the other utilities may need to procure in order to satisfy the utility-specific GHG reduction targets in the QF/CHP Settlement, it is far from clear that the utilities will have achieved all of their required GHG reductions from CHP in the Initial Program Period.[55]

Given the MW targets under the CHP settlement, as well as other CHP programs and the recent ICF forecast, at least the mid-level CHP should be in the base case scenario.

B. The Commission Should At Least Consider More Realistic EE Levels.

Initially, the Commission should at least consider Big Bold Energy Efficiency Strategies (BBEES) levels consistent with what it considered in the 2010 LTPP. The Commission included low-level savings from the BBEES in the mid-level trajectory scenario in the 2010 LTPP.[56] Here, the current base case in the Revised Scenarios would consider *no* energy efficiency savings from the BBEES. This is not a reasonable reflection of the "expected future world."[57] The Commission should at least consider low levels of BBEES in the base case, and mid-levels of BBEES in the high case given existing policies, requirements, plans, and investments for BBEES programs.

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[53] *See id.*; *see also* D.09-12-042 at p. 2.
[54] D.11-09-015 at p. 2; *see also* D.11-12-030 at p. 1 (adopting an annual budget of $83 million for the SGIP).
[55] D.12-01-033 at pp. 32-33.
[56] *See* Administrative Law Judge's Ruling Modifying System Track I Schedule and Setting Prehearing Conference in R.10-05-006, Attachment 1, Standardized Planning Assumptions (Part 1) for System Resource Plans (Feb. 10, 2011) at p. 46 (listing the BBEES assumptions for each utility for the Commission's incremental uncommitted EE assumption).
[57] Revised Scenarios at p. 12 (defining the purpose of the base case).

The strategies included in the BBEES include reductions from: heating, ventilation and air-conditioning, Zero Net Energy construction, and low income programs.[58] These strategies have been considered "cornerstones" for the State's energy efficiency goals, and they have been incorporated into the AB 32 Scoping Plan.[59] It has been estimated that "cumulative gross savings from the BBEES initiatives are estimated to reach approximately 4,600 GWh by 2020."[60] California should expect to meet at least some of these cornerstone goals to comply with AB 32.[61] To implement these strategies, "action plans are currently completed for commercial Zero Net Energy, lighting, and HVAC; and underway for residential Zero Net Energy."[62]

Importantly, a significant portion of the peak load in the State is attributable to air conditioning loads. Utilities should expect a substantial decrease in this load due to energy efficiency advances in air conditioning units.[63] In addition, the Zero Net Energy goals are bolstered by a 2012 Executive Order by the Governor calling for 50 percent of government commercial buildings to reach Zero Net Energy.[64] The Commission also released the *2010-2012 Zero Net Energy Action Plan* to support the state's zero net energy goals.[65] New legislation such as AB 758 directs the CEC to implement a program to reduce energy consumption in existing buildings,[66] and AB 1109 requires an 11 percent reduction in electricity consumption from

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[58] D.12-05-015 at p. 15, n.9.
[59] *Id*. at p. 16.
[60] Assistance in Updating the Energy Efficiency Savings Goals for 2012 and Beyond, Itron at p. 51 (March 24, 2007) http://www.cpuc.ca.gov/NR/rdonlyres/D72B6523-FC10-4964-AFE3-A4B83009E8AB/0/GoalsUpdateReport.pdf.
[61] *See* D.12-05-015 at p. 16; *see also* Assistance in Updating the Energy Efficiency Savings Goals for 2012 and Beyond, Itron at p. 15 (March 24, 2007) http://www.cpuc.ca.gov/NR/rdonlyres/D72B6523-FC10-4964-AFE3-A4B83009E8AB/0/GoalsUpdateReport.pdf.
[62] D.12-05-015 at pp. 17-18.
[63] *See* CEJA Track 1 Ex. 1 (B. Powers Opening Test.) at pp. 7-8 (discussing recent advances in air conditioning technology and the impact on load).
[64] *See* Governor Edmund G. Brown Jr., *Executive Order B-18-12* (Apr. 25, 2012), http://gov.ca.gov/news.php?id=17508
[65] *Zero Net Energy Action Plan 2010–2012*, California Public Utilities Commission (Sep. 2011) http://www.cpuc.ca.gov/NR/rdonlyres/6C2310FE-AFE0-48E4-AF03-530A99D28FCE/0/ZNEActionPlanFINAL83110.pdf
[66] *AB 758 Comprehensive Energy Efficiency Program for Existing Buildings*, California Energy Commission http://www.energy.ca.gov/ab758/.

residential lighting and an 8.6 percent reduction from commercial lighting.[67] Thus, the Commission should at least include the low-level BBEES forecast for mid-level EE like it did in the 2010 LTPP, and then it should consider the mid-level BBEES forecast for high-level EE.

In addition, as stated by NRDC, the Commission should also consider all EE that is naturally expected to occur, as this reflects a realistic expectation of the future.[68]

C. The Import Value Needs to Consider Future Expansions and Work that Impacts Imports Outside of CAISO.

The Planning Assumptions ACR provided that the imports should be based on the "maximum import capability" and that imports should consider "expansions identified in the TPP."[69] The Planning Assumptions ACR further stated that data from the Transmission Expansion Policy Planning Committee shall be used to update information related to resources outside of CAISO, and that the staff may need to work with CAISO to update the information.[70] The Revised Scenarios, however, appear not to contemplate updating the import values to include future expansions and work done outside of the CAISO area, stating: "[i]mports shall be based on the CAISO Available Import Capability for loads in their control area. This is equal to the CAISO Maximum Imports minus Existing Transmission Contracts (ETCs) outside their control area."[71]

The Revised Scenario should at least include consideration of changes to the import capability from expansions in the TPP, and other resource additions outside of the CAISO process, consistent with the Planning Assumptions ACR. For instance, as part of the 2022 TEPPC study process, the Subregional Planning Group listed several transmission projects,

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[67] 2011 Integrated Energy Policy Report, California Energy Commission, at p. 67.
[68] *See* NRDC, DRA, and Sierra Club California August 8, 2012 Comments on Incremental Energy Efficiency Assumptions at pp. 9-11.
[69] Planning Assumptions ACR, Attachment at p. 15.
[70] *Id.*
[71] Revised Scenarios at p. 14.

which are likely to be in service in 10 years.[72] Failure to consider these projects will result in an import value that does not adequately reflect the likely import levels available.

When reviewing the WECC studies, such as the TEPPC data, it is important to realize that the purpose of those studies is to assess possible binding transmission constraints for the overall WECC territory. The studies are not formulated to determine the most likely level of imports into California. The level of imports is constantly changing and will likely continue to change as balancing authorities work together to integrate renewable resources onto the grid. To better reflect reality, these types of changes should be evaluated when determining import capability.

Furthermore, innovation in grid management is likely to generate new imports available to California. A report by Pacific Northwest National Laboratory found that:

> Operating separately and locally, individual BAs would have to purchase more expensive balancing reserves to accommodate the variability and uncertainty from high penetration of VG [variable generation] in the future. Cooperation and consolidation between BA's has been identified as one of the most important strategies to facilitate high-level VG penetration while limiting requirement for generation reserves.[73]

The report continues to identify a number of different cooperation approaches that could be used to integrate variable generation.[74] The likely improvements in grid management need to be considered when determining import levels.

D. The Impact of Energy Storage Should Be Considered in at least a Sensitivity Analysis.

The Revised Scenarios do not appear to consider energy storage, aside from perhaps hydro pump storage (although the consideration of hydro pump storage is also not clear). Rather, it appears to categorize all resources as "generation" resources, rather than including any

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[72] *See* SPG Coordination Group, 2022 Common Case Transmission Assumptions, February 6, 2012, available at http://www.wecc.biz/committees/BOD/TEPPC/External/Forms/external.aspx. (the report is available under "final reports" tab, "2022" file).

[73] Pacific Northwest National Laboratory, *Analysis Methodology for Balancing Authority Cooperation in High Penetration of Variable Generation* at p. v (February, 2010), http://www.pnl.gov/main/publications/external/technical_reports/PNNL-19229.pdf

[74] *See generally id.*

consideration of energy storage.[75] Consideration of energy storage systems is essential in this LTPP because the development of large scale energy storage systems is already a reality in California. Further, there are several energy storage projects being constructed throughout the state.[76] For instance, SCE's Tehachapi Wind Energy Storage Project has 8 MW of "large-scale lithium-ion batteries for storing intermittently-generated wind energy."[77] Brightsource Energy has also added thermal energy storage capability to three of its power purchase agreements with SCE.[78] In addition, SDG&E is "installing energy storage to more efficiently use generating resources as well as other technology to promote energy efficiency."[79]

Energy storage is a major aspect of the IOU's Smart Grid plans.[80] SDG&E will "strive to accommodate all cost-effective generation and energy storage options, achieved through "implementing new Smart Grid technology which will address voltage regulation, power quality issues and other impacts caused by new variable energy resources."[81] PG&E's Smart Grid plan similarly seeks to put resources such as energy storage "on an 'equal footing' with traditional generation sources."[82] SCE also seeks to integrate renewable resources through storage technologies, among other new resources.[83]

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[75] *See* Straw Proposal at p. xvi.
[76] *See* CESA ESA Presentation at p. 39, *available at* http://storagealliance.org/presentations/StrateGen_CESA_ESA_Presentation_2010-05-06.pdf
[77] CEJA Track I Ex. 2 (B. Powers Selected Sources) at pp. 169-170; *see also* CEJA Track I Ex. 1 at pp. 17-18.
[78] CEJA Track I Ex. 2 at pp. 220-21; *see also* CEJA Track I Ex. 1 at pp. 17-18 (discussing project).
[79] SDG&E Smart Grid Deployment Plan, 2011-2020 at p. 219, http://sdge.com/sites/default/files/documents/smartgriddeploymentplan.pdf
[80] SDG&E Smart Grid Deployment Plan, 2011-2020 at p. 41, http://sdge.com/sites/default/files/documents/smartgriddeploymentplan.pdf; *see also id.* at p. 103 (A major goal of SDG&E's Smart Grid Deployment Plan is to "enable and support the sale of demand response, energy efficiency, distributed generation and storage into wholesale energy markets as a resource, on equal footing with traditional generation resources.").
[81] SDG&E Smart Grid Deployment Plan, 2011-2020 at p. 42, http://sdge.com/sites/default/files/documents/smartgriddeploymentplan.pdf; *see also id.* at p. 232 ("SDG&E is planning distributed energy storage systems on circuits with high penetration of customer PV systems. Additionally, energy storage systems will be strategically located in substations to mitigate the impact of multiple circuits with PV.").
[82] PG&E's Smart Grid Deployment Plan, Appendix A at p. 12 (June, 2011) http://www.pge.com/includes/docs/pdfs/shared/edusafety/electric/SmartGridDeploymentPlan2011_06-30-11.pdf
[83] Southern California Edison Smart Grid Strategy & Roadmap, at p. 7 (2010) http://asset.sce.com/Documents/Environment%20-%20Smart%20Grid/100712_SCE_SmartGridStrategyandRoadmap.pdf; *see also id.* at p. 14 ("SCE, like many

Moreover, the development of energy storage systems is likely to continue, and technology continues to improve. Importantly, the CEC's 2009 *Integrated Energy Policy Report* acknowledges the role of storage technology in planning for the integration of intermittent renewable generation: "looking forward, some of the firming services provided by gas-fired generation will need to come from existing and emerging energy storage technologies that allow generators and transmission operators to fill the gap between the time of generation (off-peak) and the time of need (on-peak) for intermittent renewable energy."[84] That report similarly concluded that storage "technologies can . . . reduce the number of natural gas-fired power plants that would otherwise be needed to provide the characteristics the system needs to operate reliably."[85] The CEC has also found that "[b]attery energy storage technology has improved over time to the point where there are several emerging battery technologies that can provide utility-scale energy storage."[86]

Energy storage is already in use, is being developed, and is likely to continue to be developed. Energy storage has characteristics that are especially useful for a grid that relies on increasing amounts of renewable generation. To achieve a meaningful assessment of a realistic future, the Commission should consider the impact of additional energy storage on the system in at least one sensitivity analysis.

III. The Scenarios Need to Be Dynamic to Consider Other Changes Such As Changes to Capability of Existing Resources.

The Planning Assumption ACR requires the scenarios to be "live" spreadsheets for "assumptions, metrics and results" to enable parties to evaluate how changes in the data change

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industry stakeholders, recognizes the potential for various energy storage technologies to help better integrate intermittent resources. . . SCE has a twenty-year technology evaluation and testing legacy with battery storage technologies that creates unique opportunities to actively support product development that is occurring at battery technology suppliers.").

[84] 2009 IEPR at p. 192; *see also id.* at p. 86 ("Other solutions [aside from natural-gas plants] such as energy storage and hybrid renewable plants, are also possible and could be preferable in the longer term as more aggressive climate mitigation targets are addressed.")

[85] *See* 2009 IEPR at pp. 6, 192; *see also id.* at p. 86 ("[b]attery energy storage technology has improved over time to the point where there are several emerging battery technologies that can provide utility-scale energy storage.")

[86] *Id.* at p. 86.

the results.[87] This ability for the spreadsheets to be dynamic is very important for parties to evaluate alternative considerations. For instance, the proposed scenarios use the base case assumption for existing resource capacity for all assumptions. It is not clear to what extent, if any, the full flexible potential of existing resources was considered. There are a number of technologies currently on the market geared toward increasing the flexibility of existing resources. As such, parties should be able to revise the values to better reflect the capability of existing resources.

CONCLUSION

CEJA appreciates the opportunity to submit comments on the Revised Scenarios.

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Respectfully submitted,
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[87] Planning Assumptions ACR, Attachment at p. 8.