BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

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OPENING COMMENTS OF THE CENTER FOR ENERGY EFFICIENCY AND RENEWABLE TECHNOLOGIES ON THE PROPOSED DECISION ADOPTING PREFERRED SYSTEM PORTFOLIO AND PLAN FOR 2017-2018 INTEGRATED RESOURCE PLAN CYCLE

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For: CENTER FOR ENERGY EFFICIENCY AND RENEWABLE TECHNOLOGIES

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OF THE STATE OF CALIFORNIA

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The Center for Energy Efficiency and Renewable Technologies respectfully submits these Opening Comments on the Proposed Decision Adopting Preferred System Portfolio and Plan for 2017-2018 Integrated Resource Plan (IRP) Cycle mailed in this proceeding on March 18, 2019. These Opening Comments are timely filed and served pursuant to Rule 14.3 of the Commission's Rules of Practice and Procedure and the instructions accompanying the Proposed Decision.

I.
THE PROPOSED DECISION IS RIGHT TO REJECT THE HCP AND DEMONSTRATES A NEED FOR BETTER SIGNALS TO LOAD SERVING ENTITIES

CEERT agrees that the Hybrid Conforming Portfolio (HCP) should be rejected on the basis of not meeting State policy. It is clear that HCP does not meet State policy because it would result in essentially no decrease in greenhouse gas (GHG) emissions from present day and would not meet the Renewables Portfolio Standard (RPS) of 60% renewables by 2030.

In order to improve the next cycle of the IRP, its important to recognize why the Load Serving Entities' (LSEs') IRPs' conforming portfolios did not result in an aggregated portfolio consistent with State Policy.

1) The Reference System Plan (RSP) is not consistent with the GHG emissions target set by the Commission because RESOLVE underestimated GHG emissions, as confirmed by Commission analysis.
2) The hourly average GHG emissions within the Clean Net Short (CNS) calculator underestimate GHG emissions because the average emissions were derived from the RESOLVE results, which underestimate GHG emissions.
3) The average system GHG emissions will change if a different system portfolio is used. For example, if the new portfolio has more solar and less geothermal, the average emissions non-midday hours will be higher than assumed in the calculator.

Aside from underestimating GHG emissions in the RSP as reported in RESOLVE, there is no clear signal for LSEs to develop their plans to include system and renewable integration needs. The only metric available to LSEs in this cycle was the CNS calculator, which the Proposed Decision describes as "not designed to send portfolio investment signals".[1]

I.
DIFFERENCES BETWEEN THE RSP AND HCP RAISE CONCERNS ABOUT THE LIMITATIONS OF DEPENDING ON ENERGY ONLY RESOURCES INSTEAD OF ALLOWING TRANSMISSION UPGRADES

A marked difference between the RSP and HCP is also the difference in Energy Only (EO) resources. There is a clear preference of LSEs for Full Capacity Delivery Status (FCDS) resources, raising concerns about the reliance of EO resources in the RSP. The first concern this raises is whether LSE see EO resources as best meeting their needs and are willing to contract with EO resources.

The second concern is whether, given the Commission's concern with medium- and long-term capacity needs as the grid decarbonizes, LSEs may end up being forced to contract with one

[1] Proposed Decision, at p. 17.

set of resources for "energy needs" and fulfilling RPS obligations and a separate set of resources to meet Resource Adequacy (RA) obligations. It may very well be that transmission upgrades and expansions to improve deliverability of resources is more cost effective in the long term than contracting for other unneeded GHG-emitting resources for RA in addition to EO resources to meet the RPS.

II.
THE PROPOSED DECISION ERRS IN SUBMITTING THE MODIFIED RSP AS THE POLICY PORTFOLIO TO THE TPP AND SHOULD INSTEAD SUBMIT POLICY CASE C AS IT WOULD BEST ENABLE STATE POLICY

The Proposed Decision recommends that the modified RSP be adopted as the Preferred System Plan (PSP) and submitted to the California Independent System Operator (CAISO) Transmission Planning Process (TPP) as the reliability and policy portfolio. "Bluntly stated, the HCP would not result in emissions reductions consistent with the electricity sector GHG goals established by this Commission."[2]

Unfortunately, the RSP would also not result in emissions reductions consistent with the electricity sector GHG goals established by the Commission. While the RSP does meet the GHG goals according to accounting in the RESOLVE model, it has been verified by the Commission that the RESOVLE model underestimates GHG emissions by approximately 4.8 Million Metric Tons (MMT).[3] Additionally, Strategic Energy Risk Valuation Model (SERVM) models of the RSP with 2017 IEPR forecasts, before the additional assumptions proposed in this Proposed Decision, resulted in GHG emissions of 38.2 MMT, 4.2 MMT over the Commission established target.[4]

[2] Proposed Decision, at p. 105.
[3] Comparison of GHG Emissions Between CAISO 2017 and RESOLVE 2018, at p. 11.
[4] IRP Production Cost Modelling with the Reference System Plan and the 2017 IEPR: SERVM Model Results, at p. 59.

State policy in the electric sector has advanced though the passage of SB 100 and Executive B-55-18 since the development of the RSP. It is clear that the electric sector will need to be practically decarbonized by 2045 and recent studies commissioned by the State demonstrate that the most viable paths build on accelerated decarbonization of the electric sector.[5]

For these reasons, CEERT strongly recommends that Policy Case C, proposed in the Proposed Decision to be a sensitivity, be transmitted by the Commission as the Policy Base Case to the CAISO TPP. As the Proposed Decision states, "… when LSEs selected specific out-of-state resources, it was an intentional choice (as opposed to a generic one), as the best option to meet their needs.[6] Policy Case C is also the least cost portfolio developed thus far that results in GHG emission reductions consistent with both the Commission adopted GHG target and more recently adopted State policy goals, including SB 100 and Executive Order B-55-18.

In order to reach these deep decarbonization goals, a consistent portfolio needs to be transmitted this cycle and not be continually deferred to the next cycle after a further series of studies. If there are uncertainties about details, the uncertainties can be weighed in the TPP to allow least regrets outcomes. The Proposed Decision states that:

> "As the advocates for pumped hydro solutions and out-of-state wind point out, there are very long lead times associated with the development of these types of resources, and we may not be able to wait until the end of the next IRP cycle to begin the procurement and development process."[7]

In the case of Out-of-State wind, this is truest for the transmission that will be required to deliver to California. Transmission typically takes 8-10 years to be developed and thus if

[5] Deep Decarbonization in a High Renewables Future (https://www.ethree.com/wp-content/uploads/2018/06/Deep_Decarbonization_in_a_High_Renewables_Future_CEC-500-2018-012-1.pdf)
[6] Proposed Decision, at p. 85.
[7] Proposed Decision, at pp. 135-136.

California is serious about meeting the deep decarbonization goals, we need to get started now to build the necessary grid infrastructure. The Proposed Decision argues that Policy Case C is well suited to simply be a sensitivity for the 2019-20 TPP cycle and states that "[b]ecause these policy-driven sensitivity cases are not likely to result in near-term transmission investment, it is appropriate to study these now, to better inform future planning efforts without incurring significant investments now."[8]

However, planning must begin now in order to ensure the timely development of transmission to allow the full portfolio of cost-effective, low carbon resources to be interconnected in sufficient time. Waiting until the twelfth hour will result in higher *cumulative* GHG emissions and likely a missed annual target because of the inability of needed resources to deliver clean energy, capacity and integration to be able to interconnect. If portfolios requiring new transmission are delayed until the next cycle of the TPP, meeting the deep decarbonization goals in a cost-effective manner will be put in serious jeopardy.

III.
A PROCUREMENT TRACK SHOULD BE ESTABLISHED BUT BE LIMITED TO RESOURCES THAT ENABLE GHG REDUCTIONS AND LOW-GHG RELIABILITY

CEERT is generally supportive of a Procurement Track. The Procurement Track represents an opportunity to truly integrate the IRP process with Resource Adequacy. As the IRP is forward looking, it is essential that it be used to help visualize what RA must look in the future in order for the State to reach its deep decarbonization goals while maintaining reliability and affordability. In the not so distant future, adding more renewables to the grid will not result in GHG reductions if capacity and reliability services are still primarily supplied by gas-fired generation. While some gas-fire generation will likely be needed for reliability, preferred resources must be depended upon for capacity and reliability services. Thus, the procurement

[8] Proposed Decision, at pp. 117-118.

track represents an opportunity to integrate short and medium-term local capacity needs and system RA, so that LSE IRPs and pilot procurements can inform RA resource counting and dispatch.

CEERT does not view the Procurement Track as the appropriate venue to ensure "enough" gas capacity remains available. RA has recently adopted 3-year forward contracting requirements to address certainty required by gas generators to finance maintenance costs.[9] If the changes in the RA process are not sufficient, they should be addressed in the RA proceeding, not the IRP. It is not necessary to tie California to gas generators in the long term as they will be picked up by the RA market, if they are in fact needed. Instead, the procurement should focus on including location-specific RA value of preferred resources to be included in LSE portfolios to ensure LSEs are not in effect overbuilding to meet separate State policy and reliability goals with separate sets of resources.

CEERT also views a Procurement Track as necessary to develop a path to procure higher cost resources that extend value to multiple LSEs, such as renewables like geothermal with complimentary load profiles to solar, and long duration bulk energy storage, such as pumped hydro and compressed air.

The Procurement Track also offers the opportunity to discuss what is the acceptable range of deviation from the so-called "optimal" resource mix. Within this context, it is imperative for the Commission to be clear-eyed about the inherent limitations of modelling and resulting dependency on assumptions that have uncertainties. While models are extraordinarily useful in delivering insights for decision-making, not all aspects of reality can be programed into the model. Instead, it would be useful to define an optimal portfolio with a combination of least regrets resources and attributes that could be encompassed in a range of portfolios.

[9] D.19-02-022, at pp. 20-22.

IV.
CONCLUSION

CEERT respectfully requests that the Commission modify the Proposed Decision as detailed above. Those recommendations are further embodied in CEERT's Proposed Findings of Fact, Conclusions of Law, and Ordering Paragraphs in Appendix A hereto.

Respectfully submitted,

April 8, 2019

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FOR: CENTER FOR ENERGY EFFICIENCY AND RENEWABLE TECHNOLOGIES

APPENDIX A

CENTER FOR ENERGY EFFICIENCY AND RENEWABLE TECHNOLOGIES' PROPOSED FINDINGS OF FACT, CONCLUSIONS OF LAW, AND ORDERING PARAGRAPHS FOR THE PROPOSED DECISION OF COMMISSIONER RANDOLPH

The Center for Energy Efficiency and Renewable Technologies (CEERT) proposes the following modifications to the Findings of Fact, Conclusions of Law, and Ordering Paragraphs of the Proposed Decision mailed in R.16-02-007 (IRP) on March 18, 2019 (Proposed Decision).

Please note the following:

- A page citation to the Proposed Decision is provided in brackets for each Finding of Fact, Conclusion of Law, or Ordering Paragraphs for which a modification is proposed.
- Added language is indicated by **bold type**; removed language is indicated by **~~bold strike-through~~**.
- A new or added Finding of Fact, Conclusion of Law, or Ordering Paragraph is labeled as "**NEW**" in **bold,** underscored capital letters.

PROPOSED FINDINGS OF FACT:

20. [156] The RSP adopted in D.18-02-018, with adjustments updated to reflect the 2017 IEPR assumptions, is **not** a reasonable alternative for adoption as the PSP, **~~but~~ as it also does not meet the Commission adopted GHG target and assumes ~~its main shortcoming is in the assumption~~** that natural gas resources would exist in perpetuity.

21. [156] **~~It is possible to infer based on analyses conducted by Commission staff, CAISO, and SCE, that the RSP adopted in D.18-02-018, with adjustments updated to reflect the 2017 IEPR assumptions and including a new assumption of a 40-year life for natural gas resources, would represent a more reliable portfolio than the HCP.~~ The 32 MMT Policy Cases have the greatest probability of resulting in the State reaching its 2030 GHG emission reduction goals and setting up the State for its 2045 electric sector goals.**

22. [156-157] **~~The RSP, with adjustments updated to reflect the 2017 IEPR assumptions and including a new assumption of a 40-year life for natural gas resources would meet the~~**

~~RPS requirements in 2030 and the Commission's target for the electric sector of 42 MMT of GHG emissions by 2030.~~

24. [157] Each year, the CPUC transmits portfolios to the CAISO that reflect a broad range of planning goals, especially renewable development, as so transmission can be built to enable the timely interconnection of the resources required for a low-GHG, affordable and reliable electric service. ~~Study of two distinct portfolio choices as policy-driven sensitivities cases in the CAISO's TPP in 2019-20 would provide valuable information for future planning activities. Those two choices are a heavily in-state renewable development portfolio and a portfolio based more heavily on out-of-state renewable development, primarily wind from New Mexico and Wyoming.~~

25. [157] The policy-driven case which allows out-of-state renewable development, primarily wind from New Mexico and Wyoming, best reflects resource choices by LSEs and results in a balanced, more affordable portfolio. ~~The IRP process is not just an advisory planning exercise. Procurement is likely to be required from the IRP process in the near future.~~

31. [157] ~~Renewable and storage resources alone are not sufficient, at present, based on existing technologies and costs, to provide enough renewable integration services to result in electric system reliability at the system level.~~

32. [158] ~~Currently, all non-renewable resources available on the CAISO system are needed for renewable integration.~~

34. [158] Renewable resources and hybrid resources ~~may be able to~~ **can** provide additional ramping and load following services to decrease renewable integration challenges at the system level.

38. [158] ~~The RSP adopted in D.18-02-018, as well as the PSP recommended in this decision, puts the electric sector on a trajectory to satisfy the 2030 GHG emissions target even with the retirement of Diablo Canyon.~~

39. [158] ~~The~~ **It remains unclear if the** retirement of Diablo Canyon will ~~not~~ prevent the electric sector from meeting its portion of the statewide GHG emissions reductions between now and 2030.

PROPOSED CONCLUSION OF LAW:

12. [160-161] ~~**The updated RSP, with adjustments to reflect the 2017 IEPR assumptions, including an assumption of a 40-year life for fossil-fueled resources, and reflecting the most updated information about transmission availability and cost of upgrades gleaned from the most recent TPP, should be adopted as the preferred system plan for 2019.**~~

13. [161] The Commission should recommend to the CAISO that ~~**the PSP adopted in this decision**~~ **the Policy Case C** should be its reliability base case and policy-driven base case for its 2019-20 TPP.

14. [161] The Commission should recommend that the CAISO study, as its policy-driven sensitivity case~~s, two distinct portfolios representing:~~**,** a heavily in-state renewable development future**.** ~~**and a portfolio based on reliance on out-of-state wind, primarily from New Mexico and Wyoming.**~~

19. [161-162] The Commission should focus a procurement track of the IRP proceeding on the following types of resources: diverse renewable resources in the near term at levels sufficient to reach the 2030 optimized portfolio, in coordination with the RPS program; near-term resources with load following and hourly or intra-hour renewable integration capabilities; ~~**existing natural gas resources;**~~ and long-duration (8 hour **and longer**) storage resources.

PROPOSED ORDERING PARAGRAPHS:

9. [164] ~~**The Preferred System Portfolio shall be based on the Reference System Portfolio adopted in Decision 18-02-018, updated with adjustments to reflect the 2017 Integrated Energy Policy Report assumptions, utilizing a 40-year life assumption for fossil-fueled generation, and updated with the most recent transmission cost and availability information from the California Independent System Operator's 2018-19 Transmission Planning Process.**~~

10. [165] The Commission transmits to the California Independent System Operator (CAISO) for use in its 2018-19 Transmission Planning Process (TPP) **a portfolio with a 32 MMT GHG target, allowing resources requiring new transmission, including New Mexico and Wyoming wind.** ~~the Preferred System Portfolio adopted in Ordering Paragraph 9 above,~~ as both the reliability base case and the policy-driven base case. The Commission also transmits to

the CAISO for use in its 2018-19 TPP ~~**two distinct portfolios**~~ for study as policy-driven sensitivities: one portfolio representing heavily in-state development of renewables ~~**and another representing reliance on out-of-state renewables, primarily wind from New Mexico and Wyoming.**~~ All portfolios are available at: http://www.cpuc.ca.gov/General.aspx?id=6442460548.

11. [165] The Commission hereby institutes a procurement track, alongside the planning activities in this proceeding, in order to evaluate the need for the following types of resources: diverse renewable resources in the near term at levels sufficient to reach the 2030 optimized portfolio, in coordination with the RPS program; near-term resources with load following and hourly or intra-hour renewable integration capabilities; ~~**existing natural gas resources**~~; and long-duration (eight hour **and longer**) storage resources.