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COMMENTS OF THE PUBLIC ADVOCATES OFFICE ON THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR'S (CAISO) DRAFT 2018-2019 TRANSMISSION PLAN POSTED ON FEBRUARY 4, 2019 AND THE 2018-2019 TRANSMISSION PLAN PRESENTATION AND STAKEHOLDER MEETING ON FEBRUARY 14, 2019

February 28, 2019

The Public Advocates Office at the California Public Utilities Commission (CPUC or Commission) is the state's independent consumer advocate with a mandate to obtain the lowest possible rates for utility services, consistent with reliable and safe service levels, and the state's environmental goals. The Public Advocates Office submits the following recommendations and comments on the California Independent System Operator's (CAISO) 2018-2019 Transmission Planning Process (TPP) and February 4, 2019 Draft Transmission Plan, and the CAISO's February 14, 2019 presentation to stakeholders on the Draft 2018-2019 Transmission Plan.

A. RECOMMENDATIONS ON PROPOSED 2018-2019 RELIABILITY PROJECTS

1. Pacific Gas and Electric Company's (PG&E) Gold Hill 230/115 kilovolt (kV) Transformer Addition Project

The proposed Gold Hill 230/115 (kV) Transformer Addition project is in the PG&E service area and has an estimated cost of \$22 million.¹ The Gold Hill substation has two existing 230/115kV transformers that serve the entire load on the 115-kV system from Drum to Gold Hill to El Dorado Power House substations. This project would add a third 230/115 kV transformer to the Gold Hill substation.² The CAISO proposes constructing a third 230/115 kV transformer at the Gold Hill substation instead of the proposed Atlantic Placer 115 kV project,³ which was approved in the 2012-2013 CAISO Transmission Plan.

¹ *Draft 2018-2019 Transmission Plan*, February 4, 2019, CAISO, p. 116.

² *Draft 2018-2019 Transmission Plan*, February 4, 2019, CAISO, p. 116.

³ *2012-2013 CAISO Transmission Plan*, March 20, 2013, pp. 67-68. The Atlantic Placer 115 kV line project is a proposed reinforcement and upgrade project of the 115-kV system to address a number of potential overloads and voltage conditions in the area. The project would replace the existing 115/60 kV

The 2018-2019 TPP reliability assessment demonstrated that reliability issues occur when one of the Gold Hill transformers are taken out for maintenance and a third transformer would address this reliability issue.⁴

The Public Advocates Office recommends that the CAISO consider installing a special protection system (SPS) to allow for maintenance on the existing two Gold Hill transformers as an alternative solution to address the identified reliability issues instead of constructing a new transformer. The CAISO should also provide a cost estimate for this proposed alternative solution to enable stakeholders to make costs comparisons with the proposed project. The Public Advocates Office, however, recommends that a SPS that would drop load not be used as a long-term solution.

2. PG&E 115 kV Line Reconductor Projects

There are two proposed line reconductoring projects in the PG&E service area which are: (1) the Christie-Sobrante 115 kV Line Reconductor project with a cost estimate of \$10.5 million and (2) the Moraga-Sobrante 115 kV Line Reconductoring project with a cost estimate of \$12 to \$18 million. To confirm this project is the lowest costs solution to address the identified overloads in the service area, the Public Advocates Office requests that the CAISO evaluate an alternative solution that would involve the addition of circuit breakers to improve the operation of the Sobrante bus. The CAISO should also provide a cost estimate for this proposed alternative solution to enable stakeholders to make costs comparisons with the proposed project.

3. PG&E Voltage Support Projects

There are two proposed voltage support projects in the PG&E service area which are: (1) Round Mountain 500 kV Dynamic Voltage Support with a cost estimate of \$160 to \$190 million and (2) Gates 500 kV Dynamic Voltage Support with a cost estimate of \$210 to \$250 million. For the identified voltage issues at the Round Mountain and Gates 500 kV bus facilities, the CAISO recommends reactive support projects in the form of Static Volt-Amp Reactive (VAR) Compensator (SVC), Static Synchronous Compensator (STATCOM), or synchronous condenser.⁵ In order to address these identified voltage issues, the Public Advocates Office recommends that the CAISO not overly prescribe the required technology for the competitive solicitations for these projects. Instead, the Public Advocates Office recommends the CAISO provide functional specifications for the proposed two voltage support projects as part of the competitive solicitation in order to allow lower costs solutions to be proposed. The Public Advocates Office notes that the costs associated with the mitigation solutions proposed to

transformer at Placer with a new 200 megavolt amperes transformer and install a special protection system to drop load in the Placer area following the Gold Hill Placer 115 kV double circuit tower line outage.

⁴ *Draft 2018-2019 Transmission Plan*, February 4, 2019, CAISO, p. 115.

⁵ *Draft 2018-2019 Transmission Plan*, February 4, 2019, CAISO, pp. 86-87.

address the voltage support issues at Round Mountain and Gates by some project proponents were significantly lower than others.⁶ For example, capacitors, other reactors and storage technology could be part of a lower cost solution. As stated in the Public Advocates Office's comments on 2018-2019 TPP Preliminary Results, "competitive solicitations without proscribed solutions have the potential to result in identifying lower cost solutions than those proscribed, which would reduce costs for ratepayers."⁷

4. PG&E North and South of Mesa Upgrades

The CAISO proposed two projects in PG&E's Central Coast/Los Padres service area which are the North Mesa and South Mesa Upgrades. These projects would address thermal overloads in the 115-kV system from the Mesa substation and allow for planned facility maintenance. The North Mesa Upgrade project would build a new substation, energize a line and create new connections and line loops into the new substation. Its estimated cost is \$170 million. The South Mesa Upgrade would increase the winter emergency rating of an area line, install a 20 mega volt amps reactive (Mvar) capacitor bank, and install a SPS to shed load if a P6 situation⁸ occurs under peak load. Its estimated cost is \$45 million. These projects would be in place of the previously proposed Midway-Andrew project. The current cost estimate for the Midway-Andrew project is \$215 million² which is equal to the cost estimates of the North and South Mesa upgrades combined and it involves a similar scope as the proposed alternative projects.¹⁰ Thus, the proposed Midway-Andrew project alternatives are not more cost efficient than the Midway-Andrew project.

Since there are uncertainties associated with the retirement of the Diablo Canyon Power Plant and the proposed Midway-Andrew project alternatives are not lower in costs than the previously proposed solution, the Public Advocates Office requests two additional alternatives be considered to address the reliability needs in the Central Coast/Los Padres area:

⁶ See *Table 2.4-2 Request Window Submissions* in the Draft 2018-2019 Transmission Plan, February 4, 2019, CAISO, pp. 89.

⁷ *Comments from the Public Advocates Office on the California Independent System Operator 2018-2019 Transmission Planning Process- Preliminary Results, September 20-21, 2019 Meetings*, October 5, 2018, p. 4.

⁸ North American Electric Reliability Corporation defines a P6 situation as two overlapping outages (can be transmission lines and/or transformer or shunt device)

² *Draft 2018-2019 Transmission Plan*, February 4, 2019, CAISO, p. 145.

¹⁰ For comparison the original Midway-Andrew project scope included building a new 230/115 kV Andrew substation, upgrade existing Midway-Santa Maria 115 kV line to 230 kV and build new Andrew-Divide 115 kV line. The original estimated cost was between \$120 to \$150 million.

- (1) As recommended in comments on the 2017-2018 CAISO TPP and the Midway-Andrew project,¹¹ consider existing transmission lines in the project area and their ability to solve any reliability issues remaining after the retirement of the Diablo Canyon Power Plant as lower costs solutions to address the area reliability needs. There are a number of 500 kV lines and 230 kV lines in the Diablo Canyon-Midway-Andrew project area that may be under-utilized or experience lower demand after the retirement of the Diablo Canyon Power Plant.^{12, 13}
- (2) Revisit the Lopez to Divide 500/230 kV Transmission System Project in the 2019-2020 TPP cycle as an additional alternative to the Midway-Andrew project. This project would address the same reliability issues as the North Mesa Upgrade project¹⁴ and at potentially lower costs than the North and South of Mesa Upgrades.

The Public Advocates Office requests that the CAISO provide the costs associated with these proposed alternative solutions along with the costs for the components of the North Mesa and South Mesa Upgrade projects so that stakeholders can make costs comparisons and determine the most cost-efficient solution.

5. Projects outside of the CAISO's TPP Approval Process

The CAISO received and reviewed three projects during the request window submission timeframe in Southern California Edison Company's service area. These projects are: (1) Control-Silver Peak 55 kV Line rebuild; (2) Ivanpah to Control Segment 3 Rebuild and capacity derate; and (3) Ivanpah to Control Segment 4 Baker Ring Bus and capacity derate. Each of these projects has a cost estimate of \$50 million or less with the exception of the Control-Silver Peak 55 kV rebuild, which has a cost estimate of \$60 to \$70 million.¹⁵ The CAISO stated that CAISO Board approval is not required for these projects.¹⁶ The Public Advocates Office requests more information on the need for these projects for project evaluation and to determine if lower cost solutions can be considered. The Public Advocates Office recommends that projects received during the request window timeframe be reviewed in the September CAISO TPP public meetings and that project presentations include information on the project need. At this time, the

¹¹ *Public Advocates Office comments on the 2017-2018 TPP Reliability Assessments presentations and stakeholder meetings on November 16, 2017, November 30, 2017, p. 2.*

¹² *2017-2018 ISO Draft Transmission Plan, February 1, 2018, CAISO, p. 158.*

¹³ *Draft 2018-2019 Transmission Plan, February 4, 2019, CAISO, p. 147.* "Due to uncertainty of potential generation development and transmission alternatives in the area, further assessment of the conversion of one of the 500 kV lines from Midway-Diablo will be required in 2019-2020 transmission planning process."

¹⁴ *Draft 2018-2019 Transmission Plan, February 4, 2019, CAISO, p. 148.* "This project would address similar reliability issues to the previously approved Midway-Andrew 230 kV project, particularly the North of Mesa Upgrade, that is recommended to remain on hold."

¹⁵ *Draft 2018-2019 Transmission Plan, February 4, 2019, CAISO, pp. 163-164.*

¹⁶ *Draft 2018-2019 Transmission Plan, February 4, 2019, CAISO, pp. 163-165.*

Public Advocates Office reserves the right to comment on these projects further once the requested information has been provided in a public TPP meeting. The Public Advocates Office also requests confirmation that the proposed Control-Silver Peak 55 kV rebuild project does not require CAISO Board approval since the estimated costs of this project is greater than \$50 million. It is our understanding that CAISO Board Approval is required for projects with costs greater than \$50 million.

B. RECOMMENDATIONS ON METHODS, POLICIES, AND PROCESSES

1. Assumptions on Storage

The draft 2018-2019 Transmission Plan states that alternative storage solutions for reliability and Local Capacity Reliability (LCR) reduction projects were considered, but storage costs, analysis and other storage assumptions were not included.

To better understand the CAISO's storage solution analysis for replacing gas-fired generation and for mitigating reliability needs, the Public Advocates Office requests that the CAISO provide the assumptions used to evaluate storage as a preferred alternative in each TPP cycle. These storage assumptions should include assumptions on capital and maintenance costs, discharging capacity, charging speed, applicable storage technologies, anticipated charging source(s) and lifecycle timeframe. Going forward, the CAISO should present its storage assumptions during the beginning of the TPP cycle and include its assumptions in an appendix to the Transmission Plan. The storage assumption presentation and appendix should include information from actual projects and or verified technological advances and the resources consulted to develop storage evaluation assumptions. The Public Advocates Office requests this information in order to confirm that the lowest cost solutions are approved and to assist with revisiting prior storage proposals once the Storage as a Transmission Asset initiative concludes and once the CPUC provides long-term direction on the gas-fired generation fleet.

2. Resource Mapping and Transmission Planning Process-Integrated Resource Plan Feedback Loop

The Public Advocates Office requests that the CAISO share its updated California Energy Commission (CEC) resource maps in a public stakeholder meeting and identify areas with good resource potential and transmission capacity. The CAISO should specifically identify areas where the CAISO made necessary modifications to the CEC's resource maps to address interconnection challenges such as in the noted Southern Nevada zone.¹⁷ The Public Advocates Office is making this request because the Transmission Plan assessment of the Integrated

¹⁷ *Draft 2018-2019 Transmission Plan*, February 4, 2019, CAISO, p. 200.

Resource Plan (IRP) 42 million metric tons (MMT) scenario portfolio¹⁸ revealed that the identified areas for new renewable procurement in the Kramer- Inyokern, Southern Nevada, Riverside East and Palm Springs and Tehachapi areas¹⁹ will experience significant congestion and or reliability issues that would require mitigation. The CAISO's recommended mitigations included dropping generation, using SPSs and constructing major capital projects.²⁰ The draft resource portfolios recommended for the 2019-2020 TPP cycle as part of the CPUC's IRP proceeding,²¹ correct some of these issues observed in the CAISO 2018-2019 TPP 42 MMT scenario portfolio assessment.²² The Public Advocates Office also requests that CAISO provide additional and more frequent technical information to the CPUC and advise on possible alternative locations and renewable resources, such as wind and or solar paired with storage to achieve lower impacts on existing congestion and renewable curtailment.

The Public Advocates Office requests the updated resource maps and mentioned additional guidance be provided as soon as possible to inform the CPUC IRP process which is underway. As stated in the Public Advocates Office's comments on the 2018-2019 CAISO TPP preliminary policy and economic assessment,²³ to achieve a reasonable resource portfolio recommendation, a feedback loop between the proposed CPUC's IRP procurement determinations and the CAISO TPP transmission capacity determination is essential. This feedback loop should also involve public presentations to stakeholders that explain the preliminary determinations that led to the recommended renewable generation locations and should seek stakeholder input before finalizing them.

¹⁸ The IRP developed a 42 MMT statewide target for emission reduction for the statewide electric sector by 2030. This target was translated into a 42 MMT scenario portfolio to be used as sensitivity in the 2018-2019 TPP policy-driven assessment.

¹⁹ *Draft 2018-2019 Transmission Plan*, February 4, 2019, CAISO, pp. 220-221 (Kramer), (southern Nevada) p. 218, Riverside East and Palm Springs pp. 222-223, and pp. 223-224 Tehachapi

²⁰ *Draft 2018-2019 Transmission Plan*, February 4, 2019, CAISO, pp. 220-225.

²¹ Currently, the number of the CPUC's IRP proceedings is Rulemaking (R.) 16-02-007.

²² 2018-2019 Transmission Plan Policy-driven Assessment, slide #39, 2018-2019 Transmission Planning Process Stakeholder Meeting, February 14, 2019.

²³ Public Advocates Office's comments on the CAISO 2018-2019 TPP preliminary policy and economic assessments presented during the stakeholder meeting on November 16, 2018, November 29, 2018, p. 2.

3. Interconnection Queue Projects and New Deliverability Methodology

The Public Advocates Office appreciates that the CAISO convened a separate stakeholder meeting to review the revised Generator Deliverability Assessment Methodology (GDAM) on December 18, 2018 as requested.²⁴ The Public Advocates Office requests confirmation on the following: (1) the revised deliverability methodology will be used to evaluate the current CAISO interconnection cluster to ensure that any proposed reliability network upgrades to interconnect new renewable generators are necessary and consistent with expected capacity, and (2) the CAISO will evaluate renewables paired with storage further to determine their capacity to meet the highest system need hours starting at 6 pm.²⁵

In the past, the Public Advocates Office encouraged the CAISO to periodically revisit the production levels of wind and solar for deliverability because the resulting capacity assumptions directly influence procurement decisions as well as new transmission and interconnection investments that may be needed to meet the State's renewable portfolio standards (RPS) targets.²⁶ It appears that the 2019-2020 CAISO TPP resource portfolios will continue to use the existing GDAM. We encourage the CAISO to take into consideration that this methodology is subject to change in case any delivery network upgrades are identified in the 2019-2020 CAISO TPP.

4. Support for Energy-Only Contracts

As the Public Advocates Office stated in its August 11, 2017 comments on the 2017 Expedited Generator Interconnection and Deliverability Allocation Procedures Enhancements Straw Proposal,²⁷ Energy Only Delivery Status (EODS) contracts are a reasonable outcome since EODS projects are considered equally as effective as Full Capacity Deliverability Status (FCDS)

²⁴ *Public Advocates Office comments on the CAISO's 2018-2019 Transmission Planning Process – Preliminary Policy and Economic Assessment presentations and stakeholder meeting on November 16, 2018*, November 29, 2018, p. 1.

²⁵ *CAISO Generation Deliverability Assessment Methodology, On-Peak Deliverability Assessment Methodology*, December 11, 2018, CAISO, pp.3-4.

²⁶ *Public Advocates Office's comments on the 2018-2019 CAISO TPP preliminary policy and economic assessments presented during the stakeholder meeting on November 16, 2018*, November 29, 2018, p. 1.

²⁷ *ORA Comments on 2017 Expedited GIDAP Enhancements Straw Proposal*, August 11, 2017, pp. 2-3.

resources in meeting California’s RPS target and are more cost effective for ratepayers.^{28, 29} The Public Advocates Office continues to support the CPUC’s and CAISO’s efforts to develop renewable portfolios that are a combination of FCDS and EODS resources.

If you have any questions regarding these comments, please contact Kanya Dorland at Kanya.Dorland@cpuc.ca.gov.

²⁸ *Expedited Generator Interconnection and Deliverability Allocation Procedures (GIDAP) and Enhancements Draft Issue Paper and Straw Proposal*, July 24, 2017, CASIO, pp. 9-10 (“It remains to be determined whether additional transmission capacity should be built to make the additional renewable capacity needed to make 50% deliverable, which impacts whether incremental renewable capacity should be procured as FCDS or Energy Only”).

²⁹ For energy only deliverability status projects, delivery network upgrades are not required to enable energy delivery under peak or constrained conditions, specifically Local Delivery Network Upgrades and Area Delivery Network Upgrades identified in the On-Peak Deliverability Assessment as part of Phase II Interconnection Studies are not required. *Generator Interconnection and Deliverability Allocation Procedures (GIDAP)*, March 8, 2016, CAISO Tariff Appendix DD, 8.4 Cost Responsibility for Local Delivery Network Upgrades and 8.4.1 Cost Responsibility for Area Delivery Network Upgrades, p. 61.

http://www.caiso.com/Documents/AppendixDD_GeneratorInterconnectionAndDeliverabilityAllocationProcess_asof_Mar8_2016.pdf.