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**Ratesetting**

TO PARTIES OF RECORD IN RULEMAKING 19-11-009:

This is the proposed decision of Administrative Law Judges Debbie Chiv and Amin Nojan. Until and unless the Commission hears the item and votes to approve it, the proposed decision has no legal effect. This item may be heard, at the earliest, at the Commission's July 15, 2021 Business Meeting. To confirm when the item will be heard, please see the Business Meeting agenda, which is posted on the Commission's website 10 days before each Business Meeting.

Parties of record may file comments on the proposed decision as provided in Rule 14.3 of the Commission's Rules of Practice and Procedure.

The Commission may hold a Ratesetting Deliberative Meeting to consider this item in closed session in advance of the Business Meeting at which the item will be heard. In such event, notice of the Ratesetting Deliberative Meeting will appear in the Daily Calendar, which is posted on the Commission's website. If a Ratesetting Deliberative Meeting is scheduled, *ex parte* communications are prohibited pursuant to Rule 8.2(c)(4).

/s/ ANNE E. SIMON  
Anne E. Simon  
Chief Administrative Law Judge

AES:gp2  
Attachment

Decision PROPOSED DECISION OF ALJS CHIV AND NOJAN (Mailed 6/10/2021)

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to  
Oversee the Resource Adequacy  
Program, Consider Program  
Refinements, and Establish Forward  
Resource Adequacy Procurement  
Obligations.

Rulemaking 19-11-009

**DECISION ON TRACK 3B.2 ISSUES: RESTRUCTURE OF THE RESOURCE  
ADEQUACY PROGRAM**

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## **DECISION ON TRACK 3B.2 ISSUES: RESTRUCTURE OF THE RESOURCE ADEQUACY PROGRAM**

### **Summary**

This decision addresses issues scoped as Track 3B.2 to restructure the Resource Adequacy program and sets forth a process and schedule for further development of Track 3B.2 proposals.

### **1. Procedural History**

In November 2019, the Commission issued the Order Instituting Rulemaking to oversee the Resource Adequacy (RA) program, consider changes and refinements to the program, and establish forward RA procurement obligations applicable to Commission-jurisdictional load-serving entities (LSEs) beginning with the 2021 compliance year.

A Scoping Memo and Ruling (Scoping Memo) for this proceeding was issued on January 22, 2020. In addition to identifying the issues in this proceeding, the Scoping Memo divided the issues into three tracks (Tracks 1, 2, and 3). On July 7, 2020, an Amended Scoping Memo was issued that divided Track 3 into Tracks 3A and 3B. To accommodate the numerous issues in Track 3B, Track 3B was later split into Tracks 3B.1 and 3B.2 via a December 11, 2020 Amended Scoping Memo. The December 11, 2020 Amended Scoping Memo thus reorganized the remaining issues into Track 3B.1, Track 3B.2, and Track 4.

Track 1 issues were addressed in Decision (D.) 20-06-028, issued by the Commission on June 25, 2020. Track 2 issues were addressed in D.20-06-031, issued on June 30, 2020. Issues scoped as Track 3A were addressed in D.20-12-006, issued on December 4, 2020. Issues scoped as Track 3B.1 and Track 4 were addressed in a proposed decision that was issued on May 21, 2021.

On August 7, 2020, Track 3B proposals<sup>1</sup> and comments on the Amended Scoping Memo were filed by: Alliance for Retail Energy Markets (AReM); American Wind Energy Association of California (AWEA-CA); California Community Choice Association (CalCCA); California Energy Storage Alliance (CESA); California Independent System Operator (CAISO); Center for Energy Efficiency and Renewable Technologies (CEERT); CPower, Enel X North America, Inc. (Enel X), and California Efficiency + Demand Management Council (CEDMC); Green Power Institute (GPI); Independent Energy Producers Association (IEP); Pacific Gas and Electric Company (PG&E); Protect Our Communities Foundation (PCF); Powerex Corp. (Powerex); San Diego Gas & Electric Company (SDG&E); Southern California Edison Company (SCE) and CalCCA (SCE/CalCCA); Southwestern Power Group II, LLC (SWPG); and Western Power Trading Forum (WPTF). Energy Division's Track 3B proposal was filed and served via an Administrative Law Judge's (ALJ) ruling.

A workshop on Track 3B proposals was held on November 18 and November 23, 2021. Revised Track 3B.2 proposals and comments on the Amended Scoping Memo were filed on December 18, 2020 by: CAISO; CEERT; CESA; PCF; PG&E; Powerex; SCE/CalCCA, jointly; Solar Energy Industries Association, Large-Scale Solar Association, and Vote Solar (collectively, Solar Parties); and WPTF. Energy Division's revised Track 3B.2 proposal was filed and served by an ALJ ruling.

Workshops on Track 3B.2 proposals were held on January 8 and February 8 - 10, 2021. Comments on revised Track 3B.2 proposals were filed on

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<sup>1</sup> Proposals submitted prior to the splitting of Track 3B into Tracks 3B.1 and 3B.2 on December 11, 2021 are referred to as "Track 3B Proposals." Proposals and comments submitted thereafter are referenced based on their designated track.

January 15, 2021 by: American Clean Power – California (ACP), AReM, Brookfield Renewable Trading and Marketing LP (BRTM), CAISO, CalCCA, Calpine Corp. (Calpine), California Wind Energy Association (CalWEA), California Environmental Justice Alliance (CEJA) and Sierra Club (CEJA/Sierra Club), CESA, California Large Energy Consumers Association (CLECA), Department of Market Monitoring of CAISO (DMM), IEP, LS Power Development LLC (LS Power), Middle River Power, LLC (MRP), Pattern Energy Group, LP (Pattern Energy), PCF, PG&E, Public Advocates Office (Cal Advocates), SCE, SDG&E, Shell Energy North America (US), LP (Shell Energy), and the Utility Reform Network (TURN).

Second revised Track 3B.2 proposals were filed on February 26, 2021 by: CAISO, PG&E, SCE/CalCCA, and SDG&E. Energy Division’s second revised Track 3B.2 proposal was filed and served by an ALJ ruling. Comments on second revised Track 3B.2 proposals were filed on March 12, 2021 by: ACP; AReM; BRTM; CAISO; Cal Advocates; California Municipal Utility Association (CMUA); Calpine; CalWEA; CEJA/Sierra Club; CEERT; CESA; CLECA; DMM; Golden State Clean Energy (GSCE); GPI; Hydrostor, Inc. (Hydrostor); IEP; CEDMC, CPower, Enel X, Leapfrog Power, Inc., and OhmConnect, Inc. (collectively, Joint DR Parties); LS Power; MRP; PCF; PG&E; SCE; SDG&E; Solar Parties; Shell Energy; TURN; Vistra Corp. (Vistra); and WPTF.

Reply comments on second revised Track 3B.2 proposals were filed on March 23, 2021 by: AReM, CAISO, Calpine, CalWEA, CLECA, Hydrostor, IEP, MRP, PG&E, SCE, Solar Parties, and TURN. The following parties submitted joint comments: AReM, CEDMC, CLECA, CPower, Direct Access Customer Coalition, Energy Users Forum, MRP, OhmConnect, Inc., SDG&E, The Regents of the University of California, and WPTF (collectively, Coalition Parties).

## 2. Issues Before the Commission

The scope of Track 3B.2, as adopted in the December 11, 2021 Amended Scoping Memo, included the following issues:

1. Examination of the broader RA capacity structure to address energy attributes and hourly capacity requirements, given the increasing penetration of use-limited resources, greater reliance on preferred resources, rolling off of a significant amount of long-term tolling contracts held by utilities, and material increases in energy and capacity prices experienced in California over the past years.
  - a. Specifically, address the direction the Commission intends to move in with respect to larger structural changes (*e.g.*, capacity construct addressing energy attributes and reliance on resource use-limitations, forward energy requirement construct). Set forth the necessary milestones and additional details that must be determined in order to implement the adopted direction for a compliance year no earlier than 2023.
  - b. Multi-year system and flexible RA requirements, as stated in D.20-06-002.

All proposals and comments submitted by parties were considered; however, given the large number of parties in this proceeding, some comments may receive little or no discussion in this decision.

## 3. Background on the Resource Adequacy Program

The RA program was first implemented in 2006 and was designed to ensure that LSEs secured sufficient generating capacity to meet anticipated peak demand needs to maintain grid reliability. At the time of the RA program's inception, the vast majority of California's load was served by the three large investor-owned utilities (IOUs) who held a significant amount of long-term

tolling arrangements with gas-fired generation.<sup>2</sup> These IOU tolling arrangements were subject to least-cost dispatch requirements, which resulted in lower costs to ratepayers.<sup>3</sup> At that time, there were limited renewable resources and very few resources with physical constraints due to use limitations.

The RA landscape in California has changed dramatically in the intervening years. There are approximately 38 Commission-jurisdictional LSEs committed to serving load in 2021, including 3 IOUs, 25 community choice aggregators (CCAs), and 10 electricity service providers (ESPs). These numbers reflect the rapid growth in retail choice seen primarily over the last five years.<sup>4</sup> The proliferation of retail choice has also led to a decline in load served by IOUs, as well as uncertainty about future load migration. This load uncertainty, paired with signals from policymakers of a shift away from reliance on gas-fired generation, has led to a significant decline in multi-year tolling contracts and has been replaced by short-term RA-only capacity contracts.

In addition, much of the new generation that has come online in the past several years (or is expected to be online in the near term) includes variable resources, particularly solar and wind, and use-limited resources, such as storage

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<sup>2</sup> See Energy Division Track 3B Proposal, August 7, 2020, at 18. Figure 2 indicates that IOU tolling arrangements in the early 2000s accounted for approximately 10,000 MW of gas-fired generation, in addition to approximately 10,000 MW of IOU generation.

<sup>3</sup> In implementing Assembly Bill 57 (the procurement framework following the 2000 energy crisis), D.02-10-062 adopted minimum standards of conduct (SOC) to guide IOU procurement. SOC #4 requires the utilities to prudently administer all contracts and generation resources and dispatch the energy in a least-cost manner. Prudent contract administration includes administration of all contracts within the terms and conditions of those contracts, including dispatching contracts when it is economical to do so. See D.02-10-062 at 51-52, Conclusions of Law 11.

<sup>4</sup> See Energy Division Track 3B Proposal, August 7, 2020, at 27. Figure 8 reflects that in 2015, 89% of load was served by IOUs, 2% by CCAs, and 9% by ESPs. In 2021, by contrast, 61% of load is served by IOUs, 30% by CCAs, and 9% by ESPs.



and demand response. The significant growth of such resources has been driven by California's implementation of broader greenhouse gas emission and clean energy goals. These resources, however, have significant use limitations: wind and solar depend on the weather, demand response depends largely on preferences of customers paid to drop load, and storage resources – both online and expected to come online in the near term – are almost universally sized to serve four-hour load.

Simultaneously, retirement of older gas facilities has been ongoing throughout the West, resulting in a decline in overall capacity that can be used to meet RA requirements during peak hours. Without adequate system market power mitigation measures under the current framework, these trends may lead to costly energy price spikes and a failure to ensure grid reliability. The perils of these trends became much more apparent during the August 2020 extreme heat wave that resulted in rotating electricity outages in California, which underscored the need for reliability based on the system's ability to meet both net peak and gross peak demand. Given these recent trends, the Commission recognized an urgent need to reexamine the RA program as it was originally structured to ensure that the RA program can continue to provide grid reliability at all times of the day and achieve California's environmental policy goals.

#### **4. Proposals to Restructure the RA Program**

In Track 3B.2, the Commission solicited proposals to reexamine and restructure the current RA framework. These proposals, referred to as “restructuring proposals” in this decision, are summarized below.<sup>5</sup>

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<sup>5</sup> Parties were permitted to submit a Track 3B.2 proposal and two revisions (on December 18, 2020 and February 26, 2021).

#### 4.1. SCE/CalCCA's Net Qualifying Energy Proposal

SCE/CalCCA propose a three-pronged approach to the RA structure with compliance elements for net qualifying capacity (NQC), net qualifying energy (NQE), and energy storage charging sufficiency.<sup>6</sup> The proposal would require verification that an LSE's portfolio has sufficient energy to meet both its load and storage charging needs. The NQE requirement would replace the Maximum Cumulative Capacity (MCC) buckets and is intended to support planning for the growing fleet of use-limited resources.

The NQE concept would utilize the capacity and operating hours of a resource to define the possible energy output from the resource to meet energy needs. NQE requirements would be the amount of energy necessary to meet an LSE's forecasted hourly net energy needs for each month. The proposal envisions a "bottom-up" approach to establish individual LSE hourly net load forecasts, which would establish an LSE's NQC and NQE requirements. SCE/CalCCA state that the load forecasting process "would be applied to each LSE individually by creating an hourly load forecast by LSE for every hour of the compliance month. This load would then be reduced by anticipated wind and solar generation within the LSE's portfolio."<sup>7</sup> The anticipated wind and solar generation would be developed using solar and wind production profiles that would be applied to an LSE's contracted and planned wind and solar capacity to produce an expected energy output value for solar and wind. The hourly expected output would be subtracted from the hourly managed load forecast.

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<sup>6</sup> See generally SCE/CalCCA Track 3B.2 Proposal, August 7, 2020; SCE/CalCCA Track 3B.2 Revised Proposal, December 18, 2020; SCE/CalCCA Track 3B.2 Revised Proposal, February 26, 2021.

<sup>7</sup> SCE/CalCCA Track 3B Proposal, August 7, 2020, at 6.

SCE/CalCCA next propose that the LSE's hourly net load forecast be ranked to form a net load duration curve:

Rank ordering this curve would produce the net peak load as the highest value observed. It would also indicate the overall amount and duration of energy needed above and beyond the renewable generation as well as the amount of energy available for storage charging. These values would then create the RA capacity need of the LSE that must be met by resources other than wind and solar resources.<sup>8</sup>

SCE/CalCCA propose that the highest load hour from the net load duration curve be used to set the LSE's monthly NQC requirement. This would move the existing monthly peak requirement from a gross peak to a net peak requirement. The hourly net load duration curve would also be used to calculate the NQE requirement. Basing NQC and NQE requirements off the net load would convert all deliverable variable energy resources (VER) to RA-reducing assets, eliminating the need to calculate effective load carrying capability (ELCC) values.

To count how much NQE resources can provide, the proposal states that "[t]he specifics of NQE development for each resource is a detail that will require working groups or workshops to determine the correct methodology and measurement for each resource for each month."<sup>9</sup> To count NQC, the proposal states that the current NQC counting methods will continue for all resources except solar and wind, which will be accounted for in the development of the net load forecasts.

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<sup>8</sup> *Id.* at 7.

<sup>9</sup> *Id.* at 11.

As for energy storage charging, SCE/CalCCA propose that an LSE showing energy storage to meet its NQC requirements must show it has sufficient energy to meet both load and storage charging needs. If an LSE uses energy storage to meet its NQE requirements, the LSE must also show it has enough excess energy available to charge the storage resource (including efficiency losses) after serving its instantaneous load. Excess energy may come from oversupply conditions of solar and wind in an LSE's portfolio or from the energy output of resources that can produce in more hours or more energy at times than are needed to serve the LSE's load.

SCE/CalCCA acknowledge that using a monthly net load duration curve and monthly energy output does not account for the specific hour in which the hour is needed. SCE/CalCCA describe this issue as follows: "the use of a net load duration curve does not directly account for the specific hour in which the energy is needed while a Net Qualifying Energy ("NQE") structure likewise does not address specific hours."<sup>10</sup> SCE/CalCCA recommend that this "temporal concern" be addressed in workshops to determine the magnitude of the issue (*i.e.*, the probability that the existing fleet and expected loads will produce such a result). If a solution is necessary, SCE/CalCCA offer potential solutions, such as establishment of Minimum Availability Categories, assignment of must-offer obligations for specific hours, establishing hours for NQE demonstration and representative day NQE analysis, or inclusion in the planning reserve margin (PRM).

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<sup>10</sup> *Id.* at 8.

In addition to the temporal concerns of load and generation, SCE/CalCCA note other elements that need to be further developed, including trading of products, diversity benefits, and the appropriate PRM.

#### 4.1.1. Comments on Proposal

Numerous parties support further development of SCE/CalCCA's proposal, including ACP, BRTM, Cal Advocates, CAISO, Calpine, CEJA/Sierra Club, CEERT, CESA, Hydrostor, MRP, Shell, and Solar Parties.<sup>11</sup> Most of these parties support development of both SCE/CalCCA's proposal and PG&E's slice-of-day proposal, and/or support combining elements of both proposals into one framework.<sup>12</sup>

Supporters generally state that if the hourly resource sufficiency concern (*i.e.*, temporal concern) can be addressed, as well as other details developed, this proposal better ensures availability of reliable resources during critical hours.<sup>13</sup> Cal Advocates states that the energy counting requirements may better align the

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<sup>11</sup> ACP Tracks 3B.1, 3B.2, and 4 Comments, March 12, 2021, at 3; BRTM Tracks 3B.1 and 3B.2 Comments, March 12, 2021, at 4; Cal Advocates Track 3B.2 Comments, March 12, 2021, at 3; CAISO Track 3B.2 Comments, March 12, 2021, at 3; Calpine Track 3B.2 Reply Comments, March 23, 2021, at 2; CEJA/Sierra Club Tracks 3B.1, 3B.2, and 4 Comments, March 12, 2021, at 3; CEERT Track 3B.2 Reply Comments, March 23, 2021, at 2; CESA Tracks 3B.1, 3B.2, and 4 Comments, March 12, 2021, at 19; Hydrostor Tracks 3B and 4 Comments, March 12, 2021, at 6; MRP Tracks 3B.1, 3B.2, and 4 Comments, March 12, 2021, at 6; Shell Track 3B.2 Comments, March 12, 2021, at 10; Solar Parties Track 3B.2 Reply Comments, March 23, 2021, at 2.

<sup>12</sup> *See, e.g.*, BRTM Tracks 3B.1 and 3B.2 Comments, March 12, 2021, at 6; Cal Advocates Track 3B.2 Comments, March 12, 2021, at 1; Calpine Track 3B.2 Reply Comments, March 23, 2021, at 1; CalCCA Track 3B.2 Comments, March 12, 2021, at 4; CalWEA Tracks 3B and 4 Reply Comments, March 23, 2021, at 4; CEERT Track 3B.2 Reply Comments, March 23, 2021, at 2; CEJA/Sierra Club Tracks 3B.1, 3B.2, and 4 Comments, March 12, 2021, at 6; CESA Tracks 3B.1, 3B.2, and 4 Comments, March 12, 2021, at 3; MRP Tracks 3B.1, 3B.2, and 4 Comments, March 12, 2021, at 6; SCE Track 3B.2 Reply Comments, March 23, 2021, at 7; Solar Parties Track 3B2 Comments, March 12, 2021, at 4.

<sup>13</sup> *See, e.g.*, Cal Advocates Track 3B.2 Comments, March 12, 2021, at 4; CESA Tracks 3B.1, 3B.2, and 4 Comments, March 12, 2021, at 19; Hydrostor Tracks 3B.1, 3B.2, and 4 Comments, March 12, 2021, at 6; CAISO Track 3B.2 Comments, March 12, 2021, at 3.

RA program with clean energy goals. CESA comments that the proposal may better evaluate the value of energy- and use-limited resources by considering characteristics such as duration. CAISO states that the proposal is more adaptable to the existing CAISO tariff and systems, although CAISO may need to modify its tariff to implement net load or a post-solar peak RA requirement.

Opponents of the NQE proposal, such as AReM and IEP, state that it is overly complex in that it seeks to ensure sufficient reliability for all hours of the year and that it requires significant work to implement for the 2023 compliance year.<sup>14</sup> IEP states that it potentially disrupts existing contracts because it introduces a new RA product. AReM is concerned that the proposal has not been updated since the initial August 7, 2020 proposal, despite numerous concerns raised by parties.

#### **4.2. PG&E's Slice-of-Day Proposal**

PG&E proposes to establish RA requirements based on a “slice-of-day” framework, which seeks to ensure load will be met in all hours of the day, not just during gross peak demand hours.<sup>15</sup> The proposal also seeks to ensure there is sufficient energy on the system to charge energy storage resources. The proposed framework would establish RA requirements for multiple slices-of-day across seasons and would establish a counting methodology to reflect an individual resource's ability to produce energy during each respective slice.

PG&E proposes that system requirements be determined for each slice-of-day based on the maximum level of demand for the particular

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<sup>14</sup> AReM Track 3B.2 Comments, March 12, 2021, at 2; IEP Track 3B.2 Comments, March 12, 2021, at 7.

<sup>15</sup> See generally PG&E Track 3B.2 Proposal, August 7, 2020; PG&E Track 3B.2 Revised Proposal, December 18, 2020; PG&E Track 3B.2 Revised Proposal, February 26, 2021.

slice-of-day for the season. PG&E lays out two potential periods for the duration of the slice-of-day: six four-hour slices or four six-hour slices. To avoid administrative burdens associated with slice-of-day requirements for each month, PG&E recommends moving from a monthly RA obligation to a seasonal obligation.

To determine specific seasons, the proposal offers an analysis of the hourly load data by month (using the 2019 California Energy Commission (CEC) Integrated Energy Policy Report (IEPR) forecast) and hourly generation data of solar, wind, and hydroelectric under a 50 percent exceedance by month (using 2018-2019 CAISO Open Access Same-time Information System (OASIS) Resource Generation Data). From this analysis, PG&E provides three seasonal options: (1) Summer (June-September), Winter (November - April), Shoulder (May and October); (2) Early Summer (May-July), Late Summer (August- October), Winter (November-April); or (3) Summer (May-August), Winter (November-April), Fall (September-October). PG&E states that determining seasons and slices should be coordinated to ensure a balance between administrative effort and accuracy in determining the level of reliability sought.

To allocate RA requirements to LSEs, the proposal identifies three options: top-down, bottom-up, and hybrid. A top-down approach would establish requirements based on the existing CAISO-level hourly CEC forecast and allocate an LSE's requirements (the share of each season and slice) based on its monthly coincident peak load share. A bottom-up approach would set requirements based on each LSE's forecasted load for each slice and season and then aggregate up to the CAISO system level needs. The hybrid approach sets requirements using the existing CAISO-level hourly forecast but allocates to an LSE based on each LSE's specific load in each slice and season. To account for

the capacity needed for energy storage charging, PG&E proposes that “LSEs that have energy storage in their portfolio would be required to include additional capacity in another slice to account for the charging.”<sup>16</sup>

In its revised proposal, PG&E considers using a net peak load versus a gross peak load approach to establish requirements:

A critical consideration under either approach is ensuring a desired level of reliability, which should be linked to the resource counting framework. Under a net peak load view, a more conservative resource counting for solar and wind resources might be warranted, as the resource profile would reduce load requirements one-for-one. The gross peak load view might enable a less conservative resource counting value.<sup>17</sup>

For resource counting rules, PG&E identifies three objectives: (1) simplify the counting rules; (2) address the need for more than one RA value for solar and wind resources; and (3) ensure physical and resource-specific characteristics are considered and incorporated. PG&E asserts that an exceedance-based approach is the best way to meet these objectives for most resources. PG&E also notes that an exceedance-based approach could be coordinated with CAISO’s unforced capacity evaluation proposal to account for forced outages.

In its second revised proposal, PG&E proposes that the must-offer obligations (MOO) for each slice-of-day only apply to the day-ahead market. PG&E proposes that for storage:

Storage resource would still be linked to capacity to produce energy during another slice-of-day, but the storage device would not be required to charge during that slice, but could charge during any slice it was not counting for RA. This would allow freedom for

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<sup>16</sup> PG&E Track 3B.2 Revised Proposal, February 26, 2021, at A1-19.

<sup>17</sup> *Id.* at A1-7.



storage resources to deviate from their day-ahead schedules for charging should real-time prices provide the opportunity.<sup>18</sup>

PG&E also states that the current 24 x 7 MOO could apply to its proposal, so long as resource performance assessment penalties are limited to slices-of-day that the resource is counting for RA.

#### **4.2.1. Comments on Proposal**

Parties that support further development of this proposal include AReM, BRTM, Calpine, CalWEA, Cal Advocates, CEERT, CEJA/Sierra Club, CLECA, Coalition Parties, DMM, MRP, and SDG&E.<sup>19</sup> As noted above, many parties support development of PG&E's proposal alongside or as part of SCE/CalCCA's proposal.

Proponents generally state that if implementation details can be developed, this proposal better ensures that LSEs contract resources that meet energy requirements during all hours of the day and that energy storage resources are available when needed for discharging. Some parties, such as Calpine, CEERT, and CLECA, favor the use of an exceedance methodology to determine QC as much simpler and more transparent than an ELCC approach. AReM and CLECA comment that the proposal is simpler to understand and implement, and can be integrated into the bilateral procurement framework. DMM asserts that the proposal largely addresses inter-temporal issues associated

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<sup>18</sup> *Id.* at A1-28.

<sup>19</sup> AReM Track 3B.2 Comments, March 12, 2021, at 2; BRTM Tracks 3B.1 and 3B.2 Comments, March 12, 2021, at 6; Calpine Track 3B.2 Reply Comments, March 23, 2021, at 2; CalWEA Tracks 3B and 4 Reply Comments, March 23, 2021, at 4; Cal Advocates Track 3B.2 Comments, March 12, 2021, at 5; CEERT Track 3B.2 Reply Comments, March 23, 2021, at 2; CEJA/Sierra Club Tracks 3B.1, 3B.2, and 4 Comments, March 12, 2021, at 6; CLECA Track 3B.2 Comments, March 12, 2021, at 3; Coalition Parties Track 3B.2 Reply Comments, March 23, 2021, at 2; DMM Track 3B.2 Comments, March 12, 2021, at 3; MRP Tracks 3B.1, 3B.2, and 4 Comments, March 12, 2021, at 6; SDG&E Track 3B.2 Comments, March 12, 2021, at 2.

with resource availability, which would avoid energy shortfalls in certain periods of the day and potential leaning issues. DMM adds that the proposal gives LSEs flexibility in terms of choosing in which slice-of-day to show resources, as long as it can provide energy in that slice.

Critics of the proposal generally state that it is administratively complex for LSE contracting and compliance due to the multiple slices and seasons, that it limits flexibility of RA resources to operate outside of the slices for which they have been shown, and that it may not capture important interactions between slices.<sup>20</sup> CAISO argues that the proposal would require revising its tariff and may reduce efficiency of CAISO's market optimization.<sup>21</sup>

#### **4.3. SDG&E's Slice-of-Day Proposal**

SDG&E puts forth a simplified slice-of-day proposal that builds off PG&E's proposal and offers revisions intended to reduce complexity and simplify implementation.<sup>22</sup> The proposal splits the 24-hour slice-of-day period into six four-hour slices, establishes capacity requirements for each slice, and aggregates all six slices reflecting the overall need for the 24-hour period. The period is also split horizontally into a fixed load requirement and a dynamic load plus storage charging requirement based on the CEC's forecast load profiles. Fixed load requirements would be based on the minimum load for the compliance period (quarter, month). Dynamic load (DL) requirements would be the difference between the peak load and the minimum load. Energy storage

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<sup>20</sup> See, e.g., IEP Track 3B.2 Comments, March 12, 2021, at 8; Calpine Track 3B.2 Comments, March 12, 2021, at 5; Shell Track 3B.2 Comments, March 12, 2021, at 8; SCE Tracks 3B.1, 3B.2, and 4 Comments, March 12, 2021, at 10.

<sup>21</sup> CAISO Track 3B.2 Comments, March 12, 2021, at 2.

<sup>22</sup> See generally SDG&E Track 3B.2 Proposal, February 26, 2021.

charging requirements would be in addition to the DL requirement and must be met with generating resources:

This means that there may be a limit to the amount of energy storage resources that can be shown to meet the DL need and such energy storage resources must be properly paired to ensure there is sufficient state of charge to meet the DL need for multiple slices of the day.<sup>23</sup>

To count towards the fixed load requirement, resources need to be able to generate 24 x 7. To determine how much a resource is available (and should be valued) to meet the dynamic load needs within each of the six slices-of-day, SDG&E proposes a slice multiplier concept that would calculate the number of slices of the day that the RA resource can generate to meet the need. This multiplier would be applied to the resource's NQC value which would then count towards the RA requirement. SDG&E states that the proposal assumes that the Integrated Resource Plan (IRP) process has already determined the optimal resource mix to ensure that the appropriate resources are available to the market to meet each slice-of-day.

Parties that support further development of this proposal include AReM, BRTM, CEJA/Sierra Club, CLECA, and MRP.<sup>24</sup> Proponents generally state that if implementation details can be developed, this proposal would greatly simplify LSE contracting and compliance and would be easier to implement.<sup>25</sup>

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<sup>23</sup> *Id.* at A-8.

<sup>24</sup> AReM Track 3B.2 Comments, March 12, 2021, at 2; BRTM Tracks 3B.1 and 3B.2 Comments, March 12, 2021, at 6; CEJA/Sierra Club Tracks 3B.1, 3B.2, and 4 Comments, March 12, 2021, at 7; CLECA Track 3B.2 Comments, March 12, 2021, at 2; MRP Tracks 3B.1, 3B.2, and 4 Comments, March 12, 2021, at 6.

<sup>25</sup> *See, e.g.*, CEJA/Sierra Club Tracks 3B.1, 3B.2, and 4 Comments, March 12, 2021, at 3; CLECA Track 3B.2 Comments, March 12, 2021, at 2.

Parties that oppose the proposal include Calpine, CESA and Hydrostor.<sup>26</sup> Calpine states that allowing fungibility of capacity between slices ignores physical constraints, which eliminates a key benefit of PG&E's proposal. PG&E shares Calpine's concern about the temporal issues and notes that the proposal relies heavily on the IRP process to determine the optimal resource mix and ensure that appropriate resources are available to meet reliability during each slice.<sup>27</sup> Hydrostor and CESA express concern that defining fixed load as being met by 24 x 7 generating resources means continued, significant reliance on conventional resources. SCE states that the proposal suffers from the same complexity as PG&E's slice-of-day proposal in determining seasons and slices, and that aggregating up to the capacity requirement does not ensure the RA fleet can meet demand in all hours of the day.<sup>28</sup>

#### **4.4. Energy Division's Fixed-Price Forward Energy Proposal**

Energy Division puts forth the Standard Fixed-Price Forward Energy Contract (SFPFC) proposal, based on a paper authored by Professor Frank A. Wolak.<sup>29</sup> The proposal would modify the current RA framework from a monthly peak capacity requirement to an hourly forward energy requirement through the purchase of SFPFCs. The SFPFC is defined as a financial hedging product that is supported by physical resources with confirmed firm energy to meet the procured quantity of the SFPFC. The proposal aims to mitigate energy

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<sup>26</sup> See, e.g., Calpine Track 3B.2 Comments, March 12, 2021, at 8; CESA Tracks 3B.1, 3B.2, and 4 Comments, March 12, 2021, at 13; Hydrostor Tracks 3B and 4 Comments, March 12, 2021, at 8.

<sup>27</sup> PG&E Track 3B.2 Comments, March 12, 2021, at A1-7.

<sup>28</sup> SCE Tracks 3B.1, 3B.2, and 4 Comments, March 12, 2021, at 13.

<sup>29</sup> See generally Energy Division Track 3B.2 Proposal, August 7, 2020; Energy Division Track 3B.2 Revised Proposal, December 18, 2020; Energy Division Track 3B.2 Revised Proposal, February 26, 2021.

supply risk and ensure reasonable costs, while allowing short-term wholesale market volatility to finance investments in storage and other load shifting technologies.

Under the Commission's oversight, CAISO would run up-front compliance auctions for an hourly SFPFC. The auctions would cover quarterly periods and be run far in advance of the delivery period to allow new resources to compete with existing generators. The SFPFC would be shaped to the hourly system demand in each quarter and the amount of energy purchased in the auction would be equal to the CEC forecast of the total energy demand for that quarter. The cost of the SFPFCs would be allocated to LSEs based on their share of system demand in each quarter.

To ensure 100 percent coverage of realized system demand, true-up auctions are necessary after the compliance period with auction purchases allocated to LSEs in the same manner. The proposal asserts that basing allocation of costs on LSEs' actual share of system demand can accommodate retail competition because if one LSE loses load and another gains load during a month, the share of aggregate cost of SFPFCs allocated to the first LSE falls while the share allocated to the second LSE increases.

Under this proposal, generators would be able to sell a maximum amount of firm energy to count towards the SFPFC using a mechanism similar to what is currently used to compute firm capacity values, which ties the SFPFC amount to the amount of firm energy generators can produce. The firm energy amount would be calculated by multiplying a unit's nameplate capacity (MWs) by its availability factor (fraction of hours of the year a unit is expected to be available to produce electricity). Because the amount of firm energy is based on how much a unit can produce in stressed conditions, wind and solar would have

much lower values than conventional generation. The structure allows for cross-technology hedging, which may lead generators to provide more attractive (*i.e.*, lower) bids in the compliance auctions. A clearinghouse would also have to be established to manage counterparty risk associated with these contracts.

The proposal is said to accommodate the Renewables Portfolio Standard (RPS) program because renewables could bid into the auction and any revenues earned could offset costs of the LSE's initial power purchase agreement, and the contract could also provide an LSE with an individual hedge. With respect to the IRP process, the mechanism puts no requirements on the capacity types eligible to sell SFPFC energy so any resources necessary to meet IRP goals can compete in the auctions. Any SFPFC revenues earned by the resource could then be netted against the initial long-term contract revenue stream.

The proposal states that the mechanism would provide a strong incentive for retailers to reduce demand during all hours of the delivery period, particularly those with high short-term prices, because costs are allocated based on actual realized demand. The mechanism rewards retailers that can find flexible demand and utilize the flexibility to reduce the cost of serving their consumers. The proposal also offers two ways to convert the SFPFC to a bilateral mechanism: (1) retain the auction and allow LSEs to submit demand for an SFPFC into the auction for a quarterly SFPFC; or (2) eliminate the auction and require retailers to show that they purchased sufficient quantities of each SFPFC from a qualified supplier.

Lastly, the proposal lays out elements for further development, including: (1) a clearinghouse and elements for a centralized or bilateral approach; (2) firm energy quantities by resource type; (3) quantities to be purchased in auctions; (4) penalties for non-compliance and true-up obligations; and (5) transition to the

new framework, including a calculation to convert current contracts to the SFPFC value (MW months vs. MWhs for each quarter).

#### **4.4.1. Comments on Proposal**

Many parties object to further development of Energy Division's proposal and recommend eliminating it from consideration, including AReM, BRTM, Cal Advocates, CalCCA, Calpine, CalWEA, CEERT, CEJA/Sierra Club, CESA, CLECA, CMUA, Hydrostor, IEP, MRP, SDG&E, Solar Parties, and SCE.<sup>30</sup> Opponents broadly raise the following concerns: the proposal is too difficult to understand, will require extensive renegotiation of existing contracts, does not incentivize new generation and storage which would hinder the State's clean energy and RPS goals, and will diminish retail competition and the ability of CCAs to procure their portfolios. CEJA/Sierra Club comment that the proposal is inconsistent with RPS requirements, such as the requirement that unbundled renewable energy credits can fulfill no more than 10 percent of an LSE's obligation and that at least 65 percent of procurement towards RPS requirements must be from 10-year or longer contracts.<sup>31</sup>

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<sup>30</sup> AReM Track 3B.2 Comments, March 12, 2021, at 2; BRTM Tracks 3B.1 and 3B.2 Comments, March 12, 2021, at 8; Cal Advocates Track 3B.2 Comments, March 12, 2021, at 3; CalCCA Track 3B.2 Comments, March 12, 2021, at 4; Calpine Track 3B.2 Comments, March 12, 2021, at 2; CalWEA Tracks 3B.2 and 4 Reply Comments, March 23, 2021, at 2; CEERT Track 3B.2 Reply Comments, March 23, 2021, at 1; CEJA/Sierra Club Tracks 3B.1, 3B.2, and 4 Comments, March 12, 2021, at 3; CESA Tracks 3B.1, 3B.2, and 4 Comments, March 12, 2021, at 16; CLECA Track 3B.2 Comments, March 12, 2021, at 3; CMUA Track 3B.2 Comments, March 12, 2021, at 1; Hydrostor Tracks 3B and 4 Comments, March 12, 2021, at 8; IEP Track 3B.2 Comments, March 12, 2021, at 4; MRP Tracks 3B.1, 3B.2, and 4 Comments, March 12, 2021, at 21; SDG&E Track 3B.2 Comments, March 12, 2021, at 1; Solar Parties Track 3B.2 Reply Comments, March 23, 2021, at 2; SCE Tracks 3B.1, 3B.2, and 4 Comments, March 12, 2021, at 9.

<sup>31</sup> CEJA/Sierra Club Tracks 3B.1, 3B.2, and 4 Comments, March 12, 2021, at 3.

Some parties, including CalCCA, CESA and SCE, argue that the proposal is too radical a departure from the current RA program because it relies on financial incentives, rather than requiring resources to be physically available. Other parties, such as Cal Advocates, CalCCA, CMUA, and BRTM, contend that reliance on a centralized auction and clearinghouse to price and procure energy will result in legal and jurisdictional challenges about increased oversight by the Federal Energy Regulatory Commission (FERC) that could delay implementation for years. Another concern raised by parties, such as CalCCA, Calpine and CESA, is that the proposal shifts responsibility and risk to energy suppliers (rather than LSEs), over whom the Commission does not have oversight. CAISO states that the proposal would require significant revisions to its tariff and result in complex must-offer obligations that may diminish CAISO's ability to optimally schedule and dispatch resources.

TURN and DMM support further consideration of the proposal.<sup>32</sup> DMM sees merit if other changes are made to the framework, such as increasing energy bid caps to drive incentives for suppliers to deliver power when needed.

#### **4.5. Hedging and Bid Cap Proposals**

PG&E and Energy Division put forward a hedging and bid cap proposal, which we refer to as “hedging component” proposals (as distinguished from the “restructuring” proposals).

##### **4.5.1. PG&E's Hedging Proposals**

In its revised proposal, PG&E puts forth a variable cost hedging proposal that would require “that all RA contracts identify the variable operating costs (or relevant proxy) of the resource and require a rebate of the energy market

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<sup>32</sup> TURN Tracks 3B.1 and 3B.2 Comments, March 12, 2021, at 9; DMM Track 3B.2 Comments, March 12, 2021, at 4.



revenue in excess of those costs.”<sup>33</sup> PG&E cites the example that a thermal unit’s costs would include fuel, variable operations and maintenance, and emission costs. The contract would specify a rebate mechanism in which the seller would rebate to the buyer the difference between the resource’s locational marginal price (LMP) and the variable costs when the price rises above the variable costs, whether the resource produced energy or not. This is intended to give a resource owner an incentive to bid at a resource’s variable costs.

In its second revised proposal, PG&E offers an alternative called the price cap rebate proposal. This proposal offers a similar rebate mechanism to the variable cost hedge proposal; however, rather than identifying variable costs for each RA contract, a trigger value (price cap) would be used to determine the rebate amount. Specifically, PG&E proposes that whenever the LMP exceeds the trigger value, a rebate would be paid by the resource to the LSE for the amount equal to the quantity of the contract times the difference between the LMP and the price cap value. PG&E states that while this does not ensure that resources bid at their variable costs, it provides a price hedge to consumers that they will not be harmed by prices above the price cap. This would allow LSEs to determine how much of a price hedge would be provided. PG&E adds that this proposal could be layered onto its slice-of-day proposal.

Some parties object to the proposals, including AReM, BRTM, Calpine, CESA, LS Power and MRP.<sup>34</sup> Critics generally raise several concerns: the proposal is administratively burdensome, may have an adverse impact on

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<sup>33</sup> PG&E Track 3B.2 Revised Proposal, February 26, 2021, at A1-29.

<sup>34</sup> AReM Track 3B.2 Comments, March 12, 2021, at 9; BRTM Tracks 3B.1 and 3B.2 Comments, March 12, 2021, at 14; Calpine Track 3B.2 Comments, March 12, 2021, at 6; CESA Tracks 3B.1, 3B.2, and 4 Comments, March 12, 2021, at 7; LS Power Tracks 3B.1, 3B.2, and 4 Comments, March 12, 2021, at 5; MRP Track 3B.2 Comments, January 15, 2021, at 13.

import supply and prices, that market power issues are best addressed in CAISO's stakeholder initiatives, that a market-based approach to RA is preferred, and that many resources and LSEs may already have energy hedge contracts. Other parties, such as CalCCA, DMM, and Vistra, comment that a hedging or bid cap component could be coupled with other Track 3B.2 proposals.<sup>35</sup>

#### **4.5.2. Energy Division's Bid Cap Proposal**

Energy Division proposes that a bid cap requirement be added to RA contracts. Energy Division proposes that the level of the bid cap should be set at the higher of \$300/MWh or the resource-specific default energy bid, excluding non-resource-specific default energy bids, such as those tied to indices.<sup>36</sup> Energy Division explains that the maximum of the two will ensure that the bid cap captures any gas price anomalies and that RA resource bids are significantly lower than the current \$1,000/MWh FERC hourly bid cap. To enforce the bid cap, the proposal offers a two-pronged mechanism: (1) require that RA contracts include the bid cap provision (*i.e.*, bidding no higher than the higher of \$300/MWh or the default energy bid); and (2) require Energy Division to review bidding by market participants and refer LSEs for citations for failure to comply.

Critics of the proposal raise concerns similar to those raised for PG&E's contract hedge proposal: the proposal is administratively burdensome, may have an adverse impact on import supply and prices, and may require LSEs to

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<sup>35</sup> See, e.g., DMM Track 3B.2 Comments, March 12, 2021, at 3; Vistra Comments, March 12, 2021, at 4; CalCCA Track 3B.2 Comments, March 12, 2021, at 13.

<sup>36</sup> Energy Division Track 3B.2 Revised Proposal, December 18, 2020, at 15.

monitor RA suppliers.<sup>37</sup> Other concerns are that market power issues are best addressed in CAISO's stakeholder process and that forcing a bid cap in CAISO's market interferes with FERC jurisdiction.

## 5. Discussion

In Track 3B.2, the Commission sought proposals on the following:<sup>38</sup>

Examination of the broader RA capacity structure to address energy attributes and hourly capacity requirements, given the increasing penetration of use-limited resources, greater reliance on preferred resources, rolling off of a significant amount of long-term tolling contracts held by utilities, and material increases in energy and capacity prices experienced in California over the past years.

We stated that Track 3B.2 would "address the direction the Commission intends to move in with respect to larger structural changes (*e.g.*, capacity construct addressing energy attributes and reliance on resource use-limitations, forward energy requirement construct)."<sup>39</sup> In addition, we would "[s]et forth the necessary milestones and additional details that must be determined in order to implement the adopted direction for a compliance year no earlier than 2023."<sup>40</sup>

The Commission recognizes the substantial efforts undertaken by parties and Energy Division to submit and refine the Track 3B.2 restructuring proposals, as well as parties' thorough discussion of the proposals. To evaluate the restructuring proposals, the Commission considered key principles that address the concerns regarding the current RA framework and the objectives of the RA

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<sup>37</sup> See AReM Track 3B.2 Comments, March 12, 2021, at 7; BRTM Track 3B.1 and 3B.2 Comments, March 12, 2021, at 14; LS Power Tracks 3B.1, 3B.2, and 4 Comments, March 12, 2021, at 5; MRP Tracks 3B.1, 3B.2, and 4 Comments, March 12, 2021, at 23; PG&E Track 3B.2 Comments, March 12, 2021, at A1-8; Shell Track 3B.2 Comments, March 12, 2021, at 5.

<sup>38</sup> Amended Track 3B and Track 4 Scoping Memo, December 11, 2020, at 4.

<sup>39</sup> *Id.*

<sup>40</sup> *Id.*

program, as set forth in Public Utilities (Pub. Util.) Code Section 380. The principles are as follows:

- Principle 1: To balance ensuring a reliable electrical grid with minimizing costs to customers.
- Principle 2: To balance addressing hourly energy sufficiency for reliable operations with advancing California's environmental goals.
- Principle 3: To balance granularity and precision in meeting hourly RA needs with a reasonable level of simplicity and transactability.
- Principle 4: To be implementable in the near-term (*e.g.*, 2024).

**Principle 1** is the overarching concept that any RA framework must balance ensuring a reliable electrical grid with minimizing costs to customers. The Commission is concerned that under the current RA construct, the value of an RA resource does not necessarily align with a resource's energy bidding behavior, which could lead to additional reliability costs to ratepayers. This occurs in part because the RA program assumes that the CAISO markets are competitive and that LSEs are incented to hedge competitively for their customer load. However, the RA program (constructed after the 2000 Western energy crisis) did not account for the proliferation of retail choice or the uncertainty associated with the provider of last resort. As further discussed above, this has resulted in a decline in IOU-held tolling contracts (which means fewer resources under least-cost dispatch requirements) as LSEs are uncertain as to whether they will serve future load.

In addition, the tightening of supply in the West and the lack of adequate market power mitigation measures in the CAISO market has led to instances where energy does not flow, or curtailment of demand does not occur, when

needed, which increases costs to customers. Particularly given the summer 2020 electricity outages and the reliance on import energy to serve California's load, we find it critical that a future framework include a component that links RA to a resource's energy bidding behavior so as to increase the cost-effectiveness of RA.

**Principle 2** is the concept that any RA framework must balance the need for hourly energy sufficiency to ensure reliable operations with advancing California's clean energy, greenhouse gas emission reduction, and air pollution reduction goals. As California advances its clean energy goals through the directives mandated by Senate Bill (SB) 100 and SB 350, we recognize that the current RA MCC bucket construct, which aims to limit overreliance on use-limited resources, does not account for energy storage charging needs and is non-binding on LSEs. With the growing penetration of renewable resources, the Commission seeks a framework that can better manage reliance on use-limited resources to meet reliability needs.

In addition, the current RA framework considers the monthly gross peak load but may not address other hours of the day when load may still be high and variable resources provide little or no value. The Commission seeks a framework that can ensure grid reliability based on the system's ability to meet net peak demand and gross peak demand. We recognize that there is some overlap between Principles 1 and 2 with regards to the need for a reliable grid.

Under **Principle 3**, the Commission recognizes the complexity of the current RA program, which requires LSEs to submit both year-ahead and month-ahead RA filings to show compliance with system, local and flexible RA obligations. System obligations are also subject to the MCC bucket percentage limits and in each filing, an LSE must designate an MCC bucket for each contracted resource and show that the MCC bucket caps were not exceeded.

Further, CAISO Supply Plans only confirm an LSE's resource but do not confirm the designated MCC bucket.

A less complex framework will inherently result in ease of transactability and contracting, as comprehensible rules regarding need determination and resource counting will facilitate bilateral trading and contracting of RA products and provide better certainty to allow for long-term contracting. We seek a framework that appropriately balances granularity of meeting hourly RA needs with a reasonable level of simplicity and transactability to minimize the complexity of the RA program.

Under **Principle 4**, the current year-ahead RA process requires LSEs to submit historical load data in March and initial load forecasts in April the year prior to serving load (*e.g.*, for 2023 compliance, LSEs submit load forecasts in April 2022). The data is then evaluated by the CEC and the Commission through a load forecast adjustment methodology.<sup>41</sup> Based on this timing, it is not possible to implement a new RA framework for the 2023 compliance year but it may be possible to adopt a new framework in 2022 to begin implementation in 2023 for the 2024 RA compliance year. The Commission seeks a framework that could be implemented in this timeframe.

With these principles in mind, we consider the restructuring proposals.

#### **5.1. Principle 1: Balance a Reliable Electrical Grid with Minimizing Costs to Customers**

The Commission considers which proposals best address a reliable electrical grid that minimizes costs to customers. The Commission finds that all

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<sup>41</sup> The methodology was initially adopted in D.04-10-035 and D.05-10-042, and most recently revised in D.19-06-026.

of the restructuring proposals are designed to enhance the current RA framework and ensure a reliable electrical grid.

PG&E's proposal provides that a resource can only meet a slice-of-day if it is capable of providing energy across that specific slice. SCE/CalCCA's proposal would add an NQE requirement to the RA program and resources would receive a monthly NQE value based on the amount of energy they are capable of producing over the month. The SFPFC proposal changes the current RA product to an hourly financial hedge that would incent generators to minimize the cost of supplying the forward contract quantity of energy. The SFPFC pushes the risk of meeting real-time demand on to suppliers and aims to incent cross-hedging between technologies to arrive at a least-cost solution to meet hourly demand. SDG&E's proposal would require LSEs to meet a fixed load requirement using only resources available 24 x 7, and a dynamic load requirement using availability-limited resources that are valued using a slice multiplier to calculate a resource's value based on number of slices-of-day a resource is available to provide energy.

While all of the proposals are intended to enhance the current RA framework, the SFPFC framework is the only restructuring proposal that attempts to link RA to energy bidding behavior (so as to provide reliability while minimizing costs to customers). The SFPFC framework adds a financial hedging product that is supported by physical resources with confirmed energy to meet the quantity of the SFPFC. PG&E's hedging proposals and Energy Division's bid cap proposal also attempt to link capacity to energy bidding behavior and to ensure that the RA value is transferred to the energy markets. We recognize that one of the hedging component proposals could be added to one of the restructuring proposals to address this concern as well.

## **5.2. Principle 2: Balance Addressing Hourly Energy Sufficiency with Advancing Environmental Goals**

The Commission considers which proposals best address hourly energy sufficiency given the increasing penetration of renewable resources driven by the State's environmental policy goals (*e.g.*, SB 100, SB 350).

SCE/CalCCA's proposal attempts to address hourly energy sufficiency by adding an NQE requirement that would require verification that an LSE's portfolio has sufficient energy to meet both its hourly load and storage charging needs. This may help ensure that LSEs have sufficient energy in all hours of each month to meet their load. Variable energy resources would be accounted for (and valued) by netting their hourly projected production off the hourly load forecast to establish a net load forecast used to set both NQC and NQE requirements. Energy storage charging needs would be addressed by requiring LSEs that use energy storage to meet their net loads to show there is enough excess energy available from their shown RA portfolio to charge the storage resources.

PG&E's slice-of-day attempts to address energy sufficiency by breaking an LSEs' load into seasonal requirements across a peak 24-hour period for each season and using an exceedance-based methodology to value resources across each slice-of-day and season. PG&E proposes to establish a structure that accounts for capacity to meet energy storage charging needs by requiring LSEs to include additional capacity in another slice to account for storage charging. PG&E also proposes that all resources (except for energy storage and imports) be valued based on an exceedance methodology across each slice, or alternatively, using a net load forecast that would net forecasted wind and solar production from the hourly load forecast. SDG&E's simplified slice-of-day also attempts to



address energy sufficiency through a fixed load and dynamic load requirement, which breaks dynamic load into slices and uses a slice multiplier to determine how much a resource can count towards meeting the aggregate dynamic load requirement. Energy storage charging requirements would be added to the dynamic load requirement.

The SFPFC framework attempts to meet hourly energy sufficiency through a financial hedging contract that would be shaped to the hourly system demand within each quarterly compliance period. An hourly financial hedge that is tied to physical firm energy resource values would address increased renewable penetration because resource suppliers would seek to hedge energy supply risk with controllable generation. Cross-hedging between resource technologies would provide a revenue stream to controllable generation, necessary for fixed cost recovery, and would ensure there is sufficient controllable generation to meet demand in all hours.

All of the restructuring proposals include a component that aims to address hourly energy sufficiency and advance environmental goals. However, PG&E's slice-of-day proposal and the SFPFC proposal appear to better address Principle 2 because they evaluate reliability needs at a more granular level. PG&E's proposal ensures that LSEs do not overly rely on use-limited resources to meet their four-hour slice-of-day requirements by assigning a binding NQC value for each slice and season based on the resource's ability to provide energy during that time period. It also addresses energy storage charging concerns, and provides renewable resources with a value stream based on the time period that they are providing reliability. The SFPFC proposal financially hedges hourly energy demand to ensure reliability is obtained in every hour.

We also observe that using a net load approach may help to provide value to resources that operate outside of peak deliverability periods. We note that PG&E's slice-of-day proposal may already provide this value to such resources since value would be derived using an exceedance methodology across each slice-of-day, which essentially would provide some value for non-peak time periods.

SCE/CalCCA's proposal, as submitted, does not include a component to address the temporal concern, although SCE/CalCCA include potential options that could be developed to address this issue. If one were developed, it may adequately address reliability associated with the growing penetration of renewables.

### **5.3. Principle 3: Balance Granularity in Meeting Hourly Needs with Simplicity and Transactability**

SCE/CalCCA's proposal adds an NQE requirement whereby LSEs would continue to make 12 monthly showings but have an additional NQE showing in lieu of MCC bucket reporting. The proposal also introduces the need to implement and administer an NQE resource counting process, in addition to the current NQC process. While SCE/CalCCA do not specifically recommend unbundling NQE and NQC, they state that this could be explored in workshops.<sup>42</sup> Therefore, it is not clear if LSEs would have to directly contract for NQE in their contracts with generators. If unbundling were permitted, this

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<sup>42</sup> See SCE/CalCCA Track 3B.2 Revised Proposal, February 26, 2021, at A-20: "The Joint Parties do not explicitly include within this proposal the ability to transact the NQC and NQE separately. However, if these products are not tradeable, LSEs may be forced to over-procure collectively, driving up customer costs. This proposal is structural; the implementation of separable and tradeable products should be discussed and evaluated within working groups or workshops."

would require each contract to specify the NQE of a resource and for a Supply Plan to confirm this amount.

PG&E's slice-of-day would change the peak monthly construct to a seasonal construct, which means that an LSE would submit three seasonal RA showings to demonstrate it met six slice-of-day requirements. The proposal also would require that the current NQC list be modified from a monthly list to a seasonal list with six NQC values for each slice-of-day, and that LSEs use this NQC list to contract for each slice-of-day. Supply Plans would need to confirm each slice-of-day for each season. In other words, an LSE would submit RA plans for six slices and three seasons, resulting in 18 compliance showings as compared to the current 12 compliance showings.

SDG&E's slice-of-day aggregates the slices of the dynamic load requirement into one requirement for each compliance period, which reduces the complexity associated with multiple slices-of-day. SDG&E does not propose a specific compliance period but states that the requirements could be set either by month, quarter, or season.

The SFPFC proposal would require quarterly compliance auctions and true-up auctions to be facilitated by a central procurement entity and central financial clearinghouse. It also requires existing contracts to be converted from the current capacity revenue stream to a forward energy revenue stream. Like other proposals, energy values would need to be established for all resources for each compliance period.

While all of the restructuring proposals add some complexity to the current RA framework, the SFPFC approach appears to add the most complexity in that it requires overhauling the RA program to establish, among other things, a central procurement entity, centralized clearinghouse, and a financial hedging

product. The SFPFC contracts would also require changes from a monthly capacity product to a forward hourly energy product.

PG&E's slice-of-day requires additional showings for each compliance period but reduces the number of compliance periods from 12 monthly filings to three seasonal filings. The proposal may also require terms that specify specific slices-of-day and seasons covered by the contract. SCE/CalCCA's proposal would continue with the existing monthly filings and, if NQE remains bundled with NQC, it appears that this proposal could be simply layered onto the current RA framework. However, the SCE/CalCCA proposal does not yet address hourly resource sufficiency – the critical temporal issue – and when modified to address this, additional complexity would be added to the proposal. Further, additional contract terms may be needed to identify the amount of NQE covered by the contract. Similar concerns apply to SDG&E's proposal, as it attempts to simplify PG&E's slice-of-day proposal but erodes the hourly resource sufficiency (temporal) benefits provided by PG&E's proposal.

#### **5.4. Principle 4: Implementable in the Near-Term**

SCE/CalCCA provide an illustrative schedule of seven workshops over the next year (Q3 2021 to Q2 2022) to address outstanding details, summarized as: (1) structural elements (accounting framework, contract terms for NQE, uncertainty considerations); (2) LSE compliance obligations (load forecast variability, load modifiers); (3) NQE counting (by resource, must-offer obligations, contracting/trading); (4) variable resource counting (solar and wind, deliverability, ownership/tradability); (5) energy storage; (6) miscellaneous

(temporal constraints, hybrid and behind-the-meter resources, forced outage rates); and (7) testing and planning reserve margin.<sup>43</sup>

PG&E does not offer a schedule but notes five elements for further consideration: (1) determining seasons and slices; (2) resource counting; (3) requirements and resource stacks; (4) need determination and allocation; and (5) must-offer obligation.<sup>44</sup> SDG&E states that RA counting methodologies and compliance obligations associated with storage charging should be further discussed in implementation workshops.

Energy Division does not offer a schedule for developing its proposal but highlights the following to be developed: (1) establishment of a central clearinghouse and elements under a centralized or bilateral approach; (2) development of firm SFPFC energy quantities by resource type; (3) development of SFPFC quantities to be purchased in auctions; (4) penalties for failing to comply and true-up obligations; and (5) transitioning existing contracts to the SFPFC framework (including a calculation to convert existing contracts to the SFPFC value stream).<sup>45</sup>

We acknowledge that under any of the restructuring proposals, several key implementation details must be developed. Some common areas across all proposals that will require development include: resource counting methodologies, need determination and allocation, and structural components. The SFPFC proposal would also require contract conversion calculations to convert RA value streams into a financial fixed price energy hedge value stream, as well as establishment of a financial clearinghouse and central procurement

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<sup>43</sup> SCE/CalCCA Track 3B.2 Revised Proposal, December 18, 2020, at 4.

<sup>44</sup> PG&E Track 3B.2 Revised Proposal, February 26, 2021, at A1-2.

<sup>45</sup> Energy Division Track 3B.2 Revised Proposal, February 26, 2021, at 17.

entity. Of all of the proposals, the SFPFC proposal is unlikely to be timely developed for the 2024 compliance year.

### **5.5. Discussion of Proposals**

In applying the identified principles to the restructuring proposals, the Commission concludes that the SFPFC proposal should not be further developed as a potential RA framework. We appreciate the proposal's innovative approach to restructuring the RA program and the unique potential to link RA with energy bidding behavior that could minimize customer costs, which the Commission deems critical to any future RA program. As presented, however, the SFPFC proposal requires development of significant details, such as establishing a central financial clearinghouse and central procurement entity, which will likely delay implementation past the 2024 compliance year.

We also observe that a broad range of parties oppose the SFPFC proposal because, among other reasons, it is too complicated to understand, it may not incentivize new generation and storage, and it may result in diminished retail competition. For these reasons, we decline to further develop the SFPFC proposal. As discussed below, however, aspects of the SFPFC concept may be considered as a hedging component that may be layered onto a final proposed RA framework.

The Commission also finds that SDG&E's simplified slice-of-day proposal, as presented, does not adequately address the identified key principles for a future framework. While the proposal offers less complexity than PG&E's proposal, we agree with parties that state that failing to tie capacity to a specific time period raises the same hourly resource sufficiency issues as SCE/CalCCA's proposal and could result in insufficient capacity to meet demand in all hours.

With respect to SCE/CalCCA's proposal, the Commission appreciates the use of an NQE requirement to attempt to address hourly energy sufficiency. However, we are concerned that hourly energy sufficiency is not adequately addressed since NQE requirements and resource values are aggregated across the month. While SCE/CalCCA put forth high-level options to address this concern, layering a new component onto the proposal, such as PG&E's slice-of-day element, would further increase the complexity of the proposed framework and the new component must still be developed for timely implementation.

The Commission finds that PG&E's slice-of-day proposal appears to best address the identified principles. The proposal appears to best address the increased penetration of renewable resources by basing reliability needs on a more granular level than the other restructuring proposals. While there is still complexity in PG&E's proposal, which requires additional showings for each compliance period, there is also simplicity in reducing the number of compliance period to three seasonal filings. The proposal also addresses the hourly energy sufficiency concerns that are absent in SCE/CalCCA's proposal, which would better ensure that reliable resources are available in critical hours. We also believe that use of an exceedance methodology may be a more accurate method to determine QC values as compared to the current QC methodologies.

While the Commission finds merit in SCE/CalCCA's proposal, the Commission must balance the need for expedited development of a future RA framework with the prospective benefits of continuing to debate and develop two distinct restructuring proposals. We agree with parties that urge the Commission to narrow the list of Track 3B.2 restructuring proposals in order to focus on the necessary implementation details. Expedited development of a

framework is particularly important considering the 2020 heat waves and resulting outages, as well as the recent proposed decision issued on May 21, 2021 in the Commission's IRP rulemaking, R.20-05-003, that authorizes up to 11,500 MW of incremental capacity over the next several years. As such, the Commission deems it critical to narrow the proposed options and provide sufficient guidance on developing a future RA framework that can be timely implemented in 2023 for the 2024 compliance year.

The Commission finds that PG&E's slice-of-day proposal best addresses the identified principles and the concerns with the current RA framework and if further developed, is best positioned to be implemented in 2023 for the 2024 compliance year. Therefore, we direct parties to collaborate to develop a final restructuring proposal based on PG&E's slice-of-day proposal through workshops, as outlined below. Further development of PG&E's proposal may include aspects of SCE/CalCCA's proposal, including the net load approach to setting RA requirements and the bottom-up approach to establishing individual LSE requirements.

At the same time, the Commission remains concerned that PG&E's approach, as well as other proposals, lack a means to ensure that RA is linked with energy bidding behavior in order to balance reliability with minimizing costs to customers. Therefore, the Commission directs parties in workshops to discuss and propose a hedging component as part of the final proposed framework, such as PG&E's hedging proposal, Energy Division's bid cap proposal, or aspects of the SFPFC concept.

The Commission acknowledges some parties' concerns as to whether inadequate LSE energy hedging is indeed an issue that needs to be addressed through the RA program. To understand the magnitude of this issue, the



Commission authorizes Energy Division to request energy hedging data (both physical and financial) from LSEs and report such data to the Commission.

#### **5.6. Process and Schedule for Further Development**

The Commission directs parties to develop a final restructuring proposal through workshops over the next approximately six months. Parties shall undertake a minimum of five workshops to develop implementation details based on PG&E's slice-of-day proposal. The workshops should cover the following implementation details: (1) Structural Elements; (2) Resource Counting; (3) Need Determination and Allocation; (4) Hedging Component; and (5) Unforced Capacity Evaluation (UCAP) and Multi-Year Requirement Proposals (see discussion in Section 6).

The Commission deems an implementable RA framework as one that addresses the above implementation details, as well as the four identified key principles. The Commission also directs parties to consider a final proposed framework's compatibility with existing Commission planning goals and programs, such as the IRP and RPS proceedings.

The Commission recommends that the parties that submitted Track 3B.2 restructuring proposals (CalCCA, PG&E, SCE, and SDG&E) facilitate the workshops, individually or jointly. Parties should work together to arrive at the optimal final framework that best addresses the stated principles and implementation details. The Commission requests that CAISO and the CEC directly participate in these workshops, particularly on issues that pertain to their direct involvement (*e.g.*, load forecast issues, UCAP, MOO), and that CAISO identify any required tariff modifications as early as practicable to allow for implementation prior to 2024. Energy Division shall be consulted and included throughout the workshop process.

At the conclusion of the workshops, an identified party/parties shall prepare and submit a Workshop Report that provides the final proposed framework (identifying consensus and non-consensus items) and discuss how the final proposal addresses the implementation details and the key principles. The Workshop Report shall be filed and served in the RA proceeding in February 2022. Following the submission of the Workshop Report, parties will be given an opportunity to comment.

Within 30 days of the effective date of this decision, parties shall reach agreement and inform the Commission (with service to the service list) of the following:

- (1) The date for the first workshop and placeholder dates for at least two subsequent workshops;
- (2) The scope of issues for each workshop;
- (3) Identified part(ies) to facilitate each workshop; and
- (4) Identified part(ies) to prepare and submit the Workshop Report to the Commission.

When developing the content and schedule for the workshops, parties should consider the order in which the implementation details should be addressed, or if certain issues should be considered jointly. The Commission will consider the final proposed framework and intends to issue a decision in the third quarter of 2022 with details for implementation in 2023 for the 2024 RA compliance year.

## **6. Other Track 3B.2 Proposals**

### **6.1. Unforced Capacity Evaluation Proposal (UCAP)**

CAISO proposes a UCAP framework that would embed forced outage rates into a resource's RA value through a seasonal availability factor approach

that looks at unit-specific availability during tight RA supply hours.<sup>46</sup> The proposal has two elements: (1) a UCAP counting methodology to determine maximum RA capacity values for generation resources, and (2) UCAP/NQC-based procurement requirements. The counting methodology would determine a resource's UCAP/NQC value by discounting its deliverable QC value to account for historical unit forced and urgent outage rates during tight RA supply hours. The UCAP requirements would include a PRM that would not include a forced outage rate because the outage rate would be embedded in the resource's UCAP/NQC values.

CAISO states that current incentives to provide replacement capacity for forced outages, such as substitution rules and Resource Adequacy Availability Incentive Mechanism (RAAIM), are not effective because they do not ensure expeditious availability of substitute capacity, create perverse withholding incentives, and allow cross-subsidization of outages within a portfolio. A UCAP methodology will better incentivize LSEs to procure more reliable resources and avoid forced outages, and removing the forced outage rate from the PRM will allow RA requirements to change over time with the fleet's actual forced outage rate. CAISO states that it is working on detailed forced outage rates but specific data is not necessary to consider the principles of its proposal.

Parties that oppose CAISO's proposal include Cal Advocates, CEJA/Sierra Club, MRP, PCF and SDG&E.<sup>47</sup> CEJA/Sierra Club and Cal Advocates posit that it may significantly raise RA requirements and increase ratepayer costs.

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<sup>46</sup> CAISO Track 3B.2 Revised Proposal, February 26, 2021, at 3.

<sup>47</sup> CEJA/Sierra Club Tracks 3B.1, 3B.2, and 4 Comments, March 12, 2021, at 12; Cal Advocates Track 3B.2 Comments, March 12, 2021, at 7; MRP Tracks 3B.1, 3B.2, and 4 Comments, March 12, 2021, at 22; SDG&E Track 3B.2 Comments, March 12, 2021, at 5; PCF Track 3B Comments, March 12, 2021, at 10.

CEJA/Sierra Club argue that it has not been shown to be necessary and the vast majority of outages are due to operational issues, transmission and distribution equipment issues, etc. SDG&E states that the proposal intrudes on Commission jurisdiction to set the PRM and that CAISO's forced outage data is in dispute. MRP states that the proposal is burdensome as it requires constantly changing QC values and penalizes generators for past outages. Calpine does not believe it provides sufficiently strong incentives and recommends other means, such as scarcity pricing in energy markets or stronger non-performance penalties.<sup>48</sup>

SDG&E and MRP comment that the proposal is in Phase 2A of CAISO's stakeholder initiative and need not be adopted at this time. CAISO suggests that the proposal be further developed in conjunction with Track 3B.2 proposals to allow CAISO time to provide stakeholders with requested data. Shell supports the proposal and BRTM supports it with modifications, such as different counting methodologies for specific technologies.<sup>49</sup>

The Commission sees merit in the UCAP framework and agrees that the proposal could be further developed in conjunction with PG&E's slice-of-day proposal. We decline to adopt the proposal at this time but direct parties to consider the proposal in workshops, or other means of accounting for forced outage rates in a resources RA value (*e.g.*, exceedance methodology), to potentially be layered onto a final proposed framework. CAISO is requested to participate in (or lead) the workshop that considers these proposals.

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<sup>48</sup> Calpine Track 3B.2 Comments, March 12, 2021, at 10.

<sup>49</sup> Shell Track 3B.2 Comments, March 12, 2021, at 7; BRTM Tracks 3B.1, 3B.2 and 4 Comments, March 12, 2021, at 10.

## 6.2. Multi-Year System and Flexible Requirements

CAISO, WPTF, and IEP propose multi-year (3-year) forward proposals for system obligations. These parties recommend 100 percent forward procurement for Years 1 and 2, with differing Year 3 procurement: CAISO proposes 80 percent, WPTF recommends 75 percent, and IEP recommends 50 percent.<sup>50</sup> WPTF and IEP recommend multi-year requirements for both system and flexible obligations. CAISO states that multi-year system requirements are important to ensuring near-term reliability and continued operation of existing generation resources, and believes the RA program is not equipped to address forward contracting that bridges mid- and long-term planning as directed in the IRP proceeding.

BRTM, Calpine, and LS Power support multi-year system requirements.<sup>51</sup> AReM supports multi-year system requirements if percentages are not higher than the multi-year local percentages adopted in D.19-02-022 (*e.g.*, 50 percent for Year 3) and if only applied to summer months.<sup>52</sup>

PG&E and Cal Advocates oppose multi-year requirements.<sup>53</sup> Cal Advocates states that there is no evidence that multi-year requirements would result in increased RA availability and the proposal should be deferred until the restructuring proposals are evaluated, some of which raise questions about the type and amount of resources that LSEs will need to procure.

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<sup>50</sup> CAISO Track 3B.2 Revised Proposal, February 26, 2021, at 10; WPTF Track 3B.2 Revised Proposal, December 18, 2020, at 7; IEP Track 3B Proposal, August 7, 2020, at 2.

<sup>51</sup> BRTM Tracks 3B.1 and 3B.2 Comments, March 12, 2021, at 6; Calpine Track 3B.2 Comments, January 15, 2021, at 15; LS Power Tracks 3B.1, 3B.2, and 4 Comments, March 12, 2021, at 7.

<sup>52</sup> AReM Track 3B.2 Comments, March 12, 2021, at 6.

<sup>53</sup> Cal Advocates Track 3B.2 Comments, March 12, 2021, at 9; PG&E Track 3B.2 Comments, January 15, 2021, at 5.

Cal Advocates point out that the central procurement entity (CPE) will begin local procurement in 2023, creating uncertainty as to what an LSE's system RA positions will be. PG&E asserts that outstanding issues must be addressed before adopting multi-year requirements, including incentives for non-Commission-jurisdictional LSEs that are not subject to multi-year requirements, backstop provisions for failure to comply, load migration that occurs on an intra-year and yearly basis, and QC counting rules changes.

In D.19-02-022, the Commission adopted multi-year forward local RA procurement to be procured by the CPE beginning in the 2023 compliance year and declined to expand multi-year procurement for system and flexible requirements.<sup>54</sup> The Commission recognizes the potential benefits of multi-year system and flexible procurement requirements, such as potential revenue certainty for long-term generator maintenance costs, and reduced transaction costs for LSEs.

That said, there are uncertainties in the RA program that may create market confusion about system requirements, including how such requirements will work with the CPEs procuring local RA that will lower system RA requirements on behalf of all LSEs in PG&E and SCE service territories. We decline to adopt multi-year requirements at this time; however, parties are directed to consider multi-year system and flexible RA requirements in workshops while developing the final restructuring proposal. Parties that presented multi-year proposals are requested to participate in (or lead) the workshop that considers these proposals.

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<sup>54</sup> D.19-02-022 at 33.

## **7. Comments on Proposed Decision**

The proposed decision of ALJs Debbie Chiv and Amin Nojan in this matter was mailed to the parties in accordance with Section 311 of the Public Utilities Code and comments were allowed under Rule 14.3 of the Commission's Rules of Practice and Procedure. Comments were filed on \_\_\_\_\_, and reply comments were filed on \_\_\_\_\_ by \_\_\_\_\_.

## **8. Assignment of Proceeding**

Marybel Batjer is the assigned Commissioner and Debbie Chiv and Amin Nojan are the assigned Administrative Law Judges in this proceeding.

### **Findings of Fact**

1. Track 3B.2 of this proceeding was scoped to address the examination of the broader RA capacity structure to address energy attributes and hourly capacity requirements, given the increasing penetration of use-limited resources, greater reliance on preferred resources, rolling off of a significant amount of long-term tolling contracts held by utilities, and material increases in energy and capacity prices experienced in California over the past years.

2. PG&E's slice-of-day proposal best addresses the identified principles and the concerns with the current RA framework and if further developed, is best positioned to be implemented in 2023 for the 2024 compliance year.

### **Conclusions of Law**

1. A new RA framework that addresses the Commission's key principles and implementation details should be considered to begin implementation in 2023 for the 2024 RA compliance year.

2. Parties should engage in a series of workshops to further develop PG&E's slice-of-day proposal for a final proposed framework.

**O R D E R****IT IS ORDERED** that:

1. Parties shall undertake a minimum of five workshops over the next approximately six months to develop implementation details based on Pacific Gas and Electric Company's slice-of-day proposal. The workshops shall cover the following implementation details: (1) Structural Elements; (2) Resource Counting; (3) Need Determination and Allocation; (4) Hedging Component; and (5) Unforced Capacity Evaluation and Multi-Year Requirement Proposals.

2. An implementable Resource Adequacy framework is one that addresses the implementation details in Ordering Paragraph 1, as well as four key principles, as follows:

- Principle 1: To balance ensuring a reliable electrical grid with minimizing costs to customers.
- Principle 2: To balance addressing hourly energy sufficiency for reliable operations with advancing California's environmental goals.
- Principle 3: To balance granularity and precision in meeting hourly RA needs with a reasonable level of simplicity and transactability.
- Principle 4: To be implementable in the near-term (*e.g.*, 2024).

Parties shall also consider a final proposed framework's compatibility with existing Commission planning goals and programs, such as the Integrated Resource Plan and Renewables Portfolio Standard proceedings.

3. At the conclusion of the workshops, an identified party or parties shall submit a Workshop Report that provides the final proposed framework (identifying consensus and non-consensus items) and how the final proposal addresses the implementation details and the key principles. The Workshop Report shall be filed and served in the Resource Adequacy proceeding in February 2022.



4. Within 30 days of the effective date of this decision, parties shall reach agreement and inform the Commission (with service to the service list) of the following:

- (1) The date for the first workshop and placeholder dates for at least two subsequent workshops;
- (2) The scope of issues for each workshop;
- (3) Identified part(ies) to facilitate each workshop; and
- (4) Identified part(ies) to prepare and submit the Workshop Report to the Commission.

5. Rulemaking 19-11-009 remains open.

This order is effective today.

Dated \_\_\_\_\_, at San Francisco, California.