

Docket: Rulemaking 20-11-003

Exhibit No. _____

Date: September 10, 2021

Witness: Scott Murtishaw

**PREPARED REPLY TESTIMONY OF SCOTT MURTISHAW ON SUMMER 2022 AND
2023 RELIABILITY ENHANCEMENTS ON BEHALF OF THE INDEPENDENT
ENERGY PRODUCERS ASSOCIATION**

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7 **I. INTRODUCTION**

8 As I noted in the Independent Energy Producers Association’s (IEP’s) opening testimony,
9 recently completed analysis conducted by the California Energy Commission (CEC) indicates
10 that the capacity in the procurement pipeline resulting from load-serving entities’ (LSEs’) integrated resource plans and recent Commission decisions will yield loss-of-load-expectations (LOLEs) well below 0.1 by 2023. Even in 2022, the Preferred System Plan (PSP) scenario resulted in an LOLE of less than 0.1, although there may be concerns regarding whether all of resources included in the PSP portfolio for 2022 will come online by next summer. With these findings in mind, the Commission should focus on cost-effective, short-term solutions to addressing a potential capacity shortfall next year. Some of the most feasible and inexpensive solutions may entail efficiency improvements or the installation of temporary generators at existing gas-fired generation facilities.

19 In my reply testimony, I respond to certain proposals concerning expedited procurement opportunities and processes suggested by other parties and address allegations regarding the performance and air-quality impacts of gas-fired generators.

22 **II. EXPEDITED PROCUREMENT OPPORTUNITIES AND PROCESSES**

23 In opening testimony, Pacific Gas and Electric Company (PG&E) proposes that it be allowed to expand its authority as the Central Procurement Entity (CPE) for local Resource Adequacy (RA) capacity to enable PG&E to procure additional capacity for all distribution customers in its territory. PG&E essentially proposes combining its authority as a CPE to

1 procure local RA resources with the streamlined procurement processes that the Commission
2 approved in D.21-03-056.¹ More specifically, procurement would be limited to preferred and/or
3 storage resources located in a PG&E local capacity area that can come online by the summer of
4 2022 or 2023. To expedite contract execution and approval, PG&E could negotiate contracts
5 bilaterally and submit executed contracts by Tier 1 advice letter.²

6 IEP supports this proposal as one pathway to procuring resources that can come online
7 quickly, with three caveats. First, the expedited procurement process should allow PG&E to
8 negotiate contracts of less than five years' duration for incremental capacity at existing gas-fired
9 units, consistent with D.21-03-056. As CEC staff explained at the Mid-Term Reliability (MTR)
10 workshop, there are approximately 200 MW of incremental capacity that can be brought online
11 by next summer through efficiency upgrades at existing gas-fired power plants.³ Second, as I
12 explained in IEP's opening testimony, in light of the CEC's analysis showing a far lower LOLE
13 in 2023 than 2022,⁴ PG&E's exceptional authority to procure additional capacity on an
14 emergency basis should be limited to 2022. If the Commission concludes that more capacity
15 needs to be operational by the summer of 2023 than is anticipated by recent procurement
16 decisions, the Commission should request that all LSEs work with counterparties to accelerate a
17 portion of the post-2023 capacity ordered in D.21-06-035. Third, the procurement should not be
18 limited to local capacity areas. The shortfall that may occur in 2022 is related to system capacity,
19 not local capacity. Restricting the locations of the facilities that the utilities can contract with will
20 only make procurement of additional resources more difficult when the pool of potential 2022
21 resources is already very thin.

¹ PG&E Opening Testimony, Chap. 9, pp. 6-8.

² PG&E Opening Testimony, pp. 7-8.

³ IEP Opening Testimony, p. 2.

⁴ *Ibid.*

1 **III. SUPPORT FOR EXISTING FACILITIES**

2 Several parties submitting opening testimony shared IEP’s goal of ensuring that existing
3 facilities do not retire during a period in which the state may be experiencing a capacity shortfall.
4 While not necessarily agreeing with all of the details in the following parties’ testimony, IEP
5 generally supports the position of the California Biomass Energy Alliance (CBEA)/California
6 Wind Energy Association (CalWEA),⁵ the Green Power Institute (GPI),⁶ Calpine,⁷ Middle River
7 Power (MRP),⁸ and the California Large Energy Consumers Association (CLECA)⁹ regarding
8 the need to retain existing capacity. The most straightforward and efficient way to accomplish
9 this would be to require multi-year forward RA contracts, as Mr. Theaker indicates in his
10 testimony.¹⁰

11 **IV. “UNEXPLAINED COINCIDENCES AND TROUBLING ANOMALIES” AT GAS-**
12 **FIRED POWER PLANTS DURING RECENT TIGHT SUPPLY CONDITIONS**

13 In opening testimony, Protect Our Communities Foundation (PCF) witness Bill Powers
14 insinuates that power plant operators have recently engaged in “profiteering” and “withholding”
15 and that the Commission needs to “revert to tried-and-true command and control levers” to
16 prevent it.¹¹ Mr. Powers further claims that his “analysis of the plant outages that occurred on
17 August 14-15, 2020 reveals *unexplained coincidences and troubling anomalies* [emphasis added]
18 that pinpoint the specific plants that caused the blackouts on August 14, 2020 and August 15,
19 2020.”¹² Figure 3 in Mr. Powers’ testimony shows that three specific plants, Ormond Beach

⁵ CBEA/CalWEA Opening Testimony, p.3.

⁶ GPI Opening Testimony, pp. 4-5.

⁷ Calpine Opening Testimony, p. 4.

⁸ MRP Opening Testimony, pp. 7-9.

⁹ CLECA Opening Testimony, p

¹⁰ MRP Opening Testimony, p. 7.

¹¹ PCF Opening Testimony, p. 4.

¹² *Ibid.*, pp. 26-27.

1 Generating Station (“Ormond Beach”), High Desert Power Project (“High Desert”), and Blythe
2 Energy Center, experienced major outages on August 14, 2020. As Figure 3 in the testimony
3 shows, Blythe Energy Center was able to come back online before rolling blackouts were
4 initiated; thus, one cannot argue that it contributed to the blackouts.

5 A closer examination of the operations of the two remaining plants does not suggest any
6 nefarious intent. High Desert experienced an outage of 740 MW in the morning to early
7 afternoon but was able to bring all but 250 MW back online by 1 p.m. By 3 p.m. the entire plant
8 was operational, but the 250 MW unit went down again at 7:30 p.m. and did not come back
9 online until 9:20 p.m. The plant continued to operate without incident on August 15 and 16
10 providing much needed capacity during the rest of the heat event.¹³ That High Desert operated at
11 full capacity when needed during the most of August 2020 heat event and brought most its
12 capacity back online during the one day it experienced an outage belies any allegation that its
13 operators deliberately withheld capacity.

14 The outage reported by Ormond Beach on August 14 is technically correct but
15 misleading. Ormond Beach Unit 1 had experienced a forced outage from August 11 through
16 August 13. Because it was offline through the evening of the August 13, it could not offer
17 capacity in the day-ahead market. CAISO requested that the plant operators bring the facility
18 online on August 14. The operators began the start-up process but were unable to successfully re-
19 start the plant. When they realized they could not bring the unit back online, they submitted the
20 outage report 6:30 p.m. However, because the facility was only delivering minimal amounts of
21 electricity from start-up activity prior to 6:30 p.m., the grid actually experienced a loss of only a

¹³ CAISO. August 13-16 Balancing Authority Area Resource Outages.
<http://www.caiso.com/Documents/Aug13-16-2020-CAISO-Balancing-Authority-Area-Resource-Outages.xlsx>

1 fraction of the unit’s 741 MW of capacity. The operators were able to bring the unit back online
2 by 11 p.m. that night, and the unit continued to provide its full capacity on both August 15 and
3 16.¹⁴

4 Outages from these two plants during the blackout period represent slightly less than
5 1,000 MW of capacity. When combined with the roughly 1,000 MW of other gas plant outages
6 that continued from earlier in the day, forced outages represent less than 7% of the total
7 operational gas-fired capacity in the California Independent System Operator (CAISO) control
8 area¹⁵ or 6.7% of gas-fired RA capacity.¹⁶ Of the more than 400 gas-fired turbine-based
9 generating units in the CAISO control area, it is not unusual for several units to experience an
10 outage on any given day. The outages at High Desert and Ormond Beach, which is a 50-year old
11 facility, are not particularly anomalous, much less troubling.

12 While Mr. Powers purports to show the specific plants that caused the outages on August
13 14 and August 15, Figure 3 in his own testimony shows less than 800 MW of outages during the
14 blackout on August 15. This capacity is not attributed to any specific plant and is at or below the
15 level of gas-fired unit outages during the entirety of the August 14 to August 15 period shown in
16 the graph. It is not unusual to have 1,000 MW or less of gas-fired capacity out of service in the
17 CAISO control area at any given time. Regardless of any “troubling anomalies” Mr. Powers
18 believes he has unearthed, the CAISO Department of Market Monitoring investigated outages
19 that occurred during the heat storm and stated unequivocally that it “found no evidence that

¹⁴ *Ibid.*

¹⁵ Energy Information Administration. Form EIA-860M, June 2021.
https://www.eia.gov/electricity/data/eia860m/xls/june_generator2021.xlsx

¹⁶ Department of Market Monitoring, CAISO, *Report on system and market conditions, issues and performance: August and September 2020*, November 24, 2020, p. 3.
www.caiso.com/Documents/ReportonMarketConditionsIssuesandPerformanceAugustandSeptember2020-Nov242020.pdf

1 market results on these days [August 14 and August 15, 2021] were the result of market
2 manipulation.”¹⁷ Additionally, the Commission’s Safety and Enforcement Division did not find
3 any General Order 167 violations during the August 12 to August 20 time period at the three
4 plants identified in Figure 3.¹⁸ Mr. Powers’ insinuations of market manipulation are groundless
5 and should be disregarded.

6 Mr. Powers also asserts that once-through-cooling (OTC) plants “severely
7 underperformed” when CAISO called a Flex Alert on June 17, 2021. Sierra Club witness
8 Bottorff similarly critiques the performance of the gas fleet during the June 17 and June 18, 2021
9 heat events.¹⁹ Mr. Powers notes that on June 17, 2021 Ormond Beach Unit 1 reported 741 MW
10 offline, and Unit 2 reported 499 MW offline.²⁰ Unit 1 was indeed offline most of that day, but
11 CAISO outage data show that Unit 2 was back online by 9 a.m.²¹ Mr. Powers and Ms. Bottorff
12 are not entirely mistaken that the remaining OTC units are experiencing reliability issues, which
13 should not be surprising. The units were originally constructed in the 1950s to early 1970s.
14 Because these plants were originally ordered to shut down in 2020, they have not been in a
15 position to make any meaningful investments in maintenance for several years due to the lack of
16 time necessary to recoup those investments. Had the plant owners known in the late 2010s that
17 they would receive extensions to their operating permits, they may have been able to invest more
18 in maintenance. Nonetheless, the owners and operators of these plants strive to operate them

¹⁷ *Ibid.*

¹⁸ Safety and Enforcement Division Report on Investigation into Aug. 12-20, 2020 Outages at Electric Generating Facilities, January 13, 2021. <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/news-and-outreach/documents/news-office/key-issues/summer-reliability/032321-redactions-august-2020-outage-investigations-final-1132021.pdf>

¹⁹ Sierra Club Opening Testimony of Cara Bottorff, p. 16.

²⁰ PCF Opening Testimony, p. 28.

²¹ CAISO. Curtailed and Non-Operational Generator Prior Trade Date Report, June 17, 2021. <http://www.caiso.com/Documents/Curtailed-non-operational-generator-prior-trade-date-report-20210617.xlsx>

1 reliably due to loss of revenues and threat of penalties when they do not perform. The forced
2 outages that occur at these plants are due to their advanced age rather than any “troubling
3 anomalies” that indicate willful action on the part of the plant operators.

4 Aside from the reliability of the OTC units, I observe that several other facilities,
5 including wind, geothermal, solar, and storage technologies, experienced partial forced outages
6 on June 17 and June 18, 2021.^{22, 23} More recently, the Moss Landing Energy Storage facility was
7 forced offline on September 4, 2021 when several modules overheated.²⁴ All technologies,
8 whether fossil-fired or not, are prone to occasional operational issues that may take them out of
9 service.

10 V. AIR QUALITY IMPACTS OF NATURAL GAS PLANTS

11 In Sierra Club’s opening testimony, Ms. Bottorff discusses at length the air quality and
12 health impacts of natural gas-fired power plants.²⁵ Ms. Bottorff notes that gas-fired plants, emit
13 criteria pollutants like SO₂, NO_x, PM 10, and PM 2.5, and “other hazardous pollutants like
14 mercury.”²⁶ It should be noted that gas-fired plants must meet stringent air quality standards
15 under US EPA, California Air Resources Board, and local air quality management district
16 regulations, and although they do emit the *criteria* pollutants that Ms. Bottorff mentions,²⁷ they

²² CAISO. Curtailed and Non-Operational Generator Prior Trade Date Report, June 17, 2021.
<http://www.caiso.com/Documents/Curtailed-non-operational-generator-prior-trade-date-report-20210617.xlsx>

²³ CAISO. Curtailed and Non-Operational Generator Prior Trade Date Report, June 18, 2021.
<http://www.caiso.com/Documents/Curtailed-non-operational-generator-prior-trade-date-report-20210618.xlsx>

²⁴ Wagman, David. Moss Landing energy storage facility knocked offline after batteries overheat. PV Magazine, September 7, 2021. <https://pv-magazine-usa.com/2021/09/07/moss-landing-energy-storage-facility-knocked-offline-after-batteries-overheat/>

²⁵ Sierra Club Opening Testimony, pp. 5-11, 13-15.

²⁶ *Ibid.*, p. 5.

²⁷ Regarding mercury emissions, Ms. Bottorff seems to be mistaken. Mercury emissions are associated with combustion of coal, not natural gas. See for example, <https://www.epa.gov/mats/basic-information-about-mercury-and-air-toxics-standards>.

1 are a *de minimis* source in California. Total criteria emissions from gas-fired power plants and
2 combined heat and power units account for only 1.1% of statewide NO_x, 0.9% of statewide SO_x,
3 and 1.2% of statewide PM 2.5.²⁸ The respective percentages in the San Joaquin Valley air basin
4 are 1.3%, 2.4%, and 1.8%.²⁹ Previous analysis presented by the Commission’s Energy Division
5 estimated that an aggressive 30 million metric ton CO₂ portfolio would reduce statewide annual
6 NO_x and PM 2.5 emission by roughly 0.1%.³⁰ Small, incremental improvements to natural gas-
7 fired generators or the addition of gas-fired temporary generators at existing facilities will simply
8 have no discernible impact on air quality at either the statewide or air basin levels.

9 **VI. CONCLUSIONS**

10 Given the possible shortfall in system capacity in the summer of 2022, the Commission
11 should support expedited processes for the utilities to procure additional capacity in a
12 technology-neutral manner. With the pressing need for capacity that can be online quickly and
13 the *de minimis* air quality impact of incremental capacity obtained via efficiency improvements
14 or installation of temporary generation at existing gas-fired facilities, the state cannot afford to
15 rule out incremental gas-fired capacity as part of the solution. If further analysis from the CEC or
16 the Commission’s Energy Division demonstrates that more capacity is needed to ensure
17 reliability for 2023, the Commission could set targets for all LSEs to accelerate procurement

²⁸ California Air Resources Board. 2020 Estimated Annual Average Emissions.
https://www.arb.ca.gov/app/emsinv/2017/emsbyeic.csv?F_YR=2020&F_DIV=0&F_SEASON=A&SP=SIP105ADJ&SPN=SIP105ADJ&F_AREA=CA

²⁹ California Air Resources Board. 2020 Estimated Annual Average Emissions: San Joaquin Valley Air Basin.
https://www.arb.ca.gov/app/emsinv/2017/emsbyeic.csv?F_YR=2020&F_DIV=0&F_SEASON=A&SP=SIP105ADJ&SPN=SIP105ADJ&F_AREA=AB&F_AB=SJV

³⁰ Proposed Reference System Plan: CPUC Energy Division, September 18, 2017, slides 92 and 93.
https://www.cpuc.ca.gov/uploadedFiles/CPUCWebsite/Content/UtilitiesIndustries/Energy/EnergyPrograms/ElectPowerProcurementGeneration/irp/AttachmentA.CPUC_IRP_Proposed_Ref_System_Plan_2017_09_18.pdf

- 1 pursuant to D.21-06-035 rather than require the procurement of additional capacity that may be
- 2 extraneous for many years.

VERIFICATION

I, Scott Murtishaw, prepared the attached “Prepared Reply Testimony of Scott Murtishaw on Summer 2022 and 2023 Reliability Enhancements on Behalf of the Independent Energy Producers Association.” The factual material in this testimony is true and correct to the best of my knowledge, and statements of opinion or judgment express my expert opinion and best judgment.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on this 10th day of September, 2021, at Berkeley, California.

/s/ Scott Murtishaw

Scott Murtishaw