PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

 **Agenda ID# 23300**

**ENERGY DIVISION RESOLUTION E-5372**

 **March 13, 2025**

REDACTED

 RESOLUTION

Resolution E-5372. San Diego Gas & Electric Company request for approval of one Utility Owned Energy Storage Contract and related costs pursuant to Decisions (D.) 21-12-015, and D. 23-06-029.

PROPOSED OUTCOME:

* This Resolution approves San Diego Gas & Electric Company’s Emergency Reliability Build, Own, and Transfer Contract for
100 megawatts of Utility-Owned Energy Storage.

SAFETY CONSIDERATIONS:

* The Utility Owned Energy Storage contract contains detailed safety provisions provided in Exhibit T (Safety and Site Security Requirements) and provided throughout the contract technical specifications in Exhibit A-2.

ESTIMATED COST:

* The estimated total cost of this contract is $ 224.5 million.

By Advice Letter 4556-E, Filed on November 22, 2024.

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# Summary

This Resolution approves San Diego Gas & Electric Company’s ("SDG&E") request for approval of a utility-owned energy storage contract procured to address 2025 summer reliability. The contract is a Build, Own, and Transfer (“BOT”) contract with CED Westside Canal Battery Storage LLC (“RWE AG”) for 100 megawatts (“MW”) of nameplate capacity. This Resolution approves the requested relief in Advice Letter ("AL") 4556-E.

# Background

Order Instituting Rulemaking (“OIR”) R.20-11-003 was opened in 2020 to establish policies, processes, and rules to ensure reliable electric service in California in the event of extreme weather in 2021. Several decisions were issued in this OIR related to summer reliability procurement. In Decision ("D.") 21-02-028, the Commission authorized the investor-owned utilities ("IOUs") to contract for capacity available to serve peak and net peak demand in the summer of 2021 on behalf of all benefitting customers, including incremental energy storage capacity.[[1]](#footnote-2) The Commission also determined that potential eligible resources may include utility-owned generation, and authorized the IOUs to submit utility-owned generation for summer 2021 through a Tier 2 AL.[[2]](#footnote-3)

In March 2021, the Commission issued D.21-03-056 which authorized the IOUs to continue their procurement efforts on behalf of all benefitting customers by targeting an effective increase in the planning reserve margin ("PRM") from 15 to 17.5 percent for the summers of 2021 and 2022, and encouraged the IOUs to exceed their respective targets by as much as an additional 50 percent for incremental supply-side generation and in-front-of-the-meter storage resources for a desired 19 percent PRM.[[3]](#footnote-4) The Commission expressed a continuing preference for energy storage contracts.[[4]](#footnote-5)

On December 6, 2021, the Commission issued a Phase 2 decision, D.21-12-015, adopting several supply and demand-side requirements intended to ensure there would be adequate electric power in the event of extreme weather conditions during the summers of 2022 and 2023.[[5]](#footnote-6) Specifically, the Commission determined a need for contingency resources in the range of 2,000 to 3,000 MW to meet an effective PRM of 20 to 22.5%.[[6]](#footnote-7) The Commission allocated the procurement responsibility for the additional contingency resources to the three large IOUs on a proportional load share basis; SDG&E’s share of the procurement range was 200 to 300 MW.[[7]](#footnote-8)

The Commission also established specific requirements for the procurement of additional supply-resources in D.21-12-015, including:

* Resources must be available during both the peak and net peak demand periods.
* Commercial Online Dates (“COD”) by June 1, 2022, are preferred but resources with CODs by August 1, 2023, will be considered.
* New resources that have not yet reached full capacity deliverability status but are capable of providing energy/grid reliability benefits during the peak and net-peak periods will also be considered.
* Potential resources may include utility-owned storage, with Commission consideration of such projects through a Tier 2 AL.[[8]](#footnote-9)

On July 5, 2023, the Commission issued D.23-06-029, adopting local capacity obligations for 2024 through 2026, flexible capacity obligations for 2024, and program refinements. D.23-06-029 established a 17 percent PRM for LSEs and an effective PRM procurement target of 170 to 320 MW for SDG&E for 2024 and 2025.[[9]](#footnote-10) This decision was issued under the Resource Adequacy OIR R.21-10-002. The decision continued the requirements adopted in D.21-12-015 where “resources eligible to count towards the effective PRM will remain unchanged from D.21-12-015 and all resources that are currently eligible to be contingency resources will remain eligible to be contingency resources in 2024 and 2025”.[[10]](#footnote-11)

In compliance with CPUC order, SDG&E has submitted timely updates on resources procured towards the effective PRM. Included in those resources are Clairmont, Paradise, Boulevard, and Elliot microgrid contracts approved via Resolution E-5219. On September 29, 2023, SDG&E submitted AL 4923-E requesting approval of one BOT contract with RWE AG for a total of 119 MW of utility-owned energy storage. The Commission denied AL 4923-E in Resolution E-5304, citing generally three main concerns: cost, deliverability, and contribution to summer 2024 effective PRM. In January 2024, following Resolution E-5304, SDG&E’s Utility Development Team (“UDT”) and the seller RWE AG discussed the concerns raised in Resolution E-5304. As a result of those discussions, RWE AG agreed to accelerate the COD for Westside Canal Energy Storage Expansion Project Phase 1 from October 31, 2024 to August 1, 2024. In addition, RWE AG reduced the project’s costs.[[11]](#footnote-12) On March 8, 2024, SDG&E submitted its second request for the approval of the West Side Canal Expansion Project in AL 4403-E. Specifically, AL 4403-E requested approval of one of two mutually exclusive utility owned storage (“UOS”) options. Option one was a BOT UOS contract with RWE AG for a total of 119 MW. Option two was a BOT UOS contract with RWE AG for a total of 219 MW, that would include a 119 MW project and a 100 MW project. The Commission denied SDG&E’s second request in Resolution E-5320, citing the same concerns from its previous denial - cost, deliverability, and contribution to summer 2025 effective PRM. Subsequently, SDG&E and RWE AG continued negotiations and reduced the price of Westside Canal Expansion further. On November 22, 2024, SDG&E submitted AL 4556-E, requesting approval of Westside Canal Expansion Project 100 MW Phase 2b. The project was proposed to be owned by SDG&E with operation and maintenance (“O&M”) services for a period of 10 years provided under a Long-Term Services Agreement (“LTSA”) by RWE AG.[[12]](#footnote-13)

The COD for the Westside Canal Energy Storage Expansion Project 100 MW Phase 2b (“Westside Canal Expansion 100 MW Phase 2b”) is June 1, 2025. The project is located in Imperial Valley, California.

The project is summarized in the table below:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Project / Location** | **Technology** | **Counterparty** | **Megawatts (MW)** | **Duration** | **Contract Type** | **Commercial Operation Date** | **O&M Contract Term** |
| Westside Canal Expansion 100 MW / Imperial Valley, CA | Lithium-Ion Energy Storage | RWE AG | 100 | 4 hours | BOT | 6/1/2025 | 10 years |

The estimated total cost of the project is $224.5 million. xxxxxxxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx. [[13]](#footnote-14) xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx.

In AL 4556-E, SDG&E states that UDT issued a competitive solicitation seeking proposals (“RFP”) for utility-owned energy storage Engineer Procure Construct (“EPC”) and BOT projects available to come online by 2027. SDG&E notes that it compared both the capital and O&M costs of the current proposed energy storage project against one another, against prior CPUC-approved utility-owned projects, and against relevant market data, and, retained an Independent Evaluator (“IE”), PA Consulting, to assist with the cost competitive analysis.[[14]](#footnote-15)

SDG&E notes that the Westside Canal Expansion 100 MW Phase 2b project already has environmental and conditional use permits needed for construction of the project, which the project obtained during the permitting for the original and now operating Westside Canal Energy Storage project. Further, they note that the project has received a full Transmission Plan Deliverability (“TPD”) allocation, which means that once the approved transmission upgrades are completed, the project will have firm Full Capacity Deliverability Status (“FCDS”), which is expected in 2034. SDG&E states that in the interim, the project will be eligible for interim deliverability and will also be able to contribute to the effective PRM in 2025. The interconnection for the project, specifically the 119 MW expansion phase received interim deliverability (full Net Qualifying Capacity value) for 2025. The 119 MW Westside Canal Expansion Phase 2a has already come online. SDG&E further states that it expects the 100 MW phase to be added to the 2025 net qualifying capacity list in the coming months as the project goes through a material modification to separate the 119 MW and 100 MW phases. The latter will get its own California Independent System Operator (“CAISO”) resource ID as it gets closer to reaching commercial operations in June 2025. If an amount less than the total
219 MW get awarded interim deliverability before 2034, the Net Qualifying Capacity will be divided by the phases (119 MW and 100 MW) on a pro rata basis thus providing some level of resource adequacy value in the intervening period.[[15]](#footnote-16)

SDG&E notes that the Westside Canal Expansion 100 MW Phase 2b project will not require additional CAISO interconnection upgrades (aside from additional Remedial Action Scheme panels and meters), as the project will leverage the existing interconnection upgrades that were built as part of the first Westside Canal 131 MW project, including the loop into the existing Campo Verde-Imperial Irrigation District (“IID”) gen-tie line and transmission interconnect (230 kV) to SDG&E’s Imperial Valley Substation.[[16]](#footnote-17)

Regarding cost recovery, SDG&E proposes that the associated cost of the Westside Canal Expansion 100 MW Phase 2b project be recovered through the Cost Allocation Mechanism (“CAM”) consistent OP 11 of the Summer Reliability OIR R.20-11-003, Phase 2 Decision, which orders that the net costs associated with the supply side procurement shall be passed through to all benefitting customers, consistent with the CAM.[[17]](#footnote-18)

SDG&E requests that the following relief be approved by the Commission:

1. The selected project contributes to the procurement need identified in
D.23-06-029 and is consistent with the eligibility and other requirements contained therein.
2. SDG&E may recover the costs associated with the project via the CAM, and Resource Adequacy (“RA”) benefits associated with the project will be allocated to LSEs representing the benefiting customers for the period in which costs are shared. [[18]](#footnote-19)

# Notice

Notice of AL 4556-E was made by publication in the Commission’s Daily Calendar. SDG&E states that a copy of AL 4556-E was mailed and distributed in accordance with General Rule 4 of GO 96-B.

# ProtestS

SDG&E’s AL 4556-E was timely protested by the Independent Energy Producers (“IEP”), and the Public Advocates Office (“Cal Advocates”) on December 12, 2024.

IEP protests AL 4556-E on the grounds that the relief requested is unjust, unreasonable, or discriminatory, because SDG&E fails to demonstrate that the costs of the project are reasonable in comparison to other available options. IEP argues that the project was selected through a process that considered only utility-owned storage projects, and the project was not exposed to competition from projects whose developers chose to retain ownership of the project. IEP argues that this approach was directly contrary to the Commission’s “competitive market first” policy.[[19]](#footnote-20) Further, IEP states that the project also will not achieve FCDS until at least 2034, and its ability to receive an annual Interim Deliverability Status (“IDS”) is also uncertain. IEP argues that any fair assessment of the project’s net market value should not include any value for Resource Adequacy (“RA”) capacity until 2034, at the earliest.[[20]](#footnote-21) IEP states that the 119 MW Phase 1 project has received interim deliverability for 2025, but the 100 MW Phase 2 project that is the subject of AL 4556-E has not received interim deliverability for 2025. IEP states that interim deliverability is awarded on an annual basis, so whether the 100 MW project can qualify for even that temporary option for any of the next ten years is uncertain.[[21]](#footnote-22) In addition, IEP argues that the IE did not directly compare the market value of the project with comparable projects of independent developers who chose to retain ownership of the facility, even though the projects developed by independent energy producers have historically provided great benefits for ratepayers.[[22]](#footnote-23) IEP requests that the Commission require SDG&E to demonstrate the value of the project (1) without including any value for RA capacity until 2034, at the earliest, and (2) in direct comparison with comparable projects whose developers retain ownership and provides energy, capacity, and other products under a power purchase agreement. IEP urges the Commission to deny AL 4556-E because of these alleged flaws.[[23]](#footnote-24)

Cal Advocates argues that SDG&E cannot guarantee interim deliverability status for the Westside Canal Phase 2b (100 MW Phase) project upon its initial commercial operation. Cal Advocates argues that lack of deliverability materially degrades the value of the project and imposes unreasonable risks on ratepayers. [[24]](#footnote-25) Cal Advocates notes that the 100 MW Westside Canal Phase 2b project has not received interim deliverability status for 2025, however the Westside Canal Phase 2a project did receive 119 MW of interim deliverability for 2025. Further, Cal Advocates notes that if the 100 MW Westside Canal Phase 2b project does not receive interim deliverability, the 119 MW of deliverability for Westside Canal Phase 2a will be allocated to the Phase 2a and Phase 2b projects on a *pro rata* basis,which will result in an allocation of 64.7 MW for Phase 2a and 54.3 MW for Phase 2b. Cal Advocates argues that a reduction of the interim deliverable capacity for the Phase 2b project from 100 MW to 54.3 MW will reduce the net market value of the project by decreasing the resource adequacy value of the project. Cal Advocates argues that xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx. [[25]](#footnote-26) To mitigate the deliverability risk (*i.e*., the project not receiving interim deliverability) between the emergency period and the scheduled transmission plan upgrades needed for FCDS (*i.e*., 2026-2034), xxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx.[[26]](#footnote-27) Cal Advocates explains that xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx. Cal Advocates states that xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx.Cal Advocates argues that xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx. Cal Advocates concludes that xxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx. Cal Advocates refers to the IE’s analysis that xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx. [[27]](#footnote-28)

Cal Advocates further argues that SDG&E does not have a direct need for the 100 MW of nameplate capacity from Westside Canal Phase 2b.[[28]](#footnote-29) Cal Advocates indicates that D.21-03-056 authorizes SDG&E to count excess, unsold RA capacity towards SDG&E’s Effective Planning Reserve Margin (“EPRM”) targets. Cal Advocates requests that the Commission must look to SDG&E’s bundled RA procurement in conjunction with SDG&E’s EPRM procurement to assess SDG&E’s overall need for additional capacity. Cal Advocates states that xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxx. Cal Advocates refers to xxxxxxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx.Cal Advocates argues that xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxx.[[29]](#footnote-30)

Finally, Cal Advocates argues that SDG&E has not proven that Westside Canal Phase 2b is the most cost-effective option to meet its summer 2025 EPRM need, assuming SDG&E were to have a need for summer 2025 EPRM resources given SDG&E’s apparent long position discussed above.[[30]](#footnote-31) Cal Advocates takes issue with SDG&E’s assertion that the net market value analysis from SDG&E’s Bid Evaluation Team (“BET”) and UDT, as well as the review of SDG&E’s IE, are sufficient to meet SDG&E’s obligation to demonstrate cost competitiveness for its EPRM procurement.Cal Advocates states that these analyses assess four options for the Westside Canal Phase 2b project and compare these four options against two other SDG&E projects, the Fallbrook 2 and Santee battery storage resources. Cal Advocates argues that these analyses are insufficient to demonstrate the cost competitiveness of Westside Canal Phase 2b to meet any potential EPRM need. Cal Advocates also argues that SDG&E did not hold a solicitation for 2025 EPRM capacity, nor does SDG&E report any bilateral outreach to potential suppliers for alternative EPRM capacity, such as imported energy or call options with cogeneration facilities. Cal Advocates argues that without a comparison to other competing options, SDG&E cannot demonstrate that Westside Canal Phase 2b would be the most cost-effective option to meet any EPRM need.[[31]](#footnote-32) In addition, Cal Advocates requests that the Commission consider that the currently wet winter in the Pacific Northwest may enable above-average levels of import availability for summer 2025, due to the possibility of above-average hydropower capacity in the Columbia River basin.[[32]](#footnote-33)

Cal Advocates requests that if the Commission approves SDG&E’s AL 4556-E, the Commission should direct SDG&E to make good faith efforts to sell any excess RA capacity that Westside Canal Phase 2b will add to SDG&E’s RA portfolio, as required by D.21-12-015, Ordering Paragraphs 72 and 73.

**SDG&E REPLY TO PROTESTS**

On December 19, 2024, SDG&E timely responded to the protest of IEP and Cal Advocates.

In response to Cal Advocates and IEP’s protest regarding deliverability uncertainty, SDG&E states that the deliverability risk associated with the project was mitigated by
1) a reduction in the overall purchase price of the project, 2) significant penalties to be paid by RWE AG if deliverability is not obtained, and 3) analysis by two consultants that confirms the likelihood of the project obtaining deliverability.[[33]](#footnote-34) SDG&E states that as Cal Advocates referenced, the interim deliverability already awarded to the 119 MW phase will be *at minimum* shared on a pro rata basis with the 100 MW phase, such that the project under consideration in this AL will have at least 54 MW of deliverability in 2025. Further, SDG&E states that the project will likely be awarded full interim deliverability in 2025 due to the project’s continued progression through CAISO’s New Resource Implementation (“NRI”) process, which requires a resource identification prior to receiving an interim allocation. SDG&E states that the project in question has been verified by the CAISO as the project (as part of Q1531) was modeled in the 2025 Net Qualifying Capacity (“NQC”) deliverability study and will have interim deliverability to 100% for resource adequacy year 2025.[[34]](#footnote-35) In addition, SDG&E states that post 2025, the project will likely continue to be awarded full interim deliverability prior to achieving FCDS based on two independent assessments attached to AL 4556-E, in Appendix I – USE Q1531 Deliverability Study and Appendix J – Qualus Memo - Q1531 Deliverability Study.[[35]](#footnote-36)

In response to Cal Advocates and IEP’s protest that the project is not cost competitive, SDG&E states that it provided an NMV analysis to demonstrate cost competitiveness both with *and without* interim RA value. SDG&E states that as acknowledged by Cal Advocates, xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx.[[36]](#footnote-37) Further, SDG&E states that assuming full deliverability every year, the Westside Canal Phase 2b project xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx. SDG&E states that while any lack of deliverability until 2035 reduces the overall NMV value, xxxxxxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxx.[[37]](#footnote-38) xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx. SDG&E then corrects Cal Advocates’ assertion that the NMV of the project is negative in reference to the IE report: SDG&E states that even without deliverability until 2035, xxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxx.[[38]](#footnote-39)

In response to Cal Advocates’ protest that short-term alternatives such as imports should be considered instead of long-term procurement, SDG&E states that xxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx. SDG&E responds that Cal Advocates’ statement that imports will be abundant because the Pacific Northwest is currently

forecasted to have a wet winter is speculative. SDG&E states that in times of need, there is no guarantee that imports will be available and/or cost-effective.[[39]](#footnote-40)

Finally, in response to Cal Advocates’ protest that SDG&E does not have a current need for 100 MW and that “the Commission must look to SDG&E’s RA procurement in conjunction with SDG&E’s EPRM procurement to assess SDG&E’s overall need for additional capacity,” SDG&E states that Cal Advocates inaccurately conflates summer reliability procurement need with individual IOU RA need. SDG&E states that based on D.21-12-015, the summer reliability resources the IOUs were ordered to procure were not intended to fulfill the IOUs’ obligations as individual LSEs serving their own bundled customers, but rather were intended to ensure regional and statewide reliability. Therefore, SDG&E argues that the IOUs’ individual RA obligation is not

a factor in determining the procurement target.[[40]](#footnote-41)

Further, SDG&E states that any suggestion that SDG&E should simply rely upon its existing portfolio to meet effective PRM needs is misplaced. SDG&E explains that while IOUs are allowed to use excess resources in existing portfolios to meet effective PRM requirements, this is clearly a fallback option to make sure as many resources as possible are subject to RA availability requirements and visible to the CAISO. SDG&E states that to limit the ability of the IOUs to use existing portfolios, the Commission requires the IOUs to make “reasonable attempts to sell” the excess capacity before it can be applied toward the “effective PRM” goal. SDG&E states that Cal Advocates is misinterpreting the requirement by requesting that the Commission order SDG&E to sell excess capacity from Westside Canal Expansion 100 MW Phase 2b. SDG&E reiterates that the requirement to make attempts to sell only applies toward existing portfolio resources before they can be used to meet effective PRM requirements, it does not apply to any new capacity built specifically for the summer reliability procurement effective PRM requirements.[[41]](#footnote-42)

# Discussion

The Commission has reviewed AL 4556-E, the protests, and the reply of SDG&E. We consider issues raised by the protestants to AL 4556-E in the following discussion. However, we find that SDG&E’s request in AL 4556-E is reasonable overall.

**Consistency with Commission decisions, D.21-02-028, D.21-03-056, D.21-12-015, and D.23-06-029**

We find that SDG&E's AL 4556-E filing is consistent with Commission decisions,
D.21-02-028, D.21-03-056, D.21-12-015, and D.23-06-029 (collectively, the “Decisions”). As directed in the Decisions (specifically D.21-02-028), SDG&E has filed a Tier 2 AL seeking approval of its BOT contract with RWE AG. The BOT contract is for a total of 100 MW of incremental storage capacity expected to be online by June 1, 2025, that can be dispatched to meet peak and net peak demand.

Further, AL 4556-E includes the following elements as required by the Decisions (specifically D.21-02-028):

* Discussion of the procurement process and resources selected;
* Operational information on the resources selected;
* Pricing and net market value analysis and summary of key contract terms;
* Independent evaluator report;
* Showing of cost competitiveness to the extent comparable data exist;
* A demonstration that the resource is incremental; and
* A demonstration that the resource has a path to deliver energy by its online date.[[42]](#footnote-43)

**Procurement Methodology, Evaluation, and Cost Reasonableness**

The Westside Canal Expansion 100 MW Phase 2b was selected from SDG&E’s UDT competitive solicitation (“RFP”) seeking proposals for utility-owned energy storage EPC and BOT projects available to come online by 2027.

SDG&E’s UDT retained PA Consulting Group as the IE for its emergency reliability ownership efforts. PA Consulting monitored the RFP activity, bidder communications, meetings with bidders, bidder scoring and selection, and contract negotiations in developing the agreement. PA Consulting also participated in the CAM procurement review group meeting. PA Consulting conducted its own independent evaluation. The IE analysis is included in SDG&E’s AL 4556-E Confidential Appendix H. In its analysis the IE performed cost comparisons for the project, including comparing the costs of the project against: (1) publicly-available energy storage cost information; [[43]](#footnote-44) and (2) projects shortlisted in SDG&E Energy Supply’s 2024-2025 Midterm Reliability Solicitation as well as NMV analysis and sensitivity analysis.[[44]](#footnote-45) The IE compiled capital cost data for lithium-ion battery energy storage systems (“BESS”) based on data from several public sources representing four-hour lithium-ion batteries ranging in capacity from 60 MW to 100 MW. Because publicly available cost comparability data is limited, the IE identified a recent project in California to consider - the Rosamund Central battery energy storage project, with a reported total cost of approximately $400 million or approximately $2,700/kW, recently came online in July 2024. The four-hour 147 MW project is located in Kern County, California. The project has FCDS and is contracted with Southern California Edison under a long-term RA agreement. [[45]](#footnote-46) The IE asserts that xxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx.[[46]](#footnote-47)

The IE notes, however, that while the public data provides a reference point, it does not capture near-term market dynamics. The IE notes that the Westside Canal Expansion 100 MW Phase 2b costs reflect current market conditions including current supply/demand constraints and the increased cost of lithium. The IE explains that the cost of the lithium-ion batteries is a significant portion of the total capital costs for Westside Canal Expansion 100 MW Phase 2b and the cost of lithium has increased significantly over the last several years and spiked in early 2023. The IE further notes that although prices have come down since the highs experienced earlier in 2023, the prices are still above the prices experienced at the end of 2021 when SDG&E contracted the original Westside Canal 131 MW project. [[47]](#footnote-48) SDG&E’s analysis also shows that when compared to shortlisted projects that SDG&E’s UDT submitted to the 2024-2025 Summer Reliability RFO, Westside Canal Expansion 100 MW Phase 2b NMV is xxxxx xxxxxxxxxxxxxxxxx.[[48]](#footnote-49)

The IE also performed sensitivity analysis with two scenarios that tend to support xxxxxxxxxxxx. Scenario 1 included sensitivities that assumed the project received interim deliverability for a year or more at the beginning of the term. Sensitivities within this scenario assumed that if interim deliverability was awarded and then subsequently lost prior to 2034, the project would not obtain interim deliverability again until full deliverability was received. Scenario 2 included sensitivities that assumed the project’s full deliverability was delayed for a year or more past 2034. The analysis and results show that xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx.[[49]](#footnote-50)

SDG&E states that it compared both the capital and O&M costs of the current proposed energy storage project against one another, against prior CPUC-approved utility-owned projects, and against relevant market data.[[50]](#footnote-51) SDG&E’s comparisons show cost competitiveness of the Westside Canal Expansion 100 MW Phase 2b.

Cal Advocates states that SDG&E’s UDT performed analysis to show cost competitiveness assessment of four options for the Westside Canal Phase 2b project and compare these four options against two other SDG&E projects, the Fallbrook 2 and Santee battery storage resources, which were approved in Resolution E-5303 on December 14, 2023. Cal Advocates argues that these analyses are insufficient to demonstrate the cost competitiveness of Westside Canal Phase 2b to meet any potential EPRM need. We agree with SDG&E that it provided an NMV analysis to demonstrate cost competitiveness both with *and without* interim RA value. The analysis shows xxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx. Further, assuming full deliverability every year, the project xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx.

We have reviewed SDG&E’s price comparison analyses and the IE report, which contains price comparisons to publicly available energy storage cost information as well as recent market data including the shortlisted projects that SDG&E’s UDT submitted to the 2024-2025 Summer Reliability RFO. We have also compared the price of this UOS project with prior UOS projects. On balance, we concur with the IE that the cost of the BOT contract is generally reasonable given the xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx xxx and based on comparisons. We find that SDG&E has performed the net market value and cost competitiveness analysis required by D.21-12-015 and demonstrated that the proposed UOS project is cost competitive.

Given the expedited development timeline, we direct SDG&E to regularly update the CAM PRG on project milestones during development as well as quarterly updates for the first few years of operations once the project is online.

**Cost Recovery**

In D.21-02-028 and D.21-03-056, the Commission directed the IOUs to continue procurement efforts to meet or exceed the effective 17.5 percent planning reserve margin with a preference for new storage contracts, including UOS, with costs to be recovered through CAM. D.21-02-028 specified the parameters of CAM-based cost recovery for conforming procurement.[[51]](#footnote-52) In addition, D.21-12-015 affirmed cost recovery though CAM consistent with prior summer reliability decisions for effective PRM resources.[[52]](#footnote-53)

Most recently, in D.23-06-029, the Commission extended the use of the effective PRM to 2024 and 2025 and reaffirmed the use of CAM as the cost recovery mechanism for this procurement.

“All costs associated with the effective PRM procurement will be assigned to all customers through the CAM, as adopted in D.21-12-015.” (p.25)

SDG&E’s request to recover the cost of the proposed UOS project via CAM is reasonable because it meets the procurement requirements specified in
D.21-02-028 and D.23-06-029, namely incremental energy storage capacity for the effective PRM in 2025.

**Deliverability**

Cal Advocates and IEP assert that the project will not have FCDS and SDG&E cannot guarantee IDS when the project achieves commercial operation. Cal Advocates notes that if the Westside Canal Phase 2b project does not receive interim deliverability, the 119 MW of deliverability for Westside Canal Phase 2a will be allocated to the Phase 2a and Phase 2b projects on a *pro rata* basis,which will result in an allocation of 64.7 MW for Phase 2a and 54.3 MW for Phase 2b. Cal Advocates argues that a reduction of the interim deliverable capacity for the Phase 2b project from 100 MW to 54.3 MW will reduce the net market value of the project by decreasing the resource adequacy value of the project. We agree with SDG&E that the deliverability risk associated with the project is mitigated by a reduction in the overall purchase price of the project and significant penalties to be paid by RWE AG if deliverability is not obtained. SDG&E has performed NMV analyses for the project with and without RA. Even in the scenario without RA, xxxxxxxxxxxxxxxxx. In addition, the project will likely be awarded full interim deliverability in 2025 due to the project’s continued progression through CAISO’s New Resource Implementation (“NRI”) process, which requires a resource identification prior to receiving an interim allocation. This has been verified by the CAISO, as the project (as part of Q1531) was modeled in the 2025 NQC deliverability study and will have interim deliverability to 100% for resource adequacy year 2025. Further, Commission Decisions did not require deliverability status for summer reliability resources. D.21-12-015 states that:

“We allow energy storage projects that are not fully deliverable as long as they provide peak and net peak grid reliability benefits in summer 2022 or 2023.” (p.4.)

D.21-12-015 also states that

“New resources that have not yet reached full capacity deliverability status but are capable of providing energy/grid reliability benefits during the peak and net peak periods will also be considered.” (p.100.)

We agree with SDG&E that although Westside Canal Expansion 100 MW Phase 2b will not achieve FCDS prior to commercial operation, it is likely that it will receive interim deliverability in 2025. Even in the case SDG&E does not receive interim deliverability in future years, it will participate in the CAISO market and has the ability to charge and discharge, therefore contribute to reliability during peak and net peak periods. If the Westside Canal Expansion 100 MW Phase 2b project was expected to be fully deliverable during the next ten years, then it would likely be eligible to be contracted with any load serving entity to meet Integrated Resources Plan (“IRP”) compliance obligations under the Mid-term Reliability order (“MTR”), from D.21-06-035. Instead, the instant project is effectively an energy-only project, for now, and thus does not directly compete with MTR compliance yet is expected to be fully interconnected to the grid as a resource that can provide reliability. Since there are 131 MWs of 4-hour duration batteries from Phase 1 at the same point of interconnection that do have deliverability, the operation of Phase 2a and Phase 2b resources will likely allow grid operators to develop expertise with “synthetic” long-duration storage resources since the Phase 2 resources could dispatch after Phase 1 was depleted. Further, since SDG&E has operational control of Phase 1, they could potentially optimize the bidding and scheduling of the two resources to support reliability.

**Effective PRM Target**

Cal Advocates argues that this project is not needed to meet SDG&E’s non-binding EPRM target for summer 2025. Cal Advocates indicates that D.21-03-056 authorizes SDG&E to count excess, unsold RA capacity towards SDG&E’s EPRM targets.
D.21-03-056 states:

“However, for the months of July through September, the IOUs may use any excess, unsold RA resources in their portfolios to supplement the resources they have procured under the authority of this expedited procurement proceeding – including estimates of ERLP resources – up to their respective soft caps (675 MW for PG&E and SCE, and 150 MW for SDG&E).” (p.48.)

D.21-03-056 only authorized the months of July through September for the IOUs to use any excess, unsold RA resource to supplement resources procured under the summer reliability order. We agree with SDG&E that Cal Advocates may be conflating summer reliability procurement need with individual IOU RA need. We agree with SDG&E that the summer reliability resources the IOUs were ordered to procure were not intended to fulfill only the IOUs’ obligations as individual LSEs serving their own bundled customers, but rather were intended to ensure statewide reliability. In addition, we agree with SDG&E that while IOUs are allowed to use excess resources in existing portfolios to meet effective PRM requirements, it is a fallback option to make sure as many resources as possible are subject to RA availability requirements. In the absence of the CPUC order allowing SDG&E to count excess resources towards its effective PRM, SDG&E has limited incentive or obligation to make those extra resources available to the CAISO. We also agree with SDG&E that to limit the ability of the IOUs to use existing portfolios, the Commission requires the IOUs to make “reasonable attempts to sell” the excess capacity before it can be applied toward effective PRM in D.21-12-015.

Further, D.23-06-029 established a 17 percent PRM and an effective PRM procurement target of 170 to 320 MW for SDG&E.

“For the 2024 and 2025 Resource Adequacy compliance years, a 17 percent planning reserve margin (PRM) and an effective PRM procurement target of 1,700-3,200 megawatts (MW) is adopted. The procurement target will be divided between the three investor-owned utilities similar to the targets adopted in Decision 21-12-015: 170-320 MW for San Diego Gas & Electric Company, and 765-1,440 MW each for Pacific Gas and Electric Company and Southern California Edison Company.” (OP 7.)

Furthermore, D.21-12-015 encourages the IOUs to exceed their EPRM target.
D.21-12-015 states that:

“For the supply side procurement ordered in this decision, Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company shall continue their procurement efforts and endeavor to meet and exceed their respective incremental procurement targets to achieve the range of additional procurement authorized in this decision for the months of concern. These efforts should take the form of solicitations, ongoing bilateral negotiations, Investor-Owned Utilities offering counterparties an opportunity to refresh prior Integrated Resource Plan (IRP) procurement bids, accelerated procurement of resources procured by Load Serving Entities to meet their IRP obligations for summer months prior to their required online dates, upgrades resulting in increased efficiency of existing generation resources, and imports.” (OP 69)

Cal Advocates also requests that if the Commission approves AL 4556-E, the Commission should ensure that SDG&E makes reasonable efforts to sell any excess capacity from Westside Canal Phase 2b before counting it towards its 2025 EPRM target. D.21-12-015 allows IOUs to sell excess capacity from their existing portfolios before applying it to effective PRM requirements. D.21-12-015 states:

“If an Investor-Owned Utility has not met its minimum contingency procurement target for the months of June and October with Resource Adequacy (RA)-eligible resources that can be reflected on supply plans, it may use excess resources in its existing portfolios to meet the minimum contingency procurement target (900 megawatts (MW) for Pacific Gas and Electric Company and Southern California Edison Company, and 200 MW for San Diego Gas & Electric Company), provided it has made reasonable attempts to sell this excess capacity to other Load Serving Entities.”
(OP 72)

SDG&E is requesting to apply Westside Canal Expansion 100 MW Phase 2b to meet its EPRM target. We find that SDG&E has a need for incremental procurement to meet its summer reliability targets and the Westside Canal Expansion 100 MW Phase 2b can help meet that need. We find that the request in this AL will assist SDG&E’s compliance with Commission orders on the EPRM target. Although SDG&E may xxxxxxxxxxxxxxxxxxxxxxxxxxxxx, it will not xxxxxxxxxxxxxxxxxxxxxxxxxxxxx. SDG&E has contracted xxxxxxx of supply-side resources to meet its 2025 EPRM target. SDG&E’s maximum EPRM target is 320 MW. SDG&E has an open position of xxxxxxx. Therefore, SDG&E has not xxxxxxxxxxxxxxxxxxxxxxxxxxxxx with the procurement of this resource. Therefore, SDG&E does not have excess capacity to sell from Westside Canal Expansion 100 MW Phase 2b. We agree with SDG&E that the requirement to make attempts to sell only applies toward existing portfolio resources before they can be used to meet effective PRM requirements, it does not apply to any new summer reliability procurement. We decline to order SDG&E to sell excess capacity from Westside Canal Expansion 100 MW Phase 2b.

**IEP’s Protest**

IEP argues that the project was selected through a process that considered only utility-owned storage projects, and the project was not exposed to competition from projects whose developers chose to retain ownership of the project. D.21-02-028 allowed UOS projects to be considered for summer reliability and for the IOUs to contract bilaterally:

“Potential resources may include utility-owned generation, with Commission consideration for utility owned generation projects with a COD in 2021 through a Tier 2 advice letter.” (p.11)

“The large electric IOUs should initiate new bilateral negotiations and revisit offers from recent IRP requests for offers bid stacks.” (p.11)

D.23-06-029 extended the summer reliability requirements for 2024 through 2025.

As the Commission allows UOS projects to be considered for summer reliability, SDG&E’s UDT issued the solicitation for the EPC and BOT offers. The UDT operates under a code of conduct and firewall that prohibits UDT’s access to market data obtained by SDG&E’s Energy Supply function or BET team. As stated above, SDG&E compared the Westside Canal Expansion 100 MW Phase 2b to 2024 through 2025 summer reliability bids, which included projects with third-party ownership. In addition, the IE compared the cost of Westside Canal Expansion 100 MW Phase 2b to the recently online Rosamund Central battery energy storage project and provides analysis supporting the conclusion that the project cost is reasonable. The IE also asserts that the negotiations were fair and that SDG&E’s behavior was reasonable during the bid review and contract negotiation process.

**Safety**

In AL 4556-E, SDG&E outlined safety considerations. RWE AG will bear responsibility for the safe construction of the respective facilities in compliance with all applicable laws, standards, and safety regulations. SDG&E will operate each facility leveraging the Company’s experience with the existing fleet of battery energy storage systems and generally accepted electric power industry practices. For utility-owned energy storage

systems, SDG&E conducts a comprehensive evaluation of all components of each offer. This includes evaluation of counterparty risk, prior experience in safely constructing and operating energy storage systems, the technical merit of the proposed system, including safety components. Moreover, integrators and developers of utility-owned energy storage systems must construct their proposed systems in compliance with SDG&E’s Energy Storage technical specification and meet the SDG&E quality assurance/quality control (“QA/QC”) requirements.

Furthermore, to meet and/or exceed the minimum requirements set forth for Battery Energy Storage Systems under the California Fire Code (“CFC”), SDG&E included the following design requirements in its technical specifications.

The selected project will comply with all applicable provisions of the Institute of Electrical and Electronic Engineers (IEEE) 1547, UL 1741 Supplement A, UL 1973, UL 9540, the California Fire Code, including the explicit requirement to comply with CFC Section 1206, and National Fire Protection Association (NFPA) Codes (with specific emphasis on NFPA 855 and NFPA 69). Test results from UL 9540A must demonstrate compliance with the Performance requirements of Section 8.4, 9.5, or 9.8.[[53]](#footnote-54)

In addition to the safety considerations included above, the Safety and Enforcement Division issued draft resolution ESRB-13 on January 27, 2025. Draft resolution ESRB-13 would adopt GO 167-C to: implement the Senate Bill (SB) 1383 (Hueso, 2022) mandate to establish standards for the maintenance and operation of Energy Storage Systems; apply SB 38 (Laird, 2023) requirements for Emergency Response and Emergency Action Plans to Energy Storage System Owners; establish Logbook Standards for ESSs and other actions. These standards will improve the safety and reliability of electric generation and energy storage facilities located in California.

# Comments

Public Utilities Code section 311(g)(1) provides that this Resolution must be served on all parties and subject to at least 30 days public review.  Any comments are due within 20 days of the date of its mailing and publication on the Commission’s website and in accordance with any instructions accompanying the notice. Section 311(g)(2) provides that this 30-day review period and 20-day comment period may be reduced or waived upon the stipulation of all parties in the proceeding.

The 30-day review and 20-day comment period for the draft of this resolution is neither waived nor reduced. Accordingly, this draft resolution was mailed to parties for comments and will be placed on the Commission's agenda no earlier than 30 days from today.

# Findings

1. Commission decisions D.21-02-028 and D.21-03-056 directed the IOUs to contract for incremental capacity available to serve peak and net peak demand during the summers of 2021 and 2022 on behalf of all benefiting customers and expressed a preference for storage resources. The Commission determined that potential resources may include utility-owned generation and authorized the IOUs to submit utility-owned generation projects through a Tier 2 Advice Letter.
2. Commission decision D.21-12-015 adopted several supply and demand-side requirements intended to ensure that there is adequate electric power in the event of extreme weather conditions during the summers of 2022 and 2023.
3. Commission decision D.23-06-029 extended D.21-12-015 and established a
17 percent PRM for Load Serving Entities and an effective PRM procurement target of 170 to 320 MW for SDG&E.
4. SDG&E’s methodology to evaluate the BOT energy storage procurement is reasonable.
5. SDG&E has a need for incremental procurement to meet its EPRM target.
6. The total cost (capital, operations, and construction) of $224.5 million is reasonable given xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx and based on comparisons.
7. SDG&E’s request to recover the cost of the utility-owned energy storage project through the Cost Allocation Mechanism is reasonable.
8. It is reasonable for SDG&E to regularly update the Cost Allocation Mechanism Procurement Review Group on project milestones during development as well as quarterly updates for the first few years on operations once the projects are online.

# Therefore it is ordered that:

1. The request of SDG&E to approve the utility-owned energy storage contract for Westside Canal Expansion Phase 2b for 100 MW as requested in
Advice Letter 4556-E is approved.
2. SDG&E is authorized to recover the cost of the utility-owned energy storage contract via the Cost Allocation Mechanism.
3. SDG&E shall regularly update the CAM PRG on project milestones during development as well as quarterly updates for the first few years of operations once the project is online.

This Resolution is effective today.

I certify that the foregoing resolution was duly introduced, passed and adopted at a conference of the Public Utilities Commission of the State of California held on
March 13, 2025; the following Commissioners voting favorably thereon:

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Rachel Peterson
Executive Director

1. D. 21-02-028 at 11, 14, OP 1. [↑](#footnote-ref-2)
2. *Id.* at 11. [↑](#footnote-ref-3)
3. D.21-03-056 at OP 1, 13-14; Attachment 1 at 20-22. [↑](#footnote-ref-4)
4. *Id.* at OP 1, Attachment 1 at 22. [↑](#footnote-ref-5)
5. D.21-12-015 at 2. [↑](#footnote-ref-6)
6. *Id*. at 12. [↑](#footnote-ref-7)
7. *Id.* OP 3. [↑](#footnote-ref-8)
8. *Id*. at 100, OP 76. [↑](#footnote-ref-9)
9. D.23-06-029, OP 7. [↑](#footnote-ref-10)
10. *Id*. OP 8. [↑](#footnote-ref-11)
11. SDG&E AL 4403-E, at 4. [↑](#footnote-ref-12)
12. SDG&E AL 4556-E at 6. [↑](#footnote-ref-13)
13. *Ibid*. at 13. [↑](#footnote-ref-14)
14. *Ibid*. at 3-4. [↑](#footnote-ref-15)
15. *Ibid*. at 7. [↑](#footnote-ref-16)
16. *Ibid*. at 9. [↑](#footnote-ref-17)
17. *Ibid*. at 14. [↑](#footnote-ref-18)
18. *Ibid*. at 2. [↑](#footnote-ref-19)
19. IEP protest at 1-2. [↑](#footnote-ref-20)
20. *Ibid*. at 2. [↑](#footnote-ref-21)
21. *Ibid*. at 3. [↑](#footnote-ref-22)
22. *Ibid*. at 3. [↑](#footnote-ref-23)
23. *Ibid*. at 3. [↑](#footnote-ref-24)
24. Cal Advocates protest at 3. [↑](#footnote-ref-25)
25. *Ibid*. at 4-5. [↑](#footnote-ref-26)
26. SDG&E AL 4556-E at 8. [↑](#footnote-ref-27)
27. Cal Advocates protest at 5-6. [↑](#footnote-ref-28)
28. *Ibid*. at 3. [↑](#footnote-ref-29)
29. *Ibid*. at 6. [↑](#footnote-ref-30)
30. *Ibid*. at 3. [↑](#footnote-ref-31)
31. *Ibid*. at 7-8. [↑](#footnote-ref-32)
32. *Ibid*. at 8-10. [↑](#footnote-ref-33)
33. SDG&E Reply to Protest at 1. [↑](#footnote-ref-34)
34. *Ibid*. at 2. [↑](#footnote-ref-35)
35. *Ibid*. at 2. [↑](#footnote-ref-36)
36. *Ibid*. at 3. [↑](#footnote-ref-37)
37. *Ibid*. at 3. [↑](#footnote-ref-38)
38. *Ibid*. at 4. [↑](#footnote-ref-39)
39. *Ibid*. at 4. [↑](#footnote-ref-40)
40. *Ibid*. at 5. [↑](#footnote-ref-41)
41. *Ibid*. at 5-6. [↑](#footnote-ref-42)
42. D.21-02-028, at 12. [↑](#footnote-ref-43)
43. SDG&E AL 4556-E, Public Appendix A at 7. [↑](#footnote-ref-44)
44. *Ibid*. Pubic Appendix D at 2. [↑](#footnote-ref-45)
45. *Ibid*. Public Appendix A at 7. [↑](#footnote-ref-46)
46. *Ibid*. Confidential Appendix H at 9. [↑](#footnote-ref-47)
47. *Ibid*. Public Appendix A at 8. [↑](#footnote-ref-48)
48. *Ibid*. Confidential Appendix K. [↑](#footnote-ref-49)
49. *Ibid*. Confidential Appendix K at 6. [↑](#footnote-ref-50)
50. SDG&E AL 4556-E at 4. [↑](#footnote-ref-51)
51. D.21-02-028 at 11. [↑](#footnote-ref-52)
52. D.21-12-015, OP 86 [↑](#footnote-ref-53)
53. SDG&E AL 4556-E at 11. [↑](#footnote-ref-54)