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SUBJECT: Proposed Final Prohibited Resources Verification Plan for Demand Response Programs

Dear Mr. Jacobson:

Advice Letter 5138-E and supplemental 5138-E-A are effective as of September 14, 2018.

Sincerely,

Edward Randolph  
Director, Energy Division
September 1, 2017

Advice 5138-E  
(Pacific Gas and Electric Company ID U 39 E)

Advice 3653-E  
(Southern California Edison Company ID U 338 E)

Advice 3108-E  
(San Diego Gas & Electric Company ID U 902 E)

Public Utilities Commission of the State of California

Subject: Proposed Final Prohibited Resources Verification Plan for Demand Response Programs

Purpose

Pacific Gas and Electric Company (PG&E) hereby submits this advice letter on behalf of Southern California Edison Company (SCE), San Diego Gas & Electric Company (SDG&E), and itself, jointly the Investor Owned Utilities (IOUs). The IOUs are seeking approval of a proposed Final Prohibited Resource Audit Verification Plan (Final Plan) pursuant to the California Public Utilities Commission (Commission or CPUC) Decision (D.) 16-09-056, Ordering Paragraph (OP) 5f. This Final Plan enables the verification associated with the Commission’s ban on the use of prohibited resources\(^1\) to provide demand response (DR).

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\(^1\) Prohibited resources are defined as in topping cycle Combined Heat and Power (CHP) or non-CHP configuration: distributed generation technologies using diesel; natural gas; gasoline; propane; or, liquefied petroleum gas. The following resources are exempted from the prohibition: pressure reduction turbines; waste-heat-to-power bottoming cycle CHP; and, storage and storage coupled with renewable generation that meets the relevant greenhouse gas emissions standards adopted for the Self Generation Incentive Program.
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I. Background  

On October 5, 2016, the Commission issued D.16-09-056 (Decision), modifying D.14-12-024, which stated that fossil-fueled back-up generation resources should not be allowed as part of a demand response (DR) program for resource adequacy purposes.\(^2\) In the Decision, the Commission formally adopted a prohibition on using specific behind-the-meter technologies for load reduction during DR events, effective January 1, 2018, and required non-residential customers to attest to: i) agree not to use a prohibited resource to reduce load during a demand response event or ii) in cases where the customer is required to use the prohibited resource for safety reasons, agree to a default adjustment.\(^3\) According to the Decision, “customer compliance may be subject to verification” and customers should be aware of “the potential consequences for non-compliance.”\(^4\) 

The Decision also ordered the IOUs to “hire expert consultants to assess whether it is possible, and if so by what methods and data sources, to evaluate whether non-residential customers are complying with the demand response prohibition requirement.”\(^5\) After evaluating multiple consultants, the IOUs hired Nexant, Inc. to perform the evaluation on January 23, 2017. The IOUs met with representatives from Nexant and Energy Division staff to develop the verification plan approach. On March 21, 2017, the IOUs requested an extension on serving the consultant’s report, filing this Tier 3 advice letter, and the verification plan effective date, based on the timeline proposed by Nexant and per the recommendation of Energy Division staff during the project meetings. The Commission’s Executive Director granted the IOUs’ extension request on March 30, 2017, and the draft verification plan was served on June 1, 2017. Stakeholders decided to informally file comments on the draft verification plan by June  

\(^2\) Decision. OP 1. “Certain fossil-fueled resources should not be allowed as part of a demand response program, beginning January 1, 2018, subject to the rules adopted in a future implementation program to include definitions and enforcement and verification mechanisms.”  
\(^3\) Decision, OP 3 and OP 4.b.  
\(^4\) Decision, p. 39.  
\(^5\) Decision, OP 5.
30, 2017, and the IOUs held a workshop on August 23, 2017, and a follow up conference call on August 24, 2017, to further discuss party comments and other issues that required refinement to finalize the verification plan. This advice letter is filed in accordance with the approved extension request.

Concurrently, with the development of the verification plan, the IOUs filed advice letters to propose modifications to affected DR program tariffs to comply with the Commission’s prohibited resources policy. In compliance with the Decision, the IOUs filed Tier 3 advice letters on January 3, 2017. The Commission approved, with modifications, the IOUs’ advice letters on April 27, 2017 with Resolution E-4838 (Resolution), which outlined specific requirements for the implementation of the prohibited resources policy to ensure consistency across the IOUs and affected programs, including the Demand Response Auction Mechanism (DRAM). In particular, the Resolution outlined the attestation language and provided for three options for the customer:

1) I do not have a Prohibited Resource on-site.
2) I do have a Prohibited Resource on-site and I will not use the resource to reduce load during any Demand Response Event.
3) I do have a Prohibited Resource on-site and I may have to run the resource(s) during Demand Response events for safety reasons, health reasons, or operational reasons. My Prohibited Resource(s) has (have) a total nameplate capacity of ____kW. I understand that this value will be used as the Default Adjustment Value (DAV) to adjust the Demand Response incentives / charge for my account.

The Resolution also described the consequences for two key types of non-compliance: Type I Violations for minor clerical or administrative mistakes that may be resolved with an updated attestation and do not involve the use of a prohibited resource to reduce load during a DR event, and Type II Violations, which are more significant violations of the policy, including the use of a prohibited resource to reduce load during a DR event when atesting not to do so, or intentionally submitting an invalid nameplate capacity

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6 Eight parties filed informal comments to the draft plan on June 30, 2017, including: the Office of Ratepayer Advocates (ORA); The Utility Reform Network (TURN); the California Large Energy Consumers Association (CLECA); CPower, EnerNOC, Inc., and EnergyHub (“Joint DR Parties”); OhmConnect, Inc. (OhmConnect); Sierra Club and Environmental Defense Fund; SCE; and PG&E.
8 The IOUs had jointly filed a separate supplemental advice letter pertaining to the 2018-2019 DRAM pilot: PG&E AL 4900-E-A, SCE AL 3466-E-A, and SDG&E AL 2949-E-A (“AL 4900 et al”).
9 Resolution, p. 18.
value for the prohibited resource(s). A Type I violation may be curable within 60 days with a valid attestation, or the customer would be removed from the affected DR program. A customer committing a Type II violation shall be removed from the affected DR program and ineligible to enroll in any affected program for a period of one year for the first violation, and three years for two or more violations.

The Resolution ordered the IOUs to file supplemental compliance ALs to AL 4900 et. al. by May 8, 2017, and AL 4991-E-A et. al. no later than May 26, 2017. The IOUs jointly filed modifications to the 2018-2019 DRAM Purchase Agreement on May 8, 2017. The IOUs then requested and were granted an extension on the latter AL from May 26, 2017, in order to hold a workshop on June 7, 2017, with stakeholders to review and discuss the draft verification plan, which was served the prior week. The IOUs filed advice letters on June 15, 2017, proposing modifications to affected tariffs, aggregator agreements, and associated forms, effective January 1, 2018, including the explanation of the policy, the prohibited resources attestation form, how the DAV affects incentive calculations, and consequences of non-compliance. The IOUs also included initial language on the verification requirements and dispute resolution processes, with plans to amend according to language included in this AL. If the Commission supports this plan and tariff language, the IOUs request that the Commission authorize a Tier 1 advice letter process to insert this language into applicable tariffs.

II. Overview of the Consultant’s Final Verification Plan Approach

The Consultant submitted a Draft Verification Plan on June 1, 2017, which is being used as the Final Verification Plan (Verification Plan) in this advice letter, with modifications as described herein. The Consultant approached the Verification Plan by reviewing stakeholder comments, studying the ways in which prohibited resources are being used in DR operations through a survey of IOU customers including on-site visits, and identifying best practices for the verification process. The Consultant recommends randomly sampling customers from affected DR programs and contacting customers in the sample to validate the submitted attestation to catch and rectify potential administrative errors. The verification process then differs based on the scenario the customer selects in the attestation form:

- For customers who do not have a prohibited resource on-site (Scenario 1), the verifier would check if there were any IOU interconnection and notification records for prohibited resources, and if none, then submit a data request to the

10 Resolution, p. 22.
11 Resolution, p. 22.
12 SCE filed AL 3466-E-B, corresponding to PG&E 4900-E-B and SDG&E AL 2949-E-B.
13 On May 22, 2017, the IOUs requested an extension of time to comply with OP 41 of the Resolution to June 15, 2017. The Commission approved the extension in a May 26, 2017, letter.
relevant air quality management or air pollution control districts for permit records.

- For customers who declare to have a prohibited resource on-site, but do not plan to use it to reduce load during a DR event (Scenario 2), depends on the size of the prohibited resource. The verifier could request written operating logs for customers that have generators greater than 50 horsepower (hp, or 37 kW), which customers are required to maintain in accordance with the statewide Airborne Toxic Control Measure, and a photo of the generator's hour meter. For generators less than 50 hp, the verifier could request the customer install a data logger as a condition for participation, and later compare the operating logs to DR event dates and outage data.

- For customers who have a prohibited resource on-site, and plan to use it for operational, health, or safety reasons (Scenario 3), the verifier would compare the customer’s nameplate capacity as listed in the attestation form, against IOU interconnection and notification records. If customers are not found in the IOU records, the verifier would submit a data request to the relevant air quality management or air pollution control districts and compare the permit records.

The Consultant's Verification Plan is included with this advice letter as Attachment A.

III. Overview of the IOUs’ Approach to Implementing the Verification Plan

The IOUs are concerned that the Verification Plan is based on limited information and may result in customer attrition and loss of DR megawatts (MW) at a time when the Commission is seeking to stimulate a vibrant marketplace and improve the customer experience. In the past year, the stakeholders in this proceeding have worked hard to implement the Commission’s policy on prohibited resources, but have little information upon which to rely. The IOUs, their aggregators, and DRAM Sellers have started to provide education and outreach on the policy and are preparing to have all non-residential customers participating in affected DR programs fill out and sign attestations in accordance with the January 1, 2018 implementation date, but it is largely unclear how customers will respond, without certainty from the Commission on what will be required for measurement and verification. The Consultant’s Verification Plan relies on a survey of only 33 customers, many of which have not yet fully understood the Commission’s policy on prohibited resources as the tariff language is pending Commission approval.\(^\text{[1]}\)

In reviewing the Verification Plan and in consulting with stakeholders in multiple workshops on this plan, the IOUs are particularly concerned about the customer experience of implementing the verification plan. In particular, some verification steps are expected to be overly burdensome and costly for many customers. For example, the verification steps for Scenario 2 require customers to incur costs associated with logger

\(^\text{[1]}\) Verification Plan, p. 31.
installation only to verify that they are not using prohibited resources to reduce load during a DR event. Several stakeholders have pointed out that such a requirement presumes that the customer is lying on their attestation, which is considered a legal document.

Customers participate in DR programs for a wide variety of reasons, but the primary reasons include reducing energy costs/bills, supporting their environmental and sustainability initiatives, and supporting state goals. While some customers with insufficient operating logs on their prohibited resources may not be opposed to installing a logger, all must be enabled to conduct informed cost-benefit analyses of their DR participation to understand if their continued participation makes financial sense. For instance, customers with low incentives, such as many small- and medium-sized businesses, would likely find that the cost of a single logger (or sub-meter as the Office of Ratepayer Advocates (ORA) and the Environmental Defense Funds and Sierra Club (EDF/Sierra Club) have proposed) could outweigh such benefits. The fear is that customers who have been participating actively in DR for years, who have never used a prohibited resource to reduce load during a DR event, may be forced to de-enroll from DR programs due to the financial cost of installing loggers to prove their compliance, much less the inconvenience associated with hiring and scheduling an electrician for an on-site visit to install such loggers. Customer attrition rates could increase, but are difficult to quantify without more information.

In addition, the IOUs are concerned that there may be limitations as to how much certainty the Verification Plan could provide related to how and why the customer is using a prohibited resource, which is an explicit part of the implementation of the policy with its focus on its use to reduce load during a demand response event. There are certain use cases in which loggers, and meters, may not be able to explain why a prohibited resource is used. Loggers may show periodic testing of a prohibited resource or uses associated with load management for demand charges, which are not prohibited uses of such a resource, except where necessary for air quality standards. Loggers or meters should be able to develop a baseline to measure correlation of prohibited resource use with DR events, but there may be instances in which it could produce a false positive. Therefore, the IOUs believe that additional information is necessary to determine if loggers would be effective at discerning between these uses,
if meters can provide greater certainty, and if loggers or meters will meet the goals of verification.

As the Commission stated in the Decision, data collection has been a significant challenge, and the Verification Plan highlights several areas of uncertainty throughout, which makes it difficult to gauge if it will be effective. The IOUs believe the goal of verification should be to encourage compliance with the Commission policy and deter violations. And as the Joint DR Parties and California Large Energy Consumers Association (CLECA) agreed in the verification plan workshops, customers must be fully informed of the cost-benefit analysis of their participation in affected DR programs, and potential logger costs can have significant impacts on this analysis. As a result, the IOUs propose a phased approach that focuses on testing the basic design of the Verification Plan and data collection in the first year of the implementation of this prohibited resources policy.

Further, the cost of implementing the prohibited resources policy should not exceed the benefits derived from preventing these prohibited resources from running during DR events. In particular, the IOUs recommend that the cost of verification (for both the customers and the IOUs) should be tracked closely and capped at the calculated benefits achieved through the prohibition. The benefit of implementing the prohibited resources policy is the environmental benefit associated with the value of the avoided emissions, including the avoided CO2, NOx, and Particulate Matter. To estimate the dollar value of these benefits, each IOU has developed what it believes to be a worst case scenario of the emissions that could be produced by those who choose to violate the ban. The IOUs believe that a reasonable worst case scenario is one that does not assume that every customer who chooses Scenario 2 is dishonest about their intended use of the Prohibited Resource. The IOUs expect that most customers will follow the rules and will comply as long as sufficient enforcement and deterrence measures are taken. The IOUs therefore adopt, for the time being, the Consultant’s assumption that 20 percent of customers who choose Scenario 2 do so falsely as a reasonable worst case scenario. The IOUs have estimated that the worst case scenarios result in approximately $650,000 of annual environmental benefits for PG&E, approximately $1,300,000 for SCE, and approximately $8,000 for SDG&E, or approximately $1.9 million annually across the three IOUs, which should be used as a cap on the budgets for verification.

The IOUs urge the Commission to seek this type of a balance in implementing a Verification Plan. To the extent possible, the IOUs seek to provide that balance in making modifications to the Consultant’s Verification Plan, as described below.

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18 Prohibited Resources Verification Plan Workshop, held on August 23, 2017.
A. Implementation of the Verification Plan in Year One

The IOUs would like to implement the Verification Plan in phases, such that the Verification Administrator would analyze a sample of customers in affected DR programs, but hold off on the requirement under Scenario 2 to require the installation of loggers for all prohibited resources. The IOUs support testing the Verification Plan as is for Scenarios 1 and 3, but to eliminate any direct customer logger requirements until more information can be gathered, such that customers can be better informed of the need for such devices and what the associated costs would be. In particular, the IOUs are interested in simultaneously testing how effective such a proposal would be and gaining a better understanding of the installation process for loggers and meters, by installing a limited number of meters and loggers that would be paid for by ratepayers in the first year before full implementation. In addition, it is important to understand the pros and cons of installing loggers versus meters. If loggers are effective at determining whether a prohibited resource was used to reduce load during a DR event and at a reasonable installation cost, then the IOUs would have more information on how to scale implementation in subsequent years. With limited information at this time, the IOUs support making initial estimates that balance the cost of the Verification Administrator and the cost of installation of a mixture of loggers and meters for Scenario 2 customers, up to a budget cap associated with the environmental benefits of verification. At this time, the IOUs estimate that the Verification Administrator would cost $375,000 per year, and that the IOUs would install loggers and meters for approximately 10 percent of Scenario 2 customers at a cost of $181,000.

Such results should shape certain aspects of the Verification Plan that directly affect the cost of verification, including, but not limited to, whether meters or loggers provide valuable information to determine if a prohibited resource was used to reduce load during a DR event, if meters are preferable to loggers, what all-in costs are realistic, and what long-term budgets are necessary for implementation of the Verification Plan. The

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19 The IOUs believe that customers should be responsible for costs associated with installing and maintaining loggers and/or meters beyond the first year of the verification process, should the Verification Plan ultimately adopt such requirements.

20 As the Final Verification Plan states on p. 42, “As the verification program continues in the future, the IOUs and the CPUC may want to better understand the actual output of these prohibited resources, rather than relying on the nameplate capacity to calculate the adjustment. This could be accomplished by allowing customers to attest to a lower capacity rating for the default adjustment that is verified by logger data.”

21 Estimates are based on Nexant’s initial survey of 33 customers, so the actual number may vary significantly as customers fill out attestations and the distribution of customers selecting different scenarios varies, and the actual costs of logger and meter installations are realized. The actual budget would be split by the IOUs pro rata basis according to the number of customers.
Verification Administrator should also collect information from a wider range of customers throughout this process to better inform the effectiveness of the policy and the customer experience.

**B. Sampling Approach**

The Consultant’s Verification Plan offers several options for sampling procedures.\(^{22}\) The IOUs recommend that sampling be conducted by program, across all three attestation scenarios, and across utilities for statewide programs. For DRAM, programs by the same DR providers should be sampled statewide, as well. Sampling by program at the statewide level could yield program-specific insights, which could be valuable to further enforcing the ban on prohibited resources. However, the IOUs disagree with Nexant that sampling should be per program and per attestation scenario, and instead recommend that it should be across all three attestation scenarios to improve the cost-effectiveness, and to enable an efficient sample design. Such an approach is most consistent with OP 5 of the Decision, which directs the Verification Plan to evaluate whether non-residential customers are complying with the DR prohibition requirements. Designing a sample at the program level is sufficient to verify how well customers are complying with the prohibition. Scenario-specific samples goes beyond the requirements of D.16-09-056, OP 5. Such sampling can give more precise estimates about the true compliance rate at each attestation scenario, but it does not necessarily increase the compliance rate.

Sample sizes should also be subject to modification on an annual basis as more information about the attestation and violation becomes available. The Consultant originally assumed that 80 percent of customers would correctly attest to their use of prohibited resources. And by the convention of load research, the IOUs recommend initially setting the level of confidence to 90 percent and relative precision (i.e., margin of error) to 10 percent. The information collected in the first year of verification will inform the sample size calculation in the following year.

**C. Verification for Scenario 2 and the Requirement to Install Loggers**

The Consultant’s report requires that customers who attest to Scenario 2 to either submit operating logs for all months in the verification year or to install a logger. The Consultant cites that customers with generators greater than 50 hp are required, by the Airborne Toxic Control Measure, to keep accurate written operating logs, and the legal requirements to comply are supported by financial penalty fees based on the type of violation, its duration, and the history of violations at the facility.\(^{23}\) As a result, the

\(^{22}\) Verification Plan, pp. 57-59. Nexant proposed the following sampling procedures: 1) sampling by program, state-wide, by attestation scenario; 2) sampling by IOU and DRP, by attestation scenario; 3) sampling by program, state-wide, across all three attestation scenarios.

\(^{23}\) Verification Plan, p. 16.
Consultant only suggests that loggers that record date and time of use be installed for customers with generators that are less than 50 hp. As the Consultant’s survey indicated, customers have a wide range of reasons for having generators onsite, and may use a range of methods to record the usage of a prohibited resource. The IOUs recommend that in the first year of verification, instead of requiring a logger to be installed for every instance of the sample in which a generator is less than 50 hp, that customers be permitted to provide what evidence they do have available to demonstrate that the prohibited resource was not used to reduce load during a DR event, and for the Verification Administrator to use its professional discretion to determine if a violation has occurred. For instance, the Verification Plan suggests that non-bypassable generators are not capable of being used for DR purposes, and thus, that should be sufficient to demonstrate that a logger would not be necessary. In addition, if the customer can sufficiently demonstrate, through a load curtailment plan, line diagrams, and other resources that their DR participation is not facilitated by the use of prohibited resources, that too should be permitted, within reason.

Other parties, including ORA, proposed in their informal comments to require all customers who attest to Scenario 2 to install not just loggers on each prohibited resource that record date and time of use, as the Consultant proposed, but interval meters that also capture kWh output.\textsuperscript{24} EDF and Sierra Club’s joint comments go one step further and propose that customers who attest to either Scenario 2 or Scenario 3 be required to install meters on each prohibited resource.\textsuperscript{25} They argue that this is the only way to ensure a customer is not being incentivized for using their prohibited resource to reduce load during a DR event. The IOUs disagree that this is necessary and consider this overly burdensome, and likely to cause program attrition. In fact, these parties’ proposals are unfair to customers who comply with the prohibition even in the absence of a monitoring logger or meter, because the customers would have to cover the metering costs. In addition, the IOUs interpret such requirements to be a condition of enrollment in the affected program, and less an element of an audit verification process. The Decision also seeks to balance costs and benefits by supporting a default adjustment versus a metered adjustment. While the distinction between Scenario 2 and Scenario 3 was not specifically stated in the Decision, as it had not been created at that time, the IOUs believe the Commission’s intent behind adopting a default adjustment over “costly metering requirements” translates to both customers who may use a prohibited resource to reduce load during a DR event, as well as those who never plan to use it for such purposes.\textsuperscript{26} The IOUs have consistently stated that such requirements

\textsuperscript{24} Comments of the Office of Ratepayer Advocates on the Draft Prohibited Resources Verification Plan Presented by Nexant, served June 30, 2017, pp. 2-5.

\textsuperscript{25} Informal Comments of Sierra Club and Environmental Defense Fund on Nexant Consulting’s Prohibited Resource Verification Plan, served June 30, 2017, pp. 2-7.

\textsuperscript{26} Decision, p. 39.
would be unduly costly for many customers, particularly those with multiple prohibited resources on-site for purposes that have nothing to do with DR.\(^{27}\)

**D. Assessing the Accuracy of Data Resources by Installing Loggers**

The IOUs do not support the Consultant’s recommendation to randomly sample from all affected DR participants and require IOUs to install loggers on customer generators to assess the accuracy of written operating logs and compare to what is documented in the notification/interconnection records.\(^{28}\) This requirement would go well above and beyond the requirements for most of the AQMD’s\(^ {29}\) and the IOU interconnection requirements, as well as the Decision, which only directs the IOUs to assess how well customers are complying with the prohibition. The Consultant also acknowledges that a customer who has such a logger may change their behavior as a result of the monitoring. Installation of loggers comes at high cost and time for some customers and such an assessment should only be pursued if the cost is proportionate to the benefit. Therefore, if there is an uncertain benefit to tracking this information and an unreasonably high cost estimate for many customers, other verification activities should be prioritized. This assessment may be reconsidered if there is more certainty that it may be fruitful, that the initial logger installation process for Scenario 2 customers in the IOUs’ phased plan for the first year of the implementation demonstrates that costs are reasonable to customers, and that it would not be likely to trigger high levels of de-enrollment. The IOUs believe it is not a useful exercise to install loggers to test the accuracy of logs, but instead to analyze if such loggers can be successful in enforcing compliance with the policy, as discussed in the above sections.

**E. Impact on Disadvantaged Communities**

With regards to the impact of the Verification Plan on disadvantaged communities (DAC), the IOUs clarify that some parties have made proposals to focus verification on these areas, but such focus could also be seen as unfairly targeting certain companies that operate in those DACs, so additional information and analysis would be necessary to understand if there would be an effective and fair way to implement such a proposal.

Specifically, the IOUs are concerned that there are different geographic footprints between DR dispatch and disadvantaged community locations. The geography of a Local Capacity Area (LCA) is generally incongruent with a DAC, as the geographic footprint of a DAC (i.e., census tract) is often much smaller than an LCA (e.g., the San Francisco Bay Area is one LCA). As a result, it is unclear whether DR can meaningfully

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\(^{27}\) While the Consultant’s sample size was small, one of the customers interviewed had 12 prohibited resources on site, and the IOUs believe that there are customers with many more. To require a meter on each device could several times outweigh the customer’s incentive payments, which would likely drive away many customers from participating in DR.

\(^{28}\) Verification Plan, p. 45.

\(^{29}\) Some AQMDs have stricter logging requirements than others do. Verification Plan, p. 16.
make an impact on DACs based on how a majority of DR programs have been designed.

The IOUs recommend that rather than address DR improving DAC scores through the prohibited resource verification Advice Letter, a more appropriate and effective venue for the Commission to consider the issue would be in a broader proceeding. Three other proceedings may be more appropriate because they have a broader focus than DR. The Distribution Resource Planning OIR (Rulemaking (R.) 14-08-013), focused on distribution level needs, and the Integrated Distributed Energy Resources OIR (R.14-10-003), focused on valuing Distributed Energy Resources, may be better suited for addressing sub-LCA needs. Furthermore, the Integrated Resource Planning Rulemaking (R.16-02-007), serving as the umbrella OIR for procurement needs also has DAC considerations, which may provide a broader range of solutions for DACs beyond what DR in and of itself can offer.

IV. Annual Review Process Proposal

The IOUs propose an annual review process for the first three to five years of the verification plan implementation to understand several aspects of the prohibited resources policy implementation. In particular, the review of non-compliance rates would help to understand what the reasons are for violations and if the verification plan is effective. In addition, the verification plan could be assessed to understand if updates should be made to make the attestation clearer, or if enhanced outreach is necessary. There is a balance to be made, though, in how much of the Verification Plan should be modified each year, as drastic changes could be confusing and disruptive for customers and the parties that support this verification process. The IOUs recommend an annual workshop to discuss the results of the verification process with stakeholders, which would be followed by an advice letter filing that formally recommends modifications to the Verification Plan.

V. Roles and Responsibilities of Verification

The IOUs recommend that a single third-party consultant should be hired to perform the Verification Administrator functions across all three IOUs and IOU programs, including DRAM, to achieve consistency across all programs and reduce any perceptions of impartiality. The IOUs also believe this could be the most cost-effective to implement, but it will be important to split the cost of verification fairly between IOUs and DRAM Sellers. One suggestion is to base the share by the number of non-residential customers, since the verification steps are performed on a customer-by-customer basis. The IOUs and DRAM DRPs should submit their estimated customer counts for the year and that should be used in the Request for Proposals (RFP) process the IOUs use to contract for a consultant to perform the duties of the Verification Administrator. The Verification Administrator should receive the customer list from the IOUs and the DRPs, calculate the required sample size by program, select samples of customers, and conduct the verification. To the extent feasible, the IOUs will seek to pay for the costs of
the Verification Administrator for the 2018-2019 DRAM pilot years, and work to develop such a mechanism to transfer such costs to DRAM Sellers by 2020, if the DRAM pilot transitions to a permanent mechanism.\(^{30}\)

IOUs (for direct enrolled customers), aggregators, and DRAM Sellers should be communicating regularly with the Verification Administrator during the verification process to assist with finding appropriate contact information for sampled individuals, and notified upon the determination of a violation.

The Verification Administrator should keep track of Type I Violations (only when the 60 day cure period has been exceeded and an updated attestation is not provided) and Type II Violations for reporting to the IOU, applicable aggregators or DRAM Sellers, and CPUC. The Verification Administrator should also track a series of metrics, including installation of loggers and meters, and estimated spend for reporting to all stakeholders.

VI. Dispute Resolution

The current tariff language proposed in the June 15 advice letters states: “Dispute Resolution: Customers disputing a Type I or Type II Violation shall be permitted to engage in a dispute resolution process with the Verification Administrator, PG&E [IOUs], the Commission, and, if applicable, the customer’s aggregator.” Dispute resolution processes should be facilitated to allow for a determination within the period of time necessary for the cure period (Type I Violations) or the 30-day removal period (Type II Violations), to the extent possible. Accelerated dispute resolution would require a committee to meet to discuss the violation, and the IOUs recommend that the panel be composed of five members,\(^{31}\) one each from: the Energy Division, the applicable IOU, the Verification Administrator, ORA, and the customer’s representative (the IOU for direct-enrolled or self-aggregated customers, the third-party aggregator for aggregator programs, or the DRAM Seller for DRAM customers). The IOUs believe a panel of this composition would equally balance having those interested in regulating and complying with the policy, those with technical expertise to inform the process, and those able to advocate for the customer and ratepayers. The IOUs propose that the Commission be the final arbiter when conflicts arise. Please see Attachments B and C for additional details on the IOUs’ proposal for an expedited dispute resolution process and proposed tariff language for the dispute resolution section of applicable tariffs, respectively. The

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\(^{30}\) The Energy Division is expected to provide their recommendation on whether the DRAM pilot should transition to a permanent mechanism by June 2018 (Decision, OP 10), which should align such that this information is available prior to the next annual assessment of the Verification Plan.

\(^{31}\) The IOUs recommend that the composition of the panel should be an odd number, such that a tie could be resolved and a determination reached expediently.

\(^{32}\) SCE allows individual customers to self-aggregate for one account or more under SCE Schedule CBP. There is no Third Party Aggregator representation for the self-aggregated CBP customers.
IOUs understand that the Energy Division cannot commence processing applications for the expedited dispute resolution process until it has the resources necessary to implement this program. If the Commission supports this plan and tariff language, the IOUs request that the Commission provides a launch date of the expedited dispute resolution process and publish a website as described in Attachments B and C. The IOUs also seek authorization to utilize a Tier 1 advice letter process to insert this language and the launch date of the expedited dispute resolution process into applicable tariffs.

**VII. Cost Recovery**

The source for recovery of funds by the IOUs for verification implementation is uncertain, and the IOUs request fund shifting flexibility, within the D.14-12-024 OP 5d fund shifting rules, to support the Verification Plan implementation, including the cost of the Verification Administrator and the first year of logger and meter installations, subject to the cap described above. Additional funding may be necessary if the final Verification Plan is more costly than planned, and the IOUs request flexibility to file Tier 2 advice letters in accordance with the final resolution of this advice letter, should the Commission require a more expensive verification plan.

Stakeholders also discussed how costs for DRAM should be recovered, as DRAM Sellers did not anticipate costs of verification in their bids, and that the IOUs should support such costs during the pilot period only. However, it should not be assumed that the existing demand response auction mechanism (“DRAM”) budget for each IOU can absorb the cost of the prohibition in 2017 or 2018. The cost of the consultant and the potential for the IOU to pay for a subset of customer loggers or meters may reach into the hundreds of thousands or millions of dollars. The DRAM budget is specifically earmarked for administration costs and capacity payments to third parties and the IOUs are required to spend up to their authorized budgets. Even if limited funds were available, co-mingling these expenses could be problematic. A situation could arise where DRAM pilot budget funds are used to pay for the costs to implement the prohibition, and it is later realized that those funds were in fact necessary for DRAM pilot capacity payments or administration costs. This concern, along with the uncertainty of the cost of the verification consultant and whether the IOU will shoulder the cost responsibility for a subset of customer meter installations means no party can assume that the authorized DRAM pilot budget is adequate as a funding source for the costs associated with the prohibited resources policy.

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33 Resolution E-4754.
Protests

Anyone wishing to protest this filing may do so by letter sent via U.S. mail, facsimile or E-mail, no later than September 21, 2017, which is 20 days after the date of this filing. Protests must be submitted to:

CPUC Energy Division
ED Tariff Unit
505 Van Ness Avenue, 4th Floor
San Francisco, California 94102

Facsimile: (415) 703-2200
E-mail: EDTariffUnit@cpuc.ca.gov

Copies of protests also should be mailed to the attention of the Director, Energy Division, Room 4004, at the address shown above.

The protest shall also be sent to PG&E either via E-mail or U.S. mail (and by facsimile, if possible) at the address shown below on the same date it is mailed or delivered to the Commission:

For PG&E:

Erik Jacobson
Director, Regulatory Relations
c/o Megan Lawson
Pacific Gas and Electric Company
77 Beale Street, Mail Code B13U
P.O. Box 770000
San Francisco, California 94177
Facsimile: (415) 973-1448
E-mail: PGETariffs@pge.com

For SCE:

Russell G. Worden
Managing Director, State Regulatory Operations
Southern California Edison Company
8631 Rush Street
Rosemead, California 91770
Telephone: (626) 302-4177
Facsimile: (626) 302-5210
E-mail: AdviceTariffManager@sce.com
Any person (including individuals, groups, or organizations) may protest or respond to an advice letter (General Order 96-B, Section 7.4). The protest shall contain the following information: specification of the advice letter protested; grounds for the protest; supporting factual information or legal argument; name, telephone number, postal address, and (where appropriate) e-mail address of the protestant; and statement that the protest was sent to the utility no later than the day on which the protest was submitted to the reviewing Industry Division (General Order 96-B, Section 3.11).

Attachments

This advice letter contains the following attachments:
- Attachment A: Consultant’s Final Verification Plan
- Attachment B: Proposed Expedited Process for Dispute Resolution of Violations of the Prohibited Resources Policy
- Attachment C: Proposed Tariff Language for the Prohibited Resources Verification Plan and Dispute Resolution

Authorization

This Advice Letter is filed by Pacific Gas and Electric Company on behalf of, and with the authorization from, SCE and SDG&E.

Tier Designation

Pursuant to D.16-09-056 and General Order (GO) 96-B, Energy Industry Rule 5.3, this Advice Letter is submitted with a Tier 3 designation.
Effective Date

Pursuant to General Order 96-B, Section 5.8, this Tier 3 advice letter will be effective 30 days after Commission resolution.

Notice

In accordance with General Order 96-B, Section IV, a copy of this advice letter is being sent electronically and via U.S. mail to parties shown on the attached list and the parties on the service list for R.13-09-011. Address changes to the General Order 96-B service list should be directed to PG&E at email address PGETariffs@pge.com. For changes to any other service list, please contact the Commission’s Process Office at (415) 703-2021 or at Process_Office@cpuc.ca.gov. Send all electronic approvals to PGETariffs@pge.com. Advice letter filings can also be accessed electronically at: http://www.pge.com/tariffs/.

/S/
Erik Jacobson
Director, Regulatory Relations

Attachments

A. Consultant's Final Verification Plan
B. Proposed Expedited Process for Dispute Resolution of Violations of the Prohibited Resources Policy
C. Proposed Tariff Language for the Prohibited Resources Verification Plan and Dispute Resolution

cc: Service List R.13-09-011
# ADVICE LETTER FILING SUMMARY
## ENERGY UTILITY

**Company name/CPUC Utility No:** Pacific Gas and Electric Company (ID U39 E)

<table>
<thead>
<tr>
<th>Utility type:</th>
<th>Contact Person: Kingsley Cheng</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑ ELC</td>
<td>Phone #: (415) 973-5265</td>
</tr>
<tr>
<td>☐ GAS</td>
<td>E-mail: <a href="mailto:k2c0@pge.com">k2c0@pge.com</a> and <a href="mailto:PGETariffs@pge.com">PGETariffs@pge.com</a></td>
</tr>
<tr>
<td>☐ PLC</td>
<td></td>
</tr>
<tr>
<td>☐ HEAT</td>
<td></td>
</tr>
<tr>
<td>☐ WATER</td>
<td></td>
</tr>
</tbody>
</table>

**EXPLANATION OF UTILITY TYPE**

| ELC = Electric | GAS = Gas |
| PLC = Pipeline | HEAT = Heat | WATER = Water |

(Date Filed/Received Stamp by CPUC)

**Advice Letter (AL) #:** 5138-E, et al.  
**Tier:** 3

**Subject of AL:** Proposed Final Prohibited Resources Verification Plan for Demand Response Programs

**Keywords (choose from CPUC listing):** Compliance

**AL filing type:** ☑ Monthly ☐ Quarterly ☐ Annual ☑ One-Time ☐ Other _____________________________

If AL filed in compliance with a Commission order, indicate relevant Decision/Resolution #: D.16-09-056

Does AL replace a withdrawn or rejected AL? If so, identify the prior AL: No

Summarize differences between the AL and the prior withdrawn or rejected AL: ____________________

Is AL requesting confidential treatment? If so, what information is the utility seeking confidential treatment for: No

Confidential information will be made available to those who have executed a nondisclosure agreement: N/A

Name(s) and contact information of the person(s) who will provide the nondisclosure agreement and access to the confidential information:

Resolution Required? ☑ Yes ☐ No

Requested effective date: 30 days after Commission Resolution  
No. of tariff sheets: N/A

Estimated system annual revenue effect (%): N/A

Estimated system average rate effect (%): N/A

When rates are affected by AL, include attachment in AL showing average rate effects on customer classes (residential, small commercial, large C/I, agricultural, lighting).

Tariff schedules affected: N/A

Service affected and changes proposed: N/A

Pending advice letters that revise the same tariff sheets: N/A

Protests, dispositions, and all other correspondence regarding this AL are due no later than 20 days after the date of this filing, unless otherwise authorized by the Commission, and shall be sent to:

**California Public Utilities Commission**  
Atttn: Erik Jacobson  
Director, Regulatory Relations  
c/o Megan Lawson  
77 Beale Street, Mail Code B13U  
P.O. Box 770000  
San Francisco, CA 94177  
E-mail: PGETariffs@pge.com

**Pacific Gas and Electric Company**  
Energy Division  
EDTariffUnit  
505 Van Ness Ave., 4th Flr.  
San Francisco, CA 94102  
E-mail: EDTariffUnit@cpuc.ca.gov
Attachment A

Consultant’s Final Verification Plan
Prohibited Resource Verification Plan

June 1, 2017

Prepared for
California Public Utilities Commission
Pacific Gas and Electric
Southern California Edison
San Diego Gas and Electric

Prepared by
Candice Potter
Managing Consultant

Jenny Gai
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Alexandra Wein
Analyst

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Senior Vice President

Nexant, Inc.
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1 Executive Summary

The California Public Utilities Commission (CPUC) Decision (D.) 16-09-056 explicitly prohibits of the use of certain distributed generation resources (prohibited resources) to reduce load during demand response (DR) events. Ordering Paragraph (O.P.) 5 directs the three California electric investor-owned utilities (IOUs) to hire a consultant to “assess whether it is possible, and if so by what methods and data sources, to evaluate whether non-residential customers are complying with the demand response prohibition requirement”. Per the instruction laid out in O.P. 5, the consultant hired by the IOUs is required to provide recommendations on how to design an effective audit verification plan.

Methodology

The following steps summarize the process Nexant used to develop the verification plan:

1. Review stakeholder recommendations and verification proposals from the proceeding documents included in Rulemaking (R.)13-09-011;¹
2. Review the ways in which prohibited resources are being used in DR operations through phone interviews and onsite visits for a random sample of current DR participants; and
3. Identify realistic verification protocols based on existing record keeping practices, operating requirements, and engineering design, and also estimate the costs to ratepayers and participants of using alternative technical approaches to verification.

Proposed Verification Plan

The proposed verification plan is informed by the data collection and literature review activities and the information presented in Resolution E-4838. The resolution presents a three-part attestation, as well as recommended consequences for non-compliance for both customers and IOUs and demand response providers (DRPs). The three-part attestation divides the verification plan into the following three scenarios:

1. The customer attests to not owning a prohibited resource;
2. The customer attests to owning a prohibited resource, but promises not to use it for load reductions during DR events; and
3. The customer attests to owning a prohibited resource that they may need to use for health, safety, or operational reasons during DR events.

The common aspects of the verification plan, regardless of the attestation scenario, include randomly sampling from each group of attestations and first contacting customers in the sample to validate the submitted attestation to catch and rectify potential administrative errors. After these two activities, the verification plan becomes attestation-specific:

- Scenario 1: Compare the sample customers’ attestations against IOU interconnection and notification records. If customers are not found in the IOU records, submitting a data

¹ Phase Two of this proceeding addresses the use of back-up generators (BUGs) (re-categorized as “prohibited resources” in D. 16-09-056) during DR events.
request to the relevant air quality management or air pollution control districts and comparing the sample customers to the permit records.

- Scenario 2: For generators greater than 50 hp (37 kW), request written operating logs that customers are required to maintain by the statewide Air Toxic Control Measure and a photo of the generator’s hour meter. For generators less than 50 hp, request the customer install a data logger as a condition for participation. Finally, compare the operating logs to DR event dates and outage data.

- Scenario 3: Compare the sample customers’ attested nameplate capacities against IOU interconnection and notification records. If customers are not found in the IOU records, submitting a data request to the relevant air quality management or air pollution control districts and comparing the sample customers to the permit records.

Because two of the verification strategies rely on customer operating logs and/or the nameplate capacity captured in the utility records, Nexant recommends installing loggers and visually validating the nameplate capacity for a random sample of all affected DR participants to assess the accuracy of these data sources. Nexant proposes that this activity be undertaken on a biannual basis using loggers that have a battery life and memory capacity to support a 2-year deployment.

Finally, the CPUC also needs a separate verification plan to validate IOU and DRP compliance with enforcing the prohibition. Nexant proposes a two-stage verification process where the IOUs develop two databases—one containing all of the customer attestations and the second containing the results of the verification activities conducted on a sample of customers. At this stage, the CPUC can verify that the IOUs collected all affected customer attestations and executed the verification plan. For any customers with non-compliances, the IOUs and DRPs will have 60 days to either correct the non-compliance or enforce the appropriate consequence. IOUs and DRPs must settle any disputes surrounding verification findings and prohibition enforcement. After this period of time, the IOUs will provide updated attestation and verification results databases for CPUC review, which will also provide visibility to the CPUC into how disputed verification findings were resolved.
2 Introduction

The California Public Utilities Commission (CPUC) initiated Rulemaking (R.) 13-09-011 to “enhance the role of demand response in meeting California’s resource planning needs and operational requirements” in response to changes in the current electric utility operating environment due to increased penetration of demand response (DR) programs.\(^2\) The proceeding has been conducted in four phases, with Phase Two addressing the use of back-up generators (BUGs) during DR events.

- Decision (D.) 14-12-024\(^3\) did not explicitly prohibit the use of BUGs in DR programs, and instead adopted a policy statement that fossil-fuel BUGs should not be allowed to run during DR events for resource adequacy purposes. To demonstrate compliance, the decision required the investor-owned utilities (IOUs) to require all non-residential DR contracted customers to self-certify the following:
  - Whether the customer owns or operates a BUG; and
  - The make, model, and location of the generator (if the customer owns a BUG).

Additionally, the decision required the IOUs to collect information about the hourly usage for each BUG participating in DR events so that the CPUC could determine the extent to which back-up generation is used coincidentally with DR events and how BUG usage compares to load drops provided by participants.

Due to the difficulty in implementing the data collection requirements, the CPUC subsequently issued D.16-09-056,\(^4\) which modified D.14-12-024. The primary changes are the reversal of the data collection requirements and the addition of an explicit prohibition of the use of certain distributed generation resources (prohibited resources) to reduce load during DR events.\(^5\) Specifically, Ordering Paragraphs (O.P.) 3 and 4 prohibit customers participating in DR programs from operating prohibited resources to reduce load during DR events, except as required to maintain safe operations, in addition to exempting certain programs from the prohibition:

> “Beginning on January 1, 2018, the following list of resources are prohibited to be used for load reduction during demand response events: distributed generation technologies using diesel, natural gas, gasoline, propane, or liquefied petroleum gas, in topping cycle Combined Heat and Power (CHP) or non-CHP configuration. The following resources are exempt from the prohibition: pressure reduction turbines and waste-heat-to-power bottoming cycle CHP, as well as storage and storage coupled with renewable generation that meet the relevant greenhouse gas emissions standards adopted for the Self Generation Incentive Program. The following programs are exempt from the prohibition: air conditioner cycling programs, permanent load shifting programs, scheduled load

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3. http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M143/K552/143552239.pdf
4. http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M167/K725/167725665.PDF
5. The CPUC, with this decision, also moved away from referring to these distributed generation resources as BUGs, in favor of the term “prohibited resource.”
reduction programs, the optional binding mandatory curtailment, time of use rates, critical peak pricing, real time pricing, and peak time rebate."

Table 2-1 lists the DR programs that are currently affected by the prohibition, summarizing the number of customers and program capacity for each investor-owned utility (IOU) for the month of August 2016.

**Table 2-1: In-scope DR Programs by IOU with August 2016 Enrollment**

<table>
<thead>
<tr>
<th>Program</th>
<th>Number of Enrolled Customers – August 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PG&amp;E</td>
</tr>
<tr>
<td>BIP</td>
<td>251 (303 MW)</td>
</tr>
<tr>
<td>CBP – Day Ahead</td>
<td>29 (2 MW)</td>
</tr>
<tr>
<td>CBP – Day Of</td>
<td>426 (15 MW)</td>
</tr>
<tr>
<td>DBP⁶</td>
<td>455 (17 MW)</td>
</tr>
<tr>
<td>AP-I</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,161 (337 MW)</td>
</tr>
</tbody>
</table>

In addition to the programs listed above, CPUC Draft Resolution E-4838⁷ approved the prohibited resource requirements to apply to all DR pilots, including all of the utilities’ Excess Supply Pilots, PG&E’s Supply Side II Pilot, and the third utility Demand Response Auction Mechanism (DRAM III) Pilot.

O.P. 5 directs the IOUs to hire a consultant to “assess whether it is possible, and if so by what methods and data sources, to evaluate whether non-residential customers are complying with the demand response prohibition requirement”. Per the instruction laid out in O.P. 5, the consultant hired by the IOUs is required to provide recommendations on how to design an effective audit verification plan. The IOUs will file the consultant’s findings to the CPUC by June 1, 2017 and will host a workshop to present the verification plan report. Following the workshop, the IOUs will file a Tier Three Advice Letter, no later than September 1, 2017, to request approval of the final proposed verification plan that incorporates feedback received during the workshop. The final verification plan shall be effective 30 days after the plan is approved.

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⁶ PG&E’s and SDG&E’s DBP program closed in 2016 and SCE’s DBP programs will close in 2017.

⁷ http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M182/K672/182672310.PDF
Introduction

This draft report summarizes Nexant’s assessment of how to evaluate whether customers are complying with the prohibition policy, and provides recommendations on how to design a Verification Plan Report, pursuant to CPUC D. 16-09-056.

This report summarizes the approach Nexant used to assist the IOUs in complying with O.P. 5, in addition to recommendations for the final verification plan. Section 3 summarizes the key technical issues inherent in developing a robust verification plan. Section 0 details the methodology used to develop the verification plan and Section 0 summarizes the results of the data collection activities. Section 5.3.8 presents the findings from the literature review of other audit and verification protocols used by other agencies. Section 0 details the proposed prohibited resources verification strategy. Finally, Section Error! Reference source not found. outlines the recommendations for assessing IOU and demand response provider enforcement of the prohibition.
3 Technical Discussion and Key Issues

From a technical standpoint, there are several relatively simple ways of verifying the compliance with the CPUC’s order that customers participating in DR programs not operate prohibited resources to reduce load during DR events, or if they must do so, to that they accept an adjustment to their contracted load reduction amount. These include:

- Customers could self-certify that they did not operate their prohibited resource(s) to reduce load during the operating season. This approach leaves open the possibility that the self-certification is false or erroneous. This approach probably would not satisfy the concerns of some stakeholders.

- The customer could provide copies of operating logs that contain dates and time stamps documenting when the prohibited resource(s) was/were operated during the preceding year. Like the approach listed above, this approach leaves open the possibility that the logs that are supplied have been altered or specifically created to hide the fact that prohibited resource(s) was/were operated during DR events. However, if the logs were required to be filed with some regulatory body (i.e., a local air quality control board) for some other purpose, it would be a simple matter to verify whether the two logs matched or to require that the log required by regulators be delivered as proof of non-operation during DR events.

- Customers could be required to maintain digital logs containing the dates and time stamps of prohibited resource operations either by extracting them from factory installed recording systems on the prohibited resources or by requiring customers to install and maintain after-market data loggers on the output leads of the prohibited resource(s). Customers could then be required to maintain those logs for a period of time and to agree to submit copies of them on request by the utility or a third party auditor.

- Machine learning algorithms could be developed to detect the start and stop times of prohibited resources using AMI meters installed on circuits serving facilities participating in DR programs.

Most of these ideas were advanced as possibilities in the Phase II proceeding resulting in D.16-09-056 and were rejected by various parties because they were insufficiently rigorous, capable of providing information for only a limited number of customers, perceived to be troublesome and inconvenient to customers or judged to be too costly to implement. However, the record in the proceeding regarding these issues suggests there was relatively little concrete evidence produced by any of the parties to support their positions.

A practical verification plan requires the adoption of different verification strategies depending on the circumstances of the customers involved. In other words, compliance with the CPUC’s orders could be verified in a variety of ways depending on the customers’ circumstances. For example, for customers who do not use prohibited resources, it is only necessary to verify that this is the case. By CPUC order, these customers will be required to attest to this fact as a condition of participation and the mechanism for verifying the accuracy of customers’ attestations regarding the existence of prohibited resources could be a simple onsite inspection to verify that the facility does not have prohibited resources. This could be done during routine
visits to customers by utility representatives or by a third party with responsibility for auditing the claims. Annual monitoring for this subset of the population could be done with a request for information (RFI) asking the customer to check a box to verify that they do not have prohibited resources at their facility.

For customers that have prohibited resources at their facilities the problem is more complicated. In the simplest case, the customer’s prohibited resource does not have a bypass switch and has an automatic transfer switch that closes under loss of power will not be able to operate their prohibited resource during a DR event. Similar to the case of customers attesting they do not have a prohibited resource, the verification mechanism for customers with non-bypassable prohibited resources could be a simple on-site inspection or a data log of prohibited resource operations to match with power outage data.

For customers who have prohibited resources with bypass switches, it is necessary to verify that they are not using prohibited resources to reduce load during DR events; or if they are using them to safely control the facility while responding to DR, to adjust their load impacts to reflect the prohibited resource load. In this situation it may be possible to meet the verification requirement in a variety of ways. For example, some customers may be required to report the days and times of their prohibited resource operations to air quality regulators. These records might be used to verify that customers were not operating their prohibited resources during DR events and to adjust their load impacts if appropriate. Other customers may not be required to report the times their prohibited resources operate to local air quality regulators, so some other means may be necessary to verify they are not operating during DR events. Some customers may have equipment that records the dates and times of prohibited resource operations and thus be able to supply records of their operations to utilities or a third party auditor. Others might meet the verification requirement by installing data loggers on their prohibited resource and providing downloaded records to the utilities or auditors. Still others, who were operating prohibited resources to maintain the safety of their operations might elect to forgo the measurement effort altogether and accept an adjustment to their DR load impacts in proportion to the maximum output of their prohibited resources.

The critical challenge in developing the verification plan is creating a reasonable set of verification rules that are easy for customers to comply with and that takes into account the variations in prohibited resource designs and operations that exist among the current and future generations of DR program participants.

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8 These types of generators are designed and used for the safe shutdown of the facility and to support only essential controls and emergency lighting.
4 Study Method

The following section outlines the four-step process Nexant used, in collaboration with the IOUs and the Demand Response Measurement and Evaluation Committee (DRMEC), to develop the verification plan.

**Step One:** Nexant conducted a careful review of stakeholder recommendations and verification proposals from the proceeding documents included in R.13-09-011. The public record from D.16-09-056 contains narrative descriptions of the positions of the parties that will be used as a starting point for the discussion. This informs the current landscape of proposed verification strategies and will be further refined, as necessary, through interviews with IOU and DRMEC members. Following this step, an agreement will be reached on the range of verification protocols that should be considered during the plan development process.

**Step Two:** Nexant conducted a systematic review of the ways in which prohibited resources are being used in DR operations by a sample of facilities currently participating in DR programs in California. The review identified the current record keeping requirements for operating prohibited resources in the air quality regions in which the facilities are located, as well as the metering and other equipment used to record prohibited resource operations. The consistency and reliability of record keeping practices and usage measurement devices will be evaluated.

**Step Three:** Nexant identified realistic verification protocols based on existing record keeping practices, operating requirements, and engineering design, and also estimate the costs to ratepayers and participants of using alternative technical approaches to verification. **Step Four:** Nexant summarizes the plan development process and the recommended verification plan here in a formal report and will present the plan in a public workshop hosted by the IOUs. The plan will be modified as deemed necessary as a result of public input and a final plan will be provided to the CPUC no later than September 1, 2017.
Data Collection Results

5 Data Collection Results

5.1 Identify and review potential verification strategies

In order to understand the range of proposed verification strategies that were considered as part of D.16-09-056, Nexant reviewed the stakeholder recommendations and verification proposals from the proceeding documents included in R.13-09-011. The starting point for this review was the Staff Proposal that was introduced to the CPUC on September 21, 2015. In addition to recommending the direct prohibition of fossil-fueled backup generation for load reduction during DR events, the Staff Proposal also recommended several verification strategies for assessing and enforcing compliance. The primary strategy discussed is the hybrid proration / attestation option. Figure 5-1 shows a flow diagram of the Staff Proposal’s recommended verification process for nonresidential DR participants.

Figure 5-1: Staff Proposal Recommendation for Nonresidential DR Participants

For customers who attest to not owning a BUG, the IOU or demand response provider (DRP) must verify the information prior to executing a contract/tariff with the customer, and the verification process must be repeated every two years. The Staff Proposal’s recommendation for verification was either on-site inspections or cross examination with air quality management districts or Self-Generation Incentive Program administrators.

For customers who attest to owning a fossil-fueled BUG or other fossil-fueled behind-the-meter resource, there is a choice between a default and a metered adjustment. In the default option, the customer’s load reduction during a DR event adjusted based on the rated capacity of the BUG unit, which must be verified by the IOU or DRP. For the second option, the customer must install and maintain metering equipment at their own cost. The metering data allows the IOU or DRP to determine the amount of net load reduction that is not attributed to the BUG.

9 Demand Response and Back Up Generation Energy Division Staff Proposal.
http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M154/K510/154510256.PDF
A review of the stakeholder comments to the Staff Proposal showed that the primary point of debate was the recommendation for bi-annual on-site inspections of all DR participants who attested to not owning a BUG. Several commenting parties offered alternatives to the on-site inspections, including:

- Conducting spot checks based on air quality indicators (CA Large Energy Consumers Association);
- Conducting on-site inspections for a small sample of customers to determine how well the attestation system is working, with the potential to increase the number of site visits if there appears to be a substantial number of inaccurate attestations (PG&E); and
- Verifying compliance of a random sample of participants each year, using a rolling, without-replacement sampling strategy, such that with the passing every year, a larger and larger portion of the population will have been audited (SCE).

The Joint DR Parties\(^{10}\) asserted that attestation would be sufficient to validate the lack of a BUG, and that requiring on-site inspections to customer premises every two years would be a burden for DRPs and a hassle for customers. Instead, DRPs could put language into customer contracts that would remove the option for a customer to use a BUG during DR events and could assess the customer’s curtailment plan at the time of enrollment. According to the Joint DR Parties, the curtailment plan would indicate whether or not a customer had a BUG, and if so, if the customer planned to use the resource during DR events. Currently for IOU-managed DR programs, the provision of a curtailment plan is voluntary and not required for program participation.

Overall, while the use and frequency of on-site inspections were debated, along with other topics such as who should bear the cost of metering equipment, no parties offered any enforcement and verification strategies that deviated from the Staff proposed hybrid option of using customer attestations and metering or equipment ratings for load reduction adjustments.

### 5.2 Review prohibited resource use in non-residential DR participants

The bulk of the work for the verification plan development process occurred in Step Two of the four-step process. Nexant conducted a systematic review of the ways in which prohibited resources are being used in DR operations by surveying a random sample of 180 facilities currently participating in DR programs in California. The study identified the current record keeping requirements for operating prohibited resources in the air quality regions in which the facilities are located, as well as the metering and other equipment used to record prohibited resource operations. The consistency and reliability of record keeping practices and usage measurement devices were also evaluated.

The primary activities under this step, included:

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\(^{10}\) The Joint DR Parties consist of Comverge, Inc., CPower, EnerNOC, Inc., EnergyHub, and Johnson Controls, Inc.
• Reviewing available databases that pertain to prohibited resource ownership and use the information collected to:
  o Identify the relevance of each database in informing the question of whether and how prohibited resources are being used to reduce load during DR events;
  o Develop criteria to filter potential customers for relevant databases. For example, some databases may be valid to use to validate the attested non-presence of a prohibited resource, others may be valid to use to validate the size of the prohibited resource, and others may be valid to use to validate the runtime of the prohibited resource. Customers with different prohibited resource status will be subject to different validation procedures which may depend on varying databases.

• Using IOU-provided data and customer interviews via phone to:
  o Identify a random sample of 180 customers who have prohibited resources for on-site visits;
  o Identify how customers who have prohibited resources are using them, and flag if one of the uses is during DR events;
  o For customers who use prohibited resources to reduce load during DR events:
    ▪ Identify common design elements of facilities that require prohibited resource operation during DR events using customer provided single line diagrams;\(^{11}\)
    ▪ Determine the willingness of the owner/operators to annually respond to a request for information that comprises an extract of their logs, including copies of the data logs that are routinely being used to manage the equipment as supporting documentation;\(^{12}\)
    ▪ Identify the willingness of the owner/operator to accept the cost of installing and maintaining data loggers on their prohibited resources as a condition of DR program participation; and
    ▪ Determine the range of costs for on-site inspections depending on the type of facility.

• Conducting on-site customer visits to:
  o Observe the actual installation setup for the prohibited resource(s);
  o Inspect available records that describe the operations of current systems;
  o Determine the reliability of information kept in the records through discussion with operators;
  o Identify cost-effective and reliable methods for verifying prohibited resource operation at the facility (e.g., data loggers, data extracts, paper records);
  o Refine the range of costs for on-site inspections depending on the type of facility;

\(^{11}\) A single line diagram is a simplified blueprint of a power system.

\(^{12}\) Nexant is aware of periodic testing of distributed resources to comply with safety code and/or insurance requirements and these will be evaluated separately.
This section summarizes the findings from the review of available databases of prohibited resource ownership and/or usage, analysis of utility interconnection databases for distributed generation (DG) technologies, and the results from the customer phone interviews and on-site visits.

### 5.2.1 Review of Available Databases

Given the costs to verify compliance with the resource prohibition during DR events, Nexant sought to find pre-existing databases that included data on prohibited resource ownership and times of operation. Table 5-1 summarizes the databases Nexant reviewed based on input from the IOUs. The table indicates whether the data source could be used to verify prohibited resource ownership and if so, also provide information on the times of operation. For data sources that seemed particularly promising after a review of online resources, Nexant conducted subject matter expert (SME) interviews to obtain more specific information on the types of resources covered by a database and what information about usage, if any, was also available.

**Table 5-1: Databases Pertaining to Prohibited Resource Ownership and/or Usage**

<table>
<thead>
<tr>
<th>Data Source</th>
<th>Prohibited Resource Ownership Information</th>
<th>Time of Operation Information</th>
<th>Information Collection Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>California Energy Commission (CEC) Inventory</td>
<td>Yes</td>
<td>No</td>
<td>Review of online materials</td>
</tr>
<tr>
<td>Self-Generation Incentive Program (SGIP) Tracking Database / M&amp;E Generation Data</td>
<td>Yes</td>
<td>Yes</td>
<td>SME interview</td>
</tr>
<tr>
<td>Utility Interconnection (Rule 21) / Notification (California Health &amp; Safety Code) Data</td>
<td>Yes</td>
<td>No</td>
<td>Utility data request</td>
</tr>
<tr>
<td>California Air Resources Board (CARB) Inventory</td>
<td>No</td>
<td>No</td>
<td>SME interview</td>
</tr>
<tr>
<td>Air Quality Management Districts (AQMD)/Air Pollution Control Districts (APCD) Permit Data</td>
<td>Yes</td>
<td>Yes(^{13})</td>
<td>SME interview</td>
</tr>
</tbody>
</table>

**California Energy Commission (CEC) Inventory**

The CEC BUG inventory was compiled in 2001 and represents the most comprehensive record of BUG ownership in California. The inventory was compiled using permit records from 27 of the

\(^{13}\) Customers who have generators that require permits from their local air quality management district must keep operating logs on-site for a minimum of 36 months, however they are only obligated to report aggregate hours of operation and fuel use to their air quality management district.
Data Collection Results

35 California air districts. It includes over 4,000 BUGs over 300 kW and contains information on ownership, location, generator fuel type, generator capacity (kW), and other permit information such as the estimated engine emission factor for particulates. The inventory is not publicly available online, and likely requires a request for information from the CEC for access.

While the CEC BUG inventory is a very comprehensive database of BUG ownership, it has several drawbacks as a primary verification resource. First, it only covers a subset of the prohibited resources, as on-site generation could be used on a premise for non-back up or emergency applications. Secondly, the inventory only includes BUGs with capacities greater than 300 kW and does not include any information on times of operations. Lastly, the inventory is not updated annually—with the last update occurring in 2011.

It is not recommended that the CEC BUG inventory be used as a resource in the verification plan.

**Self-Generation Incentive Program (SGIP) Databases**

The Self-Generation Incentive Program (SGIP) is a CPUC program designed to provide incentives to support existing, new, and emerging distributed energy resources. Qualifying technologies under SGIP include wind turbines, waste heat to power technologies (i.e., bottoming cycle combined heat and power), pressure reduction turbines, internal combustion engines, microturbines, gas turbines, fuel cells, and advanced energy storage systems. As a condition for receiving incentives under SGIP, system owners and hosts must provide full access to the site and system and participate in Measurement & Evaluation (M&E) activities required by the CPUC. This includes installing a metering device to measure and record electrical output or offset, fuel consumption, and waste heat. The data are collected in 15-minute intervals, and it is the responsibility of system owners to provide Program Administrators with this performance data on a monthly basis for five years.

Between the Incentive Tracking Database and the M&E Generation Database, there is information on both ownership and usage of qualifying SGIP technologies. The primary drawback of using the SGIP databases as primary verification resources is that DR participants who do not participate in SGIP would not be represented in the databases. Additionally, for affected DR participants who are in the SGIP, the qualifying technologies largely do not overlap with the list of prohibited resources. The only three SGIP qualifying technologies that potentially overlap with the prohibition are internal combustion engines, microturbines, and gas turbines.

Given the lack of substantial overlap in technologies and resources covered, it is not recommended that the SGIP databases be used as a resource in the verification plan.

**Utility Interconnection and Generator Notification Data**

There are two statutes that direct utilities to maintain records of on-site generators, including prohibited resources. CPUC Rule 21 is a tariff that describes the interconnection, operating, and metering requirements for generation facilities that are connected to an IOU’s distribution system. Generators subject to Rule 21 include self-generation systems (export and non-export),
backup and emergency/standby systems (non-export only), and systems for power sales (export only). Under the category of backup systems, there are two operating modes:

- **Momentary parallel mode**, where a backup generator interconnects and operates with the utility’s distribution system for a duration of one second or less through transfer switches or an operating schemes specifically designed and engineered for such operation; and

- **Isolated mode**, where a backup generator is isolated and prevented from operating in parallel with the utility’s distribution system through a transfer switch or an operating scheme specifically designed and engineered for such operation.

Generators operating in momentary parallel operation mode are not required to enter into an interconnection agreement with the utility; however the system must be reviewed and approved by the utility to ensure compliance with Rule 21. Similarly, generators operating in isolated mode are not required to enter into an interconnection agreement; however owners must submit information about the generator (e.g., single line diagrams, location, capacity, etc.) to satisfy the utility’s notice requirements for operating an isolated backup generator as per California Health and Safety Code (CH&SH) Section 119085(b). This section stipulates: “Any owner, renter, or lessee who possesses and operates an electrical generator, when the generator is connected to a commercial, industrial, or residential structure’s electrical system that is connected to the service of a public utility or utility district, shall notify the utility of the location of the generator”.

The records the IOUs maintain on Rule 21 interconnected non-exporting generators and CH&SC notifications will cover all prohibited resources of any size, except for agricultural pumps, which are not interconnected to the utility distribution system. Given the nearly comprehensive resource coverage of these utility records, it is recommended that these records be used as a primary resource in the verification plan.

**California Air Resources Board (CARB) Inventory**

The California Air Resources Board (CARB) is part of the California Environmental Protection Agency. The organization promulgates statewide air pollution control rules and regulations, and provides guidance on their implementation and enforcement. With respect to the prohibited resources regulation, the most relevant air pollution control regulation is the Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines. This regulation pertains primarily to diesel generators greater than 50 horsepower (hp)—approximately 37 kW—including stationary engines used for agricultural applications such as pumping.

Among requirements for engine technical standards and other operational restrictions to reduce diesel particulate matter (PM) and other pollutant emissions, the ATCM requires owners and operators of any fossil-fueled stationary generator greater than 50 hp to submit technical information about the generator, fuel type, and typical usage to their local air district.

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15 ATCM for Stationary CI Engines §93115.10(a)
Additionally, it requires all generators subject to the regulation to have a non-resettable hour meter to show the aggregate number of hours the generator has been operated.

The ATCM also stipulates additional recordkeeping requirements for generators used in agriculture or for emergency standby. Owners of these generators must maintain operating logs, either written or digital, for a minimum of 36 months. Operations from the most recent 24 months are to be kept onsite, and records from between 25 and 36 months of the most recent entry shall be made available to the relevant air district within five business days of the request. While the records requirements differ slightly depending on the engine’s end use, under the ATCM, all owners must maintain at minimum a log that contains the hours the engine is operated.

While the ATCM regulation requires the recording and maintenance of data specifically relevant to this verification plan, the CARB does not collect or maintain any of this information. While extreme cases may be escalated to the Board, it largely only promulgates air pollution control rules and regulations, while leaving their enforcement to the local air districts. Thus, it is not recommended to use the CARB as a resource in the verification plan.

**Permit Data from California Air Districts**

The primary goals of the California air districts are to manage and reduce diesel particulate matter and other pollutant emissions. Although the ATCM requires generator owners and operators to maintain written operating logs, the air districts are not requesting this information on a regular basis. Collecting operating logs is a costly activity and is usually only triggered by complaints about a facility or area. Instead, generator owners and operators are required to report only the total gallons of fuel used on an annual basis. Since most generators do not have fuel meters, the fuel amount values are based on the total number of hours operated and the generator’s nameplate capacity. Based on an interview with one of the air districts, the majority of generators are likely only being operated around 50% to 75% of their maximum capacity, so the fuel usage records are likely inflated. The air districts are currently transitioning to a new data collection system that would require generator owners to submit hours of operation by use type (e.g., emergency operations, reliability and testing, etc.); however this information would only be collected every four years.

As part of the enforcement for the ATCM, each of the 35 California air districts issues operating permits for fossil-fueled generators. The majority of the air districts require permitting for generators that are larger than 50 hp, however district permitting depends on the emissions standards and goals for each individual air district. While the ATCM regulates fossil-fueled stationary engines or generators greater than 50 hp, each air district has discretion to issue stricter permits for operating fossil-fueled generators. During the course of data collection, Nexant did not find any information on air districts that require permits for operating engines under 50 hp, however this is a question that can be included in the data request if permit data will be used as a primary verification resource. Based on Nexant’s review of utility interconnection and notification data, the frequency of generators smaller than 50 hp (37 kW) seems to be a small fraction of the overall prohibited resource population.
Figure 5-2 shows an example operating permit from the Bay Area Air Quality Management District, which shows the size of the generator in horsepower, as well as the operating restrictions.

**Figure 5-2: Example Permit**

![Example Permit Image]

The permit shown in Figure 5-2 contains the typical information that is displayed under the current system managed by the air districts. They are currently transitioning to a new system that will include information on the generator’s model year.

Although there is likely substantial overlap in the data contained in the air district permits and the utility interconnection and notification data, the former provides a resource to verify generators used for agricultural pumping in the AP-I program. Because agricultural pumps are not interconnected and are likely not reflected in an easily searchable utility record, Nexant recommends using air district permit data as a supplementary resource in the verification plan.
5.3 Results from DR Participant Interviews and On-Site Visits

To refine the information obtained through the database review, Nexant conducted over the phone interviews for a sample of customer drawn from the affected DR programs, using participant information provided by the IOUs. Of these interviewed customers who attested to owning prohibited resources, Nexant conducted five on-site visits to learn more about how the resources are interconnected, if at all, and how they are used.

This section presents the findings from interviews and on-site visits with customers who participate in demand response (DR) programs affected by the prohibition. We first summarize the research questions and data collection methodologies directly below, in addition to providing a description of the characteristics of the survey respondents. We then present the key findings of the survey - what proportion of respondents have onsite generation, how and whether the customer maintains operating logs for their generation unit(s), and how and for what purposes customers are using onsite generation. The survey concluded with an invitation for the customer to permit an engineer visit the premises to inspect the generator, its electrical connections and single-line diagram(s), and operational logs.

5.3.1 Research Questions

Nexant conducted interviews with agricultural and commercial and industrial (C&I) customers who are currently participating in demand response programs that are affected by the prohibition. Generally, the goals were to collect current, real-world data on the proportion of DR program participants that are using onsite generation and to identify business needs for the presence of onsite generation, or lack thereof. The surveys sought to gather the following information from customers who report that they have at least one Prohibited Resource onsite:

- Important technical details about the generators used at their site (i.e., fuel type, size, purpose, etc.)
- Do they maintain generator usage logs?
- Do they use their generators during DR events?
- What is customer willingness to install loggers in light of the prohibition?

5.3.2 Data Collection

A random sample was drawn from the participation lists of all three IOUs for DR programs that are affected by the prohibition for participation in the survey: the Agricultural Pumping-Interruptible (AP-I) program, Base Interruptible Program (BIP), and the Capacity Bidding Program (CBP). In total, the random sample consisted of 75 customers from Pacific Gas & Electric’s (PG&E) service territory, 75 customers from Southern California Edison’s (SCE) service territory, and 30 customers from San Diego Gas & Electric (SDG&E). Some of these customers participate in these DR programs directly through the IOUs, while others participate through an aggregator. Before the interviews were conducted, the IOUs notified the affected aggregators of this survey effort.

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16 Participants of the Demand Response Auction Mechanism (DRAM) pilot were not included because the identities of DRAM participants are currently held by DRAM Demand Response Providers (DRPs) as confidential information.
The customers included in the sample were invited to participate in the survey via telephone and/or email, when emails were available in the contact information provided to Nexant by the utilities. Interviews were generally conducted by telephone, and lasted approximately 10 to 30 minutes in duration. One respondent completed the survey by email. The surveys were conducted over the course of three weeks, from April 17 to May 5, 2017. Three attempts were made to contact the entire list of randomly selected customers, where valid contact information was available. Table 5-2 presents the number of contact attempts by IOU and contact wave.

Table 5-2: Disposition of Customer Contacts

<table>
<thead>
<tr>
<th>IOU</th>
<th>1st Contact Wave</th>
<th>2nd Contact Wave</th>
<th>3rd Contact Wave</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG&amp;E</td>
<td>24 emails</td>
<td>15 calls</td>
<td>20 calls</td>
</tr>
<tr>
<td>SCE</td>
<td>72 emails</td>
<td>60 calls</td>
<td>50 emails</td>
</tr>
<tr>
<td>SDG&amp;E</td>
<td>10 emails</td>
<td>29 calls</td>
<td>10 calls</td>
</tr>
</tbody>
</table>

We report survey response rates using two methods, one method considers the entire random sample of 180 customers\(^{17}\), and another method only considers those customers for whom valid contact information was provided. Of the 75 randomly sampled contacts from PG&E, 55 had valid contact information (includes the second updated contact list), 63 of the 75 customers sampled from SCE had valid contact information, and 18 of the 30 customers from SDG&E had valid contact information. There were 10 interviewed conducted representing PG&E service accounts, 11 interviews conducted representing SCE service accounts, and 4 interviews conducted representing SDG&E accounts, for a total of 25 interviews.

It is also important to note the difference between the numbers of sites (interviews) completed, and the number of unique customers interviewed. Because a customer contact person may be in charge of more than one site or facility, there is not a 1-to-1 relationship between the number of interviews completed (individual facilities) and the number of customers that were interviewed. The 25 interviews conducted provided information on a total of 33 separate service accounts; 13 service accounts for PG&E and SCE each, and 7 service accounts for SDG&E.

Table 5-3 presents the response rate for the total sample and for the valid sample (only considering those sample points with valid contact information). The total response rate is 17% for both PG&E and SCE customers, and 23% for SDG&E customers. The valid response rates are between 4 and 16 percentage point higher: the PG&E valid response rate was 24%, the SCE valid response rate was 21%, and the SDG&E valid response rate was 39%. The valid survey response rates are reasonable considering 1) that the customers interviewed were medium and large agricultural and C&I electricity customers and 2) that respondents received no monetary compensation for completing the interview.

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\(^{17}\) By customers here, we mean service accounts. Many demand response program participant service accounts have the same customer contact information, so one invalid customer contacts often affects multiple service accounts.
### Table 5-3: Interview Response Rates

<table>
<thead>
<tr>
<th>IOU</th>
<th>Total # of Service Accounts</th>
<th># of Service Accounts with Valid Contact Information</th>
<th>Interviews Completed (Representing Total Number of Service Accounts)</th>
<th>Unique Individuals Interviewed</th>
<th>Valid Response Rate</th>
<th>Total Response Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG&amp;E</td>
<td>75</td>
<td>55</td>
<td>13</td>
<td>10</td>
<td>24%</td>
<td>17%</td>
</tr>
<tr>
<td>SCE</td>
<td>75</td>
<td>63</td>
<td>13</td>
<td>11</td>
<td>21%</td>
<td>17%</td>
</tr>
<tr>
<td>SDG&amp;E</td>
<td>30</td>
<td>18</td>
<td>7</td>
<td>4</td>
<td>39%</td>
<td>23%</td>
</tr>
<tr>
<td>Total</td>
<td>180</td>
<td>136</td>
<td>33</td>
<td>25</td>
<td>24%</td>
<td>18%</td>
</tr>
</tbody>
</table>

### 5.3.3 Respondent Characteristics

Interview respondents represented a range of industry types. Table 5-4 presents the industry groupings represented by the interview respondents. The Agriculture, Mining, and Construction and Retail sectors represented the most service accounts, about a third each. The Wholesale, Transport, and Other Utilities and Offices, Hotels, Finance and Services sectors represented 12% of covered service account. About 10% of service accounts interviewed are Institutional or Government utility customers. Less than 5% of service accounts covered by the interviews are classified in the “Other” industry grouping. Only two groups (Schools and Manufacturing) were not represented by the completed surveys.

### Table 5-4: Respondent Industries by Utility NAICS/SIC Codes

<table>
<thead>
<tr>
<th>IOU</th>
<th>Agriculture, Mining &amp; Construction</th>
<th>Manufacturing</th>
<th>Wholesale, Transport &amp; Other Utilities</th>
<th>Retail</th>
<th>Offices, Hotels, Finance, Services</th>
<th>Schools</th>
<th>Institutional/ Government</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG&amp;E</td>
<td>5</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>SCE</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>SDG&amp;E</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>0</td>
<td>4</td>
<td>11</td>
<td>4</td>
<td>0</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 5-5 summarizes how the 33 service accounts covered by the completed surveys represent the DR programs affected by the prohibition. Most (nearly two thirds) of the interviewed service accounts are enrolled in CBP, while about 20% of the service accounts are enrolled in BIP and a little less than 20% of the interviewed service accounts are enrolled in AP-I.

### Table 5-5: Interview Respondents’ DR Program Participation

<table>
<thead>
<tr>
<th>IOU</th>
<th>CBP</th>
<th>BIP</th>
<th>AP-I (SCE only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG&amp;E</td>
<td>8</td>
<td>5</td>
<td>N/A</td>
</tr>
<tr>
<td>SCE</td>
<td>7</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>SDG&amp;E</td>
<td>6</td>
<td>1</td>
<td>N/A</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>7</td>
<td>5</td>
</tr>
</tbody>
</table>
The respondents described the business operations taking place at the site of the service account(s) enrolled in demand response. Table 5-6 presents a summary of the business descriptions at the service accounts covered by the interviews as described by the respondents.

### Table 5-6: Business Activities as Described by Interview Respondents

<table>
<thead>
<tr>
<th>Business Activity</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial processing of materials</td>
<td>4</td>
</tr>
<tr>
<td>City/Government</td>
<td>1</td>
</tr>
<tr>
<td>Water district</td>
<td>3</td>
</tr>
<tr>
<td>Large discount retailer</td>
<td>11</td>
</tr>
<tr>
<td>Dairy farm</td>
<td>4</td>
</tr>
<tr>
<td>Agriculture</td>
<td>4</td>
</tr>
<tr>
<td>Office building</td>
<td>2</td>
</tr>
<tr>
<td>Parking structure (EVs)</td>
<td>1</td>
</tr>
<tr>
<td>R&amp;D facility</td>
<td>2</td>
</tr>
<tr>
<td>Cooling warehouse</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>33</strong></td>
</tr>
</tbody>
</table>

Prior to beginning the interview, respondents were asked to confirm that, to their knowledge, their business was enrolled in a demand response program. Of the 33 service accounts covered by the interviews, representatives of 31 service accounts were able to confirm that their facility participates in a demand response program. There were two respondents who were uncertain whether their facility was currently participating in a demand response program; however both noted that their firms had at least participated at some time in the past.

#### 5.3.4 Presence of Onsite Generation

The first topic of the interview was to establish whether or not the customer has power generating units at the premises of the service accounts enrolled in DR. Each respondent was asked, “Does your facility have a generator that produces power routinely or on a standby or emergency basis?” Of the 33 service accounts covered by the interviews, 20 sites (61%) were reported to have onsite generation and 13 sites (39%) were reported not to have onsite generation. Note that some service accounts have more than one generator onsite.

Nearly all of the 20 service accounts that have onsite generation, in particularly have generators that are fueled by or are configured as prohibited resources (90%). The 20 sites that utilize onsite generation combine for a total of 35 generators, 33 of which are classified as prohibited resources. The two onsite generators that did not use prohibited resources were a hydro generator and a natural gas fuel cell. Table 5-7 and Table 5-8 show the prevalence of onsite generation and the prevalence of prohibited resources, respectively, among the interviewed customers.
Data Collection Results

Table 5-7: Presence of Onsite Generation

<table>
<thead>
<tr>
<th>Have Onsite Generation</th>
<th>Count</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>20</td>
<td>61%</td>
</tr>
<tr>
<td>No</td>
<td>13</td>
<td>39%</td>
</tr>
<tr>
<td><strong>Total Sites</strong></td>
<td><strong>33</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Table 5-8: Presence of Prohibited Resource Generators

<table>
<thead>
<tr>
<th>Have Prohibited Resource</th>
<th>Count</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>18</td>
<td>55%</td>
</tr>
<tr>
<td>No</td>
<td>15</td>
<td>45%</td>
</tr>
<tr>
<td><strong>Total Sites</strong></td>
<td><strong>33</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Figure 5-3 shows the majority of sites covered by the interviews only have at least one generator on site, but one facility has 12 generators. Of the total 20 sites, 19 have 3 or fewer generators at their facility.

Figure 5-3: “How many generators do you have?”

If the respondent reported that their facilities did not have any onsite generation, they were asked “What do you do if the power goes out?” Of the 13 respondents who report not using onsite generation, four stated that they use batteries if the power goes out, while nine report simply waiting for the power to be restored. A tabulation of these responses is seen below in Table 5-9.
Table 5-9: Course of Action When the Power Goes Out (For Customers with Onsite Generation)

<table>
<thead>
<tr>
<th>Response</th>
<th>Count</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Batteries</td>
<td>4</td>
<td>31%</td>
</tr>
<tr>
<td>Wait for Power to be Restored</td>
<td>9</td>
<td>69%</td>
</tr>
<tr>
<td><strong>Total Sites</strong></td>
<td><strong>13</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

As one Agriculture, Mining, and Construction customer explains, if the power was to go out, they would “wait for power to be restored, can continue to export pre-processed materials.” Another common response was that the location being discussed in the interview was “non-critical,” so it was not a large inconvenience for the power to be off for some period of time. For the four customers that report battery usage, all referenced the batteries being used primarily for emergency lighting or administrative purposes (keeping central computers running). One retail customer explains, “In the event of an outage, facilities have small batteries to support building code required emergency lighting and potentially small uninterrupted power system (UPS, usually a battery or a flywheel).” For each of the four respondents that report utilizing batteries when the power goes off at their facilities, no customers report recently switching from generators to batteries (in response to specifically being asked by the interviewer if that were the case).

5.3.5 Characteristics of Onsite Generators

As described in Section 5.3.4, there are 33 prohibited resource generators spread across 18 facilities covered by the interviews, which means that these 33 generators are fueled by diesel, natural gas, gasoline, propane, or liquefied petroleum gas. As seen below in Table 5-10, 79% of the generators operated by interview respondents are fueled by diesel and 21% by natural gas. None of these 33 generators are fueled by propane or liquefied petroleum gas.

Table 5-10: Types of Fuels Used by Onsite Generators

<table>
<thead>
<tr>
<th># of Generators</th>
<th>Generator Count</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel</td>
<td>26</td>
<td>79%</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>7</td>
<td>21%</td>
</tr>
<tr>
<td>Gasoline</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Propane</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Liquefied Petroleum Gas</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>33</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Besides the fuel used to power their generators, respondents were asked about the type of load being serviced by the generator, the nameplate rating, age, typical runtime, whether the generator has a bypass relay or switch, and whether it was possible to start the generator and operate it while connected to the utility system. Of the 33 prohibited resource generators, 31 generators service emergency load only, while one services normal load, and another serves to supplement load reduced through demand response. While all respondents were able to identify
the type of load that their generators service, the majority of respondents were unable to identify the nameplate rating of the generators. Accordingly, only six respondents (less than a quarter) were able to report the nameplate rating of their generators, with responses from respondents who were able to answer the question ranging from 100 kW to 800 kW. In addition, the respondents were asked to report the ages of the generators. All 33 generators were reported to be between 0 and 30 years old, with the majority falling between 10 and 19 years old. The breakdown of ages is seen below in Figure 5-4.

In addition to age and nameplate rating, respondents were asked to identify how long their generators typically run. The majority of respondents (13) report that their generators run for regularly scheduled exercise periods, where the generators are tested to make sure they are still functional. Few respondents (4) simply report that their generator will run for the duration of a power outage, while two report that their generator runs for the duration of DR events. The variations in runtime are depicted below in
Data Collection Results

Figure 5-5.
The next characteristic of the generators that the respondents were asked about was whether or not the generator has a bypass relay or switch. Of the 18 service accounts covered by the interviews, 14 were reported to have a bypass relay or switch, while respondents representing four service accounts were unsure. The final generator characteristic touched upon in the interviews was whether the generators were able to smoothly start and operate while connected to the utility system, which is simply another way of asking about the presence of bypass switches. There was excellent correspondence in the responses to this question with those of the question about bypass switches: Of the 18 service accounts covered by the interviews, 15 have the ability for the onsite generator to smoothly start and operate while connected to the grid, while three respondents were unsure about this ability.

### 5.3.6 Maintenance of Operating Logs

In an effort to verify that agricultural and C&I DR participants are not using prohibited resources to offset reduced load, DR program participants may be required to submit operating logs for their prohibited resource as evidence that they are not using prohibited resources in this way. Operators of fossil-fueled generators and agricultural pumps are statutorily required to maintain operating logs recording the dates and time of generator usage. The interviews sought to understand whether customers are, in practice, maintaining operation logs and reporting them to regulators. A large majority of the respondents, 83%, report that they are maintaining operating logs. Three respondents could not confirm the presence of operating logs: two denied keeping logs and one respondent was unsure. The two customers who do not maintain operations logs are agricultural customers. The 15 respondents who confirmed keeping operating logs were then asked a follow-up question about whether they report these operations to regulators. And of the 15 respondents that confirmed keeping logs, all confirmed that they do report these operations to regulators, strongly suggesting that the regulatory requirement concerning operational logs is widely observed.
The respondents that reported that they do maintain operation logs for their prohibited resources were also asked about what type of information is recorded in the logs. Twelve (81%) respondents were able to provide details about what types of information recorded, while 3 respondents (19%) were unsure what information is recorded in the logs. All 12 report that they record runtimes for their generators and nearly all (11) of the 12 respondents confirm that they report what date the generators was run. In contrast, only 3 of the 15 respondents that could provide information about the maintenance logs were able to confirm that both start and date times are recorded. Table 5-11 tabulates the number of respondents that report each type of generator operation characteristic.

<table>
<thead>
<tr>
<th>Operational Information</th>
<th>Site Count</th>
<th>Proportion of Sites that Report Operations to Regulators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Runtime (duration)</td>
<td>12</td>
<td>80%</td>
</tr>
<tr>
<td>Date</td>
<td>11</td>
<td>73%</td>
</tr>
<tr>
<td>Start/End Time</td>
<td>3</td>
<td>20%</td>
</tr>
<tr>
<td>Reason for Operation</td>
<td>1</td>
<td>7%</td>
</tr>
<tr>
<td>Unknown</td>
<td>3</td>
<td>20%</td>
</tr>
<tr>
<td><strong>Total Sites</strong></td>
<td><strong>15</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Finally, both respondents that maintain logs and respondents that do not maintain logs were asked about their willingness to provide a copy of generator operation logs as proof of not operating prohibited resources for load reduction during demand response events. Those respondents who confirmed the presence of operating logs were specifically asked, “If dates and times of operations are recorded, would you be willing to provide a copy of your operating logs for your generator as proof that you did not operate your generator during DR operations for load reduction as a condition of participating in DR Programs?” All 15 customers who report maintaining and reporting operating logs state that they would be willing to also provide a copy of the logs when requested. The respondents who were unable to confirm the presence of maintenance logs were asked, “If logs are not maintained, would you be willing to maintain operating logs on all of your generators recording the dates, start times, and end times for each operation during the year, and to certify the accuracy of these logs?” Of the 3 customers that report not maintaining logs or are unsure of whether they maintain logs, 2 would be willing to maintain logs and provide copies as requested, while one respondent would be unwilling. The one AP-I participant who is unwilling to maintain and provide operating logs explains, “That just seems like a lot of work to me.” This AP-I customer is also one of the two respondents who runs onsite generation during DR Events. Overall, the majority of respondents maintains and reports operating logs and would be willing to provide the logs as proof that they are not operating their generators during DR operations for load reductions to continue participating in various DR Programs.
5.3.7 Use of Generators during Demand Response Events

When asked whether or not they are using prohibited resources during DR events, only 2 of the 18 service accounts with prohibited resource generators reported that they currently use their onsite generators to help with load reduction, as shown in Figure 5-6.

Both customers who reported they are using onsite generation during demand response events are Agriculture, Mining, and Construction customers currently enrolled in AP-I. When asked to further explain why these customers operate their generators during demand response events, both report using the generators to maintain business operations, and not for safety reasons. As one respondent explains, “[We use them] to continue to run agricultural processes like the milking of cows.”

All respondents were asked about their willingness to install data loggers on their prohibited resource generators and to make the recorded data available upon request to their respective utilities. For the two respondents that use their generators during demand response events, they were asked the follow-up question: “Starting in 2018, you will be required to certify that you will not operate your generator(s) during DR events to reduce load. [Your Utility] may need to implement a verification plan that requires DR program participants to furnish proof, upon request, that they did not use their generators for load reduction during DR events. Such a plan may require you to provide usage data as measured by interval load data recorders installed on your generators. The interval load data recorders would cost approximately $1,000 to install per generator and must be purchased at your cost.” Of the two respondents that report using onsite generation during DR events to offset load reductions, one respondent was willing to install loggers while one respondent was unsure about his or her willingness. The AP-I respondent who is willing to install the loggers explains, “I save $36,000 from DR so $1,000 a logger is nothing.” This respondent reports that the monetary benefits received from participating in demand response greatly outweigh the cost or inconvenience of installing loggers and providing data as requested. In contrast, the AP-I customer who is unsure about whether he or she wants to install the loggers states, “I would need time to think about whether this hassle is worth it.”
For the sixteen respondents that reported not using their generators during DR events, the customers were also asked to about their willingness to data install loggers and provide usage data on request, which resulted in 14 responses for this question. Overall, 50% of respondents who report not using generators during DR events are unsure about their willingness to install, 21% (3 customers) were willing to install loggers, and 29% (4 customers) are not willing to install loggers, as shown in Figure 5-7.

Figure 5-7: Willingness to Install Data Loggers and Provide Data upon Request (For Customers who do not use Prohibited Resources for DR)

The specific responses given by each of the 14 respondents are recorded below in Table 5-12. Of the three customers who responded “Yes” that they are willing to install loggers, two mentioned their firm’s obligation to participate in demand response programs so they would essentially have no choice in logger purchase. Two customers also noted that a cost-benefit analysis suggests that it is still financially sensible for them to remain enrolled in DR programs even after purchasing the loggers. Of the customers that are unsure whether they would install the loggers, two respondents were responsible for speaking for all 7 combined sites. One respondent requested additional information and time before they could make this decision, while the second respondent stated they did not feel comfortable answering the question. Four respondents reported that they are unwilling to install loggers and provide data upon request. Three of these four respondents mention that it would not be cost effective for them to purchase these loggers, as the financial benefits that they receive are significantly less than $1,000 per year. One respondent highlights poor experiences with DR programs in general, which makes that firm less likely to continue to participate if they had to also install these loggers. The final respondent that stated that they would be unwilling to install loggers argues that these costs should be borne by the utility or CPUC. Overall, most respondents touched on the cost of the loggers and installation as the reason they would or would not continue to participate in demand response.
Table 5-12: Willingness to Install Loggers (For Customers who do not use Prohibited Resources for DR)

<table>
<thead>
<tr>
<th>Response</th>
<th>Customer</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Wholesale/Transport/Other Utilities</td>
<td>“We are mandated to be in DR, so what choice do we have in buying the loggers?”</td>
</tr>
<tr>
<td></td>
<td>Institutional/Government</td>
<td>“Sure. The loggers cost significantly less than the monetary benefits we receive from participating in DR.”</td>
</tr>
<tr>
<td></td>
<td>Institutional/Government</td>
<td>“Yes. We save nearly $30,000 from our participation in DR. Also, I think we are required to participate in DR, so we would have to buy [the loggers].”</td>
</tr>
<tr>
<td>Maybe</td>
<td>Agriculture/Mining/Construction (responded for two facilities)</td>
<td>“I definitely need more information on this before I could respond.”</td>
</tr>
<tr>
<td></td>
<td>Retail (responded for 5 facilities)</td>
<td>“I am unable to make this call.” (Deferred to headquarters for this question)</td>
</tr>
<tr>
<td>No</td>
<td>Institutional/Government</td>
<td>“We don't really need to participate in DR so it probably wouldn't make sense to take all of these extra steps.”</td>
</tr>
<tr>
<td></td>
<td>Agriculture/Mining/Construction</td>
<td>“Absolutely not. We have already considered opting out of Demand Response all together due to bad experience with aggregator. This would be way too much of a hassle for the minimal monetary gain that we get out of DR.”</td>
</tr>
<tr>
<td></td>
<td>Wholesale/Transport/Other Utilities</td>
<td>&quot;It is not our responsibility to monitor usage; this cost should be on CPUC/ the utilities to enforce that we are using our generators properly.”</td>
</tr>
<tr>
<td></td>
<td>Offices/Hotels/Finance/Services</td>
<td>“We hardly receive any money from DR, so there is no reason to continue to participate if we have to buy these loggers also.”</td>
</tr>
</tbody>
</table>

5.3.8 Site Visit Key Findings

Nexant conducted site visits with DR program participants that operate Prohibited Resources to assist in identifying realistic verification protocols based on existing record keeping practices, operating requirements, and engineering design. The site visits also serve to level-set estimates of the cost to IOUs and/or participants for the various verification activities that the verification plan may contemplate.

Site visit volunteers were solicited at the conclusion of the telephone interviews. Six interview subjects agreed to a site visit, and five successful visits were completed (one appointment resulted in a customer no-show). Two visits were in the PG&E service territory and three visits were completed in the SCE service territory, covering five industry groupings: Offices/Hotels/Finance/Services, Institutional/Government/Agriculture/Mining/Construction, Wholesale/Transportation/Other Utilities, and Retail. Of the 5 customers with successful site visits, 4 are currently enrolled in CBP and 1 is currently enrolled in AP-I. The response rate for the request for site visits was 28%, where Nexant was able to visit 5 of the 18 sites that have onsite generation.
Table 5-13 summarizes the results of the on-site visits that helped to inform the proposed verification plan.

**Table 5-13: Summary of On-Site Visits**

<table>
<thead>
<tr>
<th>Site Visit</th>
<th>Number of Generators&lt;sup&gt;18&lt;/sup&gt;</th>
<th>Generator Size (kw)</th>
<th>Fuel Type</th>
<th>Operate During DR</th>
<th>Maintain Operating Logs</th>
<th>Transfer Switch&lt;sup&gt;19&lt;/sup&gt; Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>300 ; 400</td>
<td>Diesel</td>
<td>Yes</td>
<td>Yes</td>
<td>Manual</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>50</td>
<td>Natural Gas</td>
<td>No</td>
<td>Yes</td>
<td>Automatic</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>200</td>
<td>Diesel</td>
<td>No</td>
<td>Yes</td>
<td>Manual</td>
</tr>
<tr>
<td>4&lt;sup&gt;20&lt;/sup&gt;</td>
<td>1</td>
<td>250</td>
<td>Natural Gas</td>
<td>No</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>1,280</td>
<td>Diesel</td>
<td>No</td>
<td>Yes</td>
<td>Manual</td>
</tr>
</tbody>
</table>

The key findings from the site visits are the following:

- Upon receiving the signal to curtail load, the AP-I customer isolates certain operational loads and manually connects them to the on-site generators;

- 4 of the 5 customers have transfer switches that can be operated automatically, but 3 of those 4 customers are using the prohibited resource generators to operate water pumps, which can be damaged by using automatic transfers;

- All of the customers visited maintain operating logs (either written or digital), but the information reported to the local air quality management district, if any is required at all, varies by customer (e.g., one customer reports only emissions test results versus all of the dates and hours of operations); and

- Discrepancies between the respondent’s answers to the interview and information collected through the site visit highlight the potential for misunderstandings or the potential for customers to have questions about the proposed three-part attestations.

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<sup>18</sup> This indicates the number of generators Nexant examined during the on-site visit. Some customer premises were very large and had many on-site generators that could not all be examined during the course of the site visit.

<sup>19</sup> The transfer switch is the mechanism for connecting load to the grid or to the generator. It can be operated either automatically (in the event of a power outage) or it can be operated manually to switch load to be serviced by a generator at any time.

<sup>20</sup> During the telephone interview, the customer indicated the presence of both a prohibited resource and a natural gas fuel cell; however during the site visit, it was determined that the location only had the fuel cell. Based on the information gathered during the phone interview, it is probable the facility recently removed the prohibited resource generator after adding the fuel cell. The customer mentioned this particular location is a “pioneer” store for fuel cells, while the rest of the store locations still have prohibited resources onsite.
The verification strategy will rely on random samples of each participant segment. In order to develop a strategy that is both cost-effective and reliable, Nexant conducted a literature review of verification protocols used to enforce compliance in three federal agencies—the U.S. Securities Exchange Commission (SEC), the U.S. Environmental Protection Agency (EPA), and the U.S. Internal Revenue Service (IRS). This review included the literature in statistics and accounting concerning the use of auditing to verify the accuracy of records supplied to tax and other regulatory authorities including any studies that may have been conducted by government entities discussing best practices and the effectiveness of audits using different practices. This review of statistical methods informs the recommended sample size for random checks that balances the need to provide reliable information about compliance and enforces compliance through the chance of being caught and penalized.

The goals of the literature review were to review academic and government publications to determine:

- The likely effectiveness of different enforcement strategies; and
- The appropriate methods for calculating sample sizes sufficient to ensure reasonable confidence in the results of the audits.

The review was completed using documents published online, as well as the US government’s websites supporting the Securities and Exchange Commission (SEC), the Environmental Protection Agency (EPA) and the Internal Revenue Service (IRS). Nexant also searched websites operated by various national laboratories specializing in energy policy and websites operated by state and federal agencies governing the use and operation of emergency on-site electricity generation. A wide range of search terms were employed including various combinations of terms: audit, investigation compliance, taxpayer, standby generation, effectiveness and sample size.

After reviewing the enforcement strategies used by these agencies, Nexant has concluded that modified version of the approach used by the U.S. IRS is best suited for enforcing the CPUC’s guidelines regarding the use of prohibited generation facilities during DR operations. This conclusion is based on the following considerations:

- The IRS audit mechanism (providing for risk based and random audits) is known to encourage compliance with IRS regulations regarding filing and income reporting;
- The IRS audit mechanism will minimize both the burden of the enforcement mechanism on program participants and the cost of enforcement;
- The IRS audit mechanism is capable of producing an accurate and reliable estimate of the extent of compliance with the Commission’s order; and
- Virtually all participants in the program will be familiar with the audit enforcement process used by the IRS and will likely appreciate the level of seriousness associated
Literature Review on the Effectiveness of Auditing on Compliance

with the Commission’s guidelines and the likelihood that any violation they willfully engage in will be discovered and punished.

The detailed findings from the literature review can be found in 0.
7 Proposed Verification Plan

The proposed verification plan is informed by the data collection and literature review activities summarized in sections 5 and 6, and the information presented in Draft Resolution E-4838. The resolution presents a three-part attestation, as well as recommended consequences for non-compliance for customers of both IOUs and demand response providers (DRPs). The three-part attestation provides guidance for dividing the verification plan into the following three scenarios:

1. The customer attests to not owning a prohibited resource;
2. The customer attests to owning a prohibited resource, but promises not to use it for load reduction during DR events; and
3. The customer attests to owning a prohibited resource that they may need to use for health, safety, or operational reasons during DR events.

The following sections detail the recommended verification strategy for each of the above attestation scenarios, as well as a strategy for assessing overall compliance with the prohibition. The final section will detail a proposed strategy to assess how well the IOUs and DRPs are enforcing the prohibition.

7.1 Customer does not own a prohibited resource

The following verification strategy is employed when the customer submits the following attestation: “I do not have a Prohibited Resource on-site”. The purpose of the recommended activities is to verify that the customer does not own a prohibited resource on the premise. The verification steps include:

1. Randomly sample from applicable DR participants (at the service agreement level). Sampling should occur separately for each program/pilot
2. Contacting each customer in the sample to validate the submitted attestation to catch and rectify potential administrative errors;
3. Comparing the sample customers’ attestations against IOU interconnection and notification records; and
4. If customers are not found in the IOU records, submitting a data request to the relevant air quality management or air pollution control districts and comparing the sample customers to the permit records.

Sample Design

The first verification task, as is the case with all verification tasks in this plan, depends up on random sampling of the appropriate participant populations of the DR programs affected by the prohibition. In the case of task 1, the appropriate sampling population is the group of customers who attest that they have no prohibited resource onsite. This randomly selected sample of customers will be used to estimate the proportion of customers who make an accurate attestation. The number of customers that should be randomly selected into the sample depends on:
Proposed Verification Plan

1. The number of customers in the sampling population, call this value N.
2. A starting assumption as to the true proportion of customers who make a correct attestation, call this value P.

The sample size is calculated directly as a function of N and P, and varies according to the desired level of precision of the estimate and the desired level of confidence in the estimate. The sample size, n, is calculated using Equation 7-1:

\[
    n = \frac{N \times X}{(X + N - 1)}, \quad \text{where} \quad X = \frac{Z_{\alpha/2}^2 \times P \times (1-P)}{MOE^2}
\]

As an example, a sample size that targets 95% confidence, assumes that \( \alpha = 1 - 0.95 = 0.05 \). The critical value of the Normal distribution at \( \alpha/2 \) (\( Z_{\alpha/2} \)) is 1.96. Further, a sample size that targets 5% precision sets \( MOE = 0.05 \).

Nexant recommends, for all verification tasks, that the estimates of the proportion of customers who make accurate attestations be estimated separately for each affected DR program. Given the varying nature of the programs and customers enrolled in those programs, we anticipate that there is reasonable likelihood that attestation accuracy may differ between programs. Attestation accuracy may vary as a function of the amount of incentive put at risk by false attestation, as a function of load impacts (i.e., relatively large or small) delivered by the customer, as a function of the number of events called per year, or as a function of how much the prohibited resource was used in the past during DR events. Nexant cannot hypothesize any likely factors that would lead to systematic differences in attestation accuracy across IOUs, so we do not propose separate samples for each IOU. We also do not propose separate samples for aggregated vs. non-aggregated customers. Overall, random selection of customers within each program will reflect the program’s native composition of aggregated and non-aggregated customers. Nexant specifically recommends sampling proportionally across IOU or DRP within program, so that the sample reflects the programs’ distribution of participants across IOUs and DRPs.

Currently, there are three DR programs and pilots affected by the prohibition: AP-I, BIP, CBP, and DRAM. As new DR programs and pilots are introduced by IOUs and DRPs, additional samples will be required for those programs as well.

Nexant’s proposed verification plan assumes that a third-party verification contractor is retained to conduct the annual verification activities. An alternative approach is that each IOU and DRP be responsible for carrying out the verification plan independently. We recommend a centralized verification for the following reasons, but also include its challenges so the reader may come to an informed decision:

- We specifically recommend that the verification plan be designed to estimated compliance rates by program/pilot. If that is the case, a single entity would be required to develop a sample for each program/pilot that proportionally represents each IOU or DRP that offers the program/pilot. On the other hand, we recognize O.P. 5 of D. 16-09-056
only requires evaluating compliance for the non-residential customers in general. While designing a sample for each program will inform us of the compliance rate of the customers in each program, the total sample size requirement will be multiplied proportionally by the number of programs.

- A single verification implementer should be retained based on their qualifications to conduct and document a single, valid random sampling process that systematically handles sampling exceptions the same way across all programs and entities (i.e., replacement sites for participants with closed accounts or who have left the program).

- A third party verification plan implementer would also provide for a neutral facilitation of 1) demonstrating that IOUs and DRPs are enforcing the prohibition as directed and that 2) service provider-participant disputes are resolved in a manner that does not circumvent the prohibitions.

- Centralized verification is not without practical challenges. When a third party contractor is retained, there needs to be a mechanism in place to ensure its accountability and work quality. Otherwise, it would be just another layer of bureaucracy. Another open issue is the funding source for the third party contractor, which presumably is a for-profit entity. We do not estimate how much centralized verification may cost, as its cost-effectiveness is beyond the scope of this report.

The verification plan’s implementer will calculate sample sizes as a function of actual program enrollment concurrent with the verification activities.

The sample sizes also require an assumption of the population proportion that is being estimated. In the estimation of population proportions, the larger the true proportion is, the smaller the sample is required that is required to make a good estimate of it. Nexant recommends that for the first implementation of the verification plan, sample sizes be calculated assuming that 80% of customers make accurate attestations. The rationale behind that assumption is not mathematical, but merely a subjective judgement that most DR participants would want to “play by the rules” and that customers who either don’t ensure accurate information is provided in the attestation or who don’t adhere to the attestation may not (yet) understand the seriousness of the prohibition. It would be reasonable to update this assumption for all verification tasks in subsequent implementation of verification activities, given the findings of previous implementations. It may be that attestation accuracy is in fact found to vary across programs, or perhaps that it does not. In which case the need to sample separately by program can also be reassessed in future verification studies.

Finally, the final sample size will be determined by the margin of error and level of confidence that are desired to be achieved by the estimate. Generally speaking, sample sizes increase for higher confidence levels and the lower margins of error. Nexant recommends a 10% margin of error at a 90% confidence level – a benchmarked commonly referred to as “90-10” in utility fields of research such as load research or measurement and evaluation. We do not recommend using a confidence level any lower than 90% or a margin of error any wider than 10%.
Specific to presenting example sample sizes for Verification Task 1, we first assume program enrollments current as of August 2016. Nexant currently does not know how many customers are enrolled in the DRAM pilot, but to serve as a placeholder here, we assume that there are five DRPs participating in the pilot, with 100 enrolled service accounts each. Secondly, we make an assumption about the number of customers that are likely to attest that they have no prohibited resource. Our customer interviews found that 58% of service accounts enrolled in affected DR programs have prohibited resources. We assume for these example sample sizes, then, that 42% of each program’s participating service accounts will attest that they have no prohibited resource onsite. We present example sample sizes for Verification Task 1 below in Table 1. Assuming that 42% of AP-I, BIP, CBP, and DRAM service accounts attest that they have no prohibited resource, the sample frame would have 1,562 service accounts. A 90-10 sample design would inform 156 customers be randomly selected across all three programs (40 from AP-I, 39 from BIP, 40 from CBP, and 37 from DRAM), representing 10% of the sampling population. Table 7-1 presents alternative sample sizes assuming higher and lower levels of confidence and margins of error; Nexant’s recommended sample sizes are highlighted in green.

### Table 7-1: Possible Sample Sizes for Verification Task 1
**Nexant Recommends MOE 10% and 90% Confidence**

<table>
<thead>
<tr>
<th>MOE</th>
<th>AP-I Confidence Level</th>
<th>BIP Confidence Level</th>
<th>CBP Confidence Level</th>
<th>DRAM (Strawman) Confidence Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>80%</td>
<td>90%</td>
<td>95%</td>
<td>99%</td>
</tr>
<tr>
<td>1%</td>
<td>421</td>
<td>450</td>
<td>464</td>
<td>479</td>
</tr>
<tr>
<td>5%</td>
<td>88</td>
<td>129</td>
<td>166</td>
<td>231</td>
</tr>
<tr>
<td>10%</td>
<td>26</td>
<td>40</td>
<td>55</td>
<td>88</td>
</tr>
<tr>
<td>15%</td>
<td>12</td>
<td>19</td>
<td>26</td>
<td>44</td>
</tr>
<tr>
<td>25%</td>
<td>5</td>
<td>7</td>
<td>10</td>
<td>17</td>
</tr>
</tbody>
</table>

**Validating the Original Attestation**

The discrepancies noted in Section 5.3.8 between the phone interviews and onsite visits demonstrate the potential for misunderstandings or the potential for customers to have questions about the proposed three-part attestation. After taking a random sample of DR customers who submit this attestation, the IOU or DRP should contact each customer to validate the attestation and correct potential administrative errors. The Draft Resolution E-4838 categorizes an infraction in the above situation as a “Type One” non-compliance—the provision of an inaccurate attestation due to a clerical error. Such infractions are subject to a 60-day cure period for customer correction and IOU/DRP validation.

This step actively engages DR participants in the verification plan and can help to reduce the number of resolution disputes, since it provides customers with a second chance to provide an accurate attestation for compliance with the resource prohibition.

**Final Verification**
After validating the attestations of the sampled service agreements and allowing customers to make corrections, if necessary, the sampled attestations should be verified against the utility interconnection and notification records. For customers who are not found in the utility interconnection and notification records, Nexant recommends submitting a data request to the relevant air districts and comparing the remaining customers against the permit records. While these data requests will add to the overall costs of implementing the verification strategy, this step is especially important for identifying agricultural pumps, which are not interconnected to utility distribution systems.

For customers who are found to have a prohibited resource on the premise, a “Type Two” infraction, the consequence is their removal from all affected DR programs for 12 calendar months from the date of removal, after which the customer will be eligible to re-enroll. For customers who are found to be non-compliant two or more instances, the consequence is their removal from all affected DR programs for a period of three years.

**7.2 Customer does not use prohibited resource for DR**

The following verification strategy is employed when the customer submits the following attestation: “I do have a Prohibited Resource on-site and I will not use the resource to reduce load during any Demand Response Event”. The purpose of the recommended activities is to verify that the customer is not using their prohibited resource during DR. The verification steps include:

1. Taking a random sample of applicable DR participants (at the service agreement level);
2. Contacting each customer in the sample to: (1) validate the submitted attestation to catch and rectify potential administrative errors; and (2) identify the size of the generator;
3. For generators greater than 50 hp (37 kW): Requesting written operating logs that customers are required to maintain by the statewide Air Toxic Control Measure and a photo of the generator’s hour meter;
   a. For generators less than 50 hp\(^{21}\): Requesting the customer install a data logger as a condition for participation
4. Comparing operating logs to DR event dates and outage data.

**Sample Design**

The same statistical sampling principles described in Section 6.1 for the first verification task (to estimate the percentage of service accounts who accurately attest that they have no prohibited resources onsite) apply to the second verification task. The second verification task is to estimate the percentage of service accounts who accurately attest that they do not use prohibited resources to reduce load during DR events. As in the first task, a random sample of service accounts that attest that they do not use their Prohibited Resource(s) to support DR load

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\(^{21}\) Based on Nexant’s review of utility interconnection and notification data, the frequency of generators smaller than 50 hp (37 kW) seems to be a small fraction of the overall prohibited resource population.
reduction should be drawn. Here again, Nexant recommends that the samples, at least in the first iteration of the verification activities, be drawn separately by program.

As described for the first verification task, an estimate of the sample sizes that would be expected can be calculated, using a few assumptions:

- The starting point is assuming the size of each program. Here we use counts of enrolled customers in AP-I, BIP, and CBP as of August 2016.
- We assume, given the findings of our telephone interviews, that 58% of all participants of DR programs affected by the prohibition have a Prohibited Resource.
- We also assume that 89% of AP-I, BIP, and CBP customers will attest that they will not use their Prohibited Resource to reduce load during DR events. We make this assumption because only 11% of interviewees stated that they currently need to run their Prohibited Resource during DR events.
- Finally, we assume that 80% of the attestations are in fact accurate.

With the above assumptions, we anticipate that of the 3,215 AP-I, BIP, and CBP customers enrolled as of August 2016, and the 500 customers we assume are currently enrolled in DRAM, 1,915 of them will attest that they have a Prohibited Resource and that they will not use it for load reductions during DR events. Table 7-2 presents sample sizes under varying levels of confidence and margins of error. Nexant recommends that sample sizes target a 90% level of confidence and 10% margin of error; such a 90-10 target translates into 41 AP-I, 40 BIP, 41 CBP, and 38 DRAM service accounts randomly selected from the pool of participants who attest that they will not use their Prohibited Resource for load reductions. These 160 sampled customers represent 8.4% of the total number of customers anticipated to fall into this verification task.

### Table 7-2: Possible Sample Sizes for Verification Task 2
Nexant Recommends MOE 10% and 90% Confidence

<table>
<thead>
<tr>
<th>MOE</th>
<th>AP-I</th>
<th>BIP</th>
<th>CBP</th>
<th>DRAM (Strawman)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>80%</td>
<td>90%</td>
<td>95%</td>
<td>99%</td>
</tr>
<tr>
<td>1%</td>
<td>498</td>
<td>538</td>
<td>559</td>
<td>581</td>
</tr>
<tr>
<td>5%</td>
<td>90</td>
<td>136</td>
<td>176</td>
<td>252</td>
</tr>
<tr>
<td>10%</td>
<td>25</td>
<td>41</td>
<td>56</td>
<td>91</td>
</tr>
<tr>
<td>15%</td>
<td>12</td>
<td>19</td>
<td>27</td>
<td>44</td>
</tr>
<tr>
<td>25%</td>
<td>5</td>
<td>7</td>
<td>10</td>
<td>17</td>
</tr>
</tbody>
</table>

Validating the Original Attestation

After taking a random sample of DR customers who submit this attestation, the IOU or DRP should contact each customer to validate the attestation and correct potential administrative errors. The Draft Resolution E-4838 categorizes an infraction in the above situation as a “Type One” non-compliance—the provision of an inaccurate attestation due to a clerical error. Such
Proposed Verification Plan

infractions are subject to a 60-day cure period for customer correction and IOU/DRP validation. Additionally, the IOU or DRP should use this customer touchpoint to identify the size of the customer’s prohibited resource. The size of the generator will inform which verification activity to conduct.

**Final Verification**

After validating the attestations of the sampled service agreements and allowing customers to make corrections, if necessary, the sampled customers with generators greater than 50 hp should be directed to submit their operating logs for all months in the verification year. For example, if the IOUs request operating logs from customers on September 1 of a given year, customers should submit operating logs from January of that year through September 1. For customers with generators less than 50 hp, Nexant recommends the IOUs request the installation of a data logger on the generator to continue participation in the program. While this is a more costly action than requesting the customer maintain a written operating log, for example, there is not a strong incentive for the customer to accurately represent their generator usage if they are already running their prohibited resource to reduce load during DR events.

The reason that operating logs from customers with generators greater than 50 hp are more likely to accurately reflect generator usage is because these customers are legally bound to the operating restrictions in their permits. Any customer found in violation of their operating permit is subject to penalty fees that are based on the type of violation, its duration, and the history of violations at the facility. In serious cases, the violating customer may be subject to civil or criminal prosecution.

For customers who are found to have run their prohibited resource on one or more DR event days, a “Type Two” infraction, the consequence is their removal from all affected DR programs for 12 calendar months from the date of removal, after which the customer will be eligible to re-enroll. For customers who are found to be non-compliant two or more instances, the consequence is their removal from all affected DR programs for a period of three years. In order to allow customers to remain in the program, a second consequence for a Type Two non-compliance is to give the customer the option of installing and maintaining a data logger for the duration of their participation in the affected program. Similar to first calling customers to validate their attestations, allowing customers to install a data logger provides another means for reducing potential resolution disputes. If a customer is still found to be non-compliant after having the chance to correct their initial attestation and installing a logger to remain in the program, the consequences of the infraction leaves little room for dispute.

7.3 Customer may use prohibited resource during DR events

The following verification strategy is employed when the customer submits the following attestation: “I do have a Prohibited Resource on-site and I may have to run the resource(s) during Demand Response events for safety reasons, health reasons, or operational reasons. My Prohibited Resource(s) have a total nameplate capacity of ___ kW. I understand that this value will be used as the Default Adjustment Value (DAV) to adjust the Demand Response

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22 The option to install a logger as a consequence for non-compliance is a Nexant recommendation and is not reflected in Resolution E-4838.
Proposed Verification Plan

The purpose of the recommended activities is to verify the nameplate capacity of the customer’s generator. The verification steps include:

1. Randomly sample from applicable DR participants (at the service agreement level);
2. Calling each customer in the sample to validate the submitted attestation to catch and rectify potential administrative errors;
3. Comparing the sample customers’ attested nameplate capacities against IOU interconnection and notification records; and
4. If customers are not found in the IOU records, submitting a data request to the relevant air quality management or air pollution control districts and comparing the sample customers to the permit records.

Sample Design

The statistical sampling principles applied to the first two verification tasks are likewise applied to the third verification task: to estimate the percentage of service accounts that accurately attest to the capacity of their Prohibited Resource that is used to calculate their DR DAV.

As before, a random sample of service accounts that attest that they may use their Prohibited Resource for health, safety, or operational reasons during DR events should be drawn. Nexant recommends that the sample, at least in the first iteration of the verification activities, be drawn separately by program.

As described for the first and second verification tasks, an estimate of the sample sizes that would be expected can be calculated, using a few assumptions:

- The starting point is assuming the size of each program. Here we use counts of enrolled customers in AP-I, BIP, and CBP as of August 2016 and an assumption that there are 500 customers participating in DRAM.
- We assume, given the findings of our telephone interviews, that 58% of all participants of DR programs affected by the prohibition have a Prohibited Resource.
- We also assume that only 11% of AP-I, BIP, CBP, and DRAM customers will attest that they may need to use their Prohibited Resource for health, safety, or operational reasons during DR events. We make this assumption because only 11% of interviewees stated that they currently need to run their Prohibited Resource during DR events.
- Finally, we assume that 80% of the attestations are in fact accurate.

With the above assumptions, we anticipate that of the 3,215 AP-I, BIP, and CBP customers enrolled as of August 2016, and of the 500 customers we assume are currently enrolled in DRAM, 238 of them will attest that they have a Prohibited Resource and that they may need to use it during DR events. Table 7-3 presents sample sizes under varying levels of confidence and margins of error. Nexant recommends that sample sizes target a 90% level of confidence and 10% margin of error; such a 90-10 target translates into 28 AP-I, 25 BIP, 28 CBP, and 19 DRAM service accounts randomly selected from the pool of participants who attest that they
Proposed Verification Plan

may need to use their Prohibited Resource during DR events. These 100 sampled customers represent 42% of the total number of customers anticipated to fall into this verification task.

Table 7-3: Possible Sample Sizes for Verification Task 3
Nexant Recommends MOE 10% and 90% Confidence

<table>
<thead>
<tr>
<th>MOE</th>
<th>AP-I Confidence Level</th>
<th>BIP Confidence Level</th>
<th>CBP Confidence Level</th>
<th>DRAM (Strawman) Confidence Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>80%</td>
<td>90%</td>
<td>95%</td>
<td>99%</td>
</tr>
<tr>
<td>1%</td>
<td>74</td>
<td>75</td>
<td>76</td>
<td>76</td>
</tr>
<tr>
<td>5%</td>
<td>45</td>
<td>54</td>
<td>59</td>
<td>65</td>
</tr>
<tr>
<td>10%</td>
<td>20</td>
<td>28</td>
<td>35</td>
<td>45</td>
</tr>
<tr>
<td>15%</td>
<td>11</td>
<td>16</td>
<td>21</td>
<td>30</td>
</tr>
<tr>
<td>25%</td>
<td>5</td>
<td>7</td>
<td>9</td>
<td>15</td>
</tr>
</tbody>
</table>

Validating the Original Attestation

After taking a random sample of DR customers who submit this attestation, the IOU or DRP should contact each customer to validate the nameplate capacity listed in their attestation and correct potential administrative errors. The Draft Resolution E-4838 categorizes an infraction in the above situation as a “Type One” non-compliance—the provision of an inaccurate attestation due to a clerical error. Such infractions are subject to a 60-day cure period for customer correction and IOU/DRP validation. Since such a clerical error is likeliest to be revealed only through the audit, it is reasonable to set a limit to how large a discrepancy in reported nameplate capacity may be to be considered clerical, to prevent purposeful “mistakes.” Nexant recommends that misstated nameplate capacities of 5 kW or 10% of attested nameplate capacity, whichever is greater, be set as a cap to qualify as a “Type One” infraction, rather than “Type Two.”

Final Verification

After validating the attestations of the sampled service agreements and allowing customers to make corrections, if necessary, the nameplate capacities recorded in sampled attestations should be verified against the utility interconnection and notification records. For customers who are not found in the utility interconnection and notification records, Nexant recommends submitting a data request to the relevant air districts and comparing the remaining customers against the permit records. While these data requests will add to the overall costs of implementing the verification strategy, this step is especially important for identifying agricultural pumps, which are not interconnected to utility distribution systems.

For customers whose attested nameplate capacities match the records, their DR incentives will be adjusted using the Default Adjustment Value based on the generator’s nameplate capacity. As the verification program continues in the future, the IOUs and the CPUC may want to better understand the actual output of these prohibited resources, rather than relying on the nameplate capacity to calculate the adjustment. This could be accomplished by allowing customers to attest to a lower capacity rating for the default adjustment that is verified by logger data.
For customers who are found to have misrepresented the nameplate capacity of their generator, a “Type Two” infraction, the consequence is their removal from all affected DR programs for 12 calendar months from the date of removal, after which the customer will be eligible to re-enroll. For customers who are found to be non-compliant two or more instances, the consequence is their removal from all affected DR programs for a period of three years.

7.4 Assessing the accuracy of operating logs and nameplate capacity records

In addition to developing a verification strategy, D.16-09-056 also directs the IOUs to assess how well customers are complying with the prohibition. Because two of the verification strategies rely on customer operating logs and/or the nameplate capacity captured in the utility records, Nexant recommends the following activities to assess the accuracy of these data sources. For the purposes of presenting a draft plan, Nexant presents it as a recommended option:

1. Randomly sample from all affected DR participants (at the service agreement level) with onsite generators;
2. IOUs install loggers on the generators and take a picture of the generators’ nameplate capacities; and
3. Compare the logger data to the written operating logs and compare the nameplate capacity to what is documented by the IOUs in the notification/interconnection records.

We propose that this activity be undertaken on a biannual basis using loggers that have a battery life and memory capacity to support a 2-year deployment. With a 2-year deployment some uncertainty can be injected as to when and if a site visit will be made to collect data from the loggers after the first year, where the intention is to mitigate customer’s inclination to alter usage generator usage behaviors or log maintenance behaviors in response to the data logger’s presence. We recommend that the bi-annual sampling occur with replacement every two years, such that a DR participant who is selected in one study’s sample would not have assurance that they would not be included in the sample the next study.

Sample Design

The final verification task that Nexant recommends is to install data loggers on the Prohibited Resources of a random sample of customers that are enrolled in DR programs that are affected by the prohibition. We again rely on the same statistical framework to determine the appropriate sample size for this task.

As before, a random sample of service accounts that attest that they will not use their Prohibited Resource to reduce load during DR events should be drawn. As before, Nexant recommends that the sample, at least in the first iteration of the verification activities, be drawn separately by program.

An estimate of the sample sizes that would be expected is calculated using the following assumptions:
The starting point is assuming the size of each program. Here we use counts of enrolled customers in AP-I, BIP, and CBP as of August 2016, as well as an assumption that there are 500 service accounts participating in DRAM.

We assume, given the findings of our telephone interviews, that 58% of all participants of DR programs affected by the prohibition have a Prohibited Resource.

We also assume that 89% of AP-I, BIP, CBP, and DRAM customers will attest that they will not use their Prohibited Resource for load reductions during DR events. We make this assumption because only 11% of interviewees stated that they currently need to run their Prohibited Resource during DR events.

Finally, we assume that 80% of the attestations are in fact accurate.

With the above assumptions, we anticipate that of the 3,215 AP-I, BIP, and CBP customers enrolled as of August 2016, and the 500 customers we assume are currently enrolled in DRAM, 1,657 of them will attest that they have a Prohibited Resource and that they will not use their Prohibited Resource during DR events.

Table 7-4 presents sample sizes under varying levels of confidence and margins of error. Nexant recommends that sample sizes target a 90% level of confidence and 10% margin of error; such a 90-10 target translates into 41 AP-I, 40 BIP, 41 CBP, and 38 DRAM service accounts randomly selected from the pool of affected participants. These 160 sampled customers represent 9.6% of the total number of customers anticipated to fall into this verification task.

A primary consideration in implementing this fourth verification task is the cost of the loggers. It is not necessary to install data loggers that measure and record interval data of the kW output of the Prohibited Resource. Such loggers can range in cost from $500 to $2,000. All that is necessary is to log what date and times the Prohibited Resource runs. Such loggers are retailed for less than $300 and are also much easier to install.

For the purposes of illustrating the costs involved with this verification activity, Nexant estimates that the requisite logger and associated memory, wiring, software, and batteries would cost about $270.00 per unit. Depending on the site, installation of the logger may take anywhere between 1 hour and 4 hours: on average a project budget should contemplate on average 2 hours’ installation. An annual visit to download data, replace the battery, or to remove the logger.
should could take between 1 and 2 hours: a budget should contemplate 1.5 hours for a removal or data download visit. At a labor rate of $90 per hour, project management for a logger installation/download/removal field study of this scope should be around $60 per logger. Thus, a reasonable per logger estimate of costs is $270 in equipment costs, plus $315 in labor to install and uninstall (or download data) once a year, and $90 in project management, totaling $675 per sample point.

To carry out this verification activity as a 90/10 study would cost $675 times 160, or $82,350; to carry out this verification activity as a 95/10 study would cost $675 times 220, or $148,500. During the plan development process, there was discussion about whether to draw the sample from the entire C&I population with onsite generation or only from the population of affected DR participants. The drawback cited for drawing the sample from the affected DR population is that customers may change their behaviors because they know they are being audited; however these sampled customers will be the most representative of customers affected by the resource prohibition. Since the resource prohibition will be widely communicated to all affected DR participants, it's reasonable to assume that these customers may all change their behaviors in response to the possibility of their records being audited in the future.

Nexant recommends collecting the data from the loggers after a random time period that is not communicated to sampled customers at the time of the logger installation. This will mirror the uncertainty in the overall verification plan around if and when affected DR participants will be audited.

**Final Verification**

After sampling from the population of affected DR participants, the IOUs should install data loggers on the generators and take a picture of each generator’s nameplate capacity. The pictures of the nameplate capacities can then be compared to what is documented in the IOU interconnection and notification records to assess the accuracy of records. The sources of potential inconsistencies may arise from clerical errors on the customer’s side while filling out the interconnection or notification form, or on the utility side from manual data entry errors.

After a predetermined period of time, not necessarily communicated to customers ahead of time, the IOUs can retrieve the data from the loggers to compare against the customer’s written operating logs to check for consistency and accuracy.
8 Assessing Enforcement and Dispute Resolution

In addition to developing a verification plan to assess and enforce DR participant compliance with the resource prohibition, the CPUC also needs a strategy to validate IOU and DRP compliance with enforcing the prohibition, which has implications for dispute resolution as well. As outlined in Draft Resolution E-4838, the Commission may assess the IOUs’ (in their role as DRPs) compliance with customer attestation and DAV collection requirements through data requests and/or audits at any time, including requests of:

- Lists of customers enrolled in affected DR programs;
- Attestation information for all continuing utility customers enrolled in the programs;
- A list of customers taking DAVs and their accounts; and
- Records indicating that aggregator and/or customer incentive payments have been adjusted by DAVs, as applicable.
Figure 8-1 summarizes the proposed steps for validating IOU/DRP compliance with the resource prohibition.
After the IOUs conduct the verification activities outlined in Sections 7.1 through 7.3, there should be two databases created—one that includes a list of all affected DR participants with each participant’s attestation, and a second that captures the results of the verification activities on a sample of affected DR participants.
Table 8-1 shows an example of the database containing all affected DR participants and their attestation.
Table 8-1: Example of DR Participant and Attestation Database

<table>
<thead>
<tr>
<th>Service Agreement Num.</th>
<th>DR Program</th>
<th>Attestation*</th>
<th>DAV (kW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10136984</td>
<td>BIP</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>10643221</td>
<td>BIP</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>10557802</td>
<td>BIP</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>10604795</td>
<td>CBP</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>10684176</td>
<td>CBP</td>
<td>3</td>
<td>150</td>
</tr>
<tr>
<td>10108668</td>
<td>CBP</td>
<td>3</td>
<td>200</td>
</tr>
<tr>
<td>10618458</td>
<td>CBP</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>10061064</td>
<td>BIP</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>10555239</td>
<td>API</td>
<td>3</td>
<td>100</td>
</tr>
<tr>
<td>10871449</td>
<td>CBP</td>
<td>1</td>
<td>-</td>
</tr>
</tbody>
</table>

* 1 = No prohibited resource; 2 = Won’t use prohibited resources during DR; 3 = May use prohibited resource during DR

The CPUP can use the data shown in the table above to validate that all participants in affected DR programs have an attestation. Draft Resolution E-4838 categorizes the continued enrollment of non-residential customers with no recorded attestation in affected DR programs as a Type One non-compliance. For this type of non-compliance, the IOU or DRP has a 60-day cure period to collect and validate attestations for customers with missing attestations.

The highlighted rows in
Table 8-1 indicate customers from the affected DR population who are sampled for verification purposes. Table 8-2 shows an example of the database produced to capture the results of the verification activities conducted by IOUs and DRPs. Regardless of the type of attestation a customer submits, all of the verification plans include a step to call each sampled customer to validate their attestation and identify their generator’s nameplate capacity, if applicable.

**Table 8-2: Example of Verification Results Database**

<table>
<thead>
<tr>
<th>Service Agreement Num.</th>
<th>Attestation*</th>
<th>Validate Attestation</th>
<th>Nameplate Capacity (kW)</th>
<th>DAV (kW)</th>
<th>Compliance Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>10643221</td>
<td>1</td>
<td>No change</td>
<td>-</td>
<td>-</td>
<td>Compliant</td>
</tr>
<tr>
<td>10557802</td>
<td>2</td>
<td>No change</td>
<td>120</td>
<td>-</td>
<td>Type Two</td>
</tr>
<tr>
<td>10108668</td>
<td>3</td>
<td>No change</td>
<td>200</td>
<td>200</td>
<td>Type Two</td>
</tr>
<tr>
<td>10555239</td>
<td>3</td>
<td>Change DAV</td>
<td>95</td>
<td>100</td>
<td>Type One</td>
</tr>
</tbody>
</table>

* 1 = No prohibited resource; 2 = Won’t use prohibited resources during DR; 3 = May use prohibited resource during DR

Table 8-2 shows three service agreements that were found to be non-compliant during the verification check. At this stage in the process, the IOUs should have a predetermined period of time to take the appropriate corrective actions for these customers. After this period, the IOUs will update Table 8-2 and
Table 8-1, as necessary.
Table 8-3 and Table 8-4 show examples of how Table 8-2 and
Table 8-1 could be updated, respectively.
### Table 8-3: Example of Updated Verification Results Database

<table>
<thead>
<tr>
<th>Service Agreement Num.</th>
<th>Attestation*</th>
<th>Validate Attestation</th>
<th>Nameplate Capacity (kW)</th>
<th>DAV (kW)</th>
<th>Compliance Check</th>
<th>Action Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>10643221</td>
<td>1</td>
<td>No change</td>
<td>-</td>
<td>-</td>
<td>Compliant</td>
<td></td>
</tr>
<tr>
<td>10557802</td>
<td>2</td>
<td>No change</td>
<td>120</td>
<td>-</td>
<td>Type Two</td>
<td>Customer installed logger</td>
</tr>
<tr>
<td>10108668</td>
<td>3</td>
<td>No change</td>
<td>200</td>
<td>200</td>
<td>Type Two</td>
<td>Removed from program on (date)</td>
</tr>
<tr>
<td>10555239</td>
<td>3</td>
<td>Change DAV</td>
<td>95</td>
<td>100</td>
<td>Type One</td>
<td>Received and validated new attestation</td>
</tr>
</tbody>
</table>

* 1 = No prohibited resource ; 2 = Won’t use prohibited resources during DR ; 3 = May use prohibited resource during DR

### Table 8-4: Example of Updated DR Participant and Attestation Database

<table>
<thead>
<tr>
<th>Service Agreement Num.</th>
<th>DR Program</th>
<th>Attestation*</th>
<th>DAV (kW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10136984</td>
<td>BIP</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>10643221</td>
<td>BIP</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>10557802</td>
<td>BIP</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>10604795</td>
<td>CBP</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>10684176</td>
<td>CBP</td>
<td>3</td>
<td>150</td>
</tr>
<tr>
<td>10618458</td>
<td>CBP</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>10061064</td>
<td>BIP</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>10555239</td>
<td>API</td>
<td>3</td>
<td>95</td>
</tr>
<tr>
<td>10871449</td>
<td>CBP</td>
<td>1</td>
<td>-</td>
</tr>
</tbody>
</table>

* 1 = No prohibited resource ; 2 = Won’t use prohibited resources during DR ; 3 = May use prohibited resource during DR

At this stage, the CPUC can use the information in the updated databases shown in
Table 8-3 and Table 8-4 to check for presence of the following Type One and Type Two IOU non-compliances:

- **Type One** – Failure to ensure the correction of inaccurate customer attestations, when the resource(s) are not used to reduce load;

- **Type Two** – Allowing customers with Type One violations to remain in the program when they have not corrected the deficiency within 60 days, including:
  - Customers who failed to provide an attestation by the required date; and
  - Customers who provided inaccurate attestations (i.e., inaccurate nameplate capacity or not representing a resource) due to a clerical or administrative error.

- **Type Two** – Not immediately expulsing customers with verified Type Two violations for the required period.

For Type One infractions, the IOU or DRP has a 60-day cure period to correct and validate the deficiency. For Type Two infractions, the IOU or DRP is notified of a 30-day Event of Default, which is curable within that time period. After which, in the unlikely event the IOU or DRP is still found to be non-compliant, the IOU or DRP is referred (within 60 days) to the Commission Enforcement Division for further action.

Each IOU and DRP is responsible for enforcing the prohibition. In the course of doing so, disputes between the IOU and DRP and participating customers may arise out of the verification process. Since all customers participate in the DR programs affected by the prohibition through an agreement with the IOUs or DRPs, the final arbiter of such disputes is each IOU and DRP. The IOUs and DRPs must resolve each dispute in a manner that upholds their responsibilities to enforce the prohibition while also treating their customers fairly. The CPUC should receive notification of which DR participants are found by the verification plan to be in violation of the prohibition in addition to notification, within a proscribed period of time, of what actions were taken as a result, and why. Such follow-up notification to the CPUC will discourage IOUs and DRPs from treating disputed verification results with too much lenience to the program participants.
9 Alternative Sampling Procedures

A central assumption of this proposed verification plan is that each year a random sample of DR program participants that are affected by the prohibition be contacted to verify compliance with the prohibition. A sampling approach is in contrast to a census approach, which would require that all DR program participants be contacted for verification purposes. Nexant specifically proposes a sampling approach to minimize the costs associated with implementing the verification activity, and we have presented a literature review that provides evidence that audits using sampling are successful in encouraging compliance with law and regulation.

Nexant further recommends that a third party be retained to conduct the verification activities. The plan as it is laid out, assumes that such a third party will be engaged. For reasons enumerated above, to ensure the integrity and equity of verification activities and results, a third party, rather than the IOUs and DRPs themselves, should be responsible for implementing the plan in a consistent manner across all IOUs and DRPs.

Alternative Sampling Plan 1: By IOU and DRP

In the event that the IOUs and DRPs are to conduct their own, independent verification activities, the sampling strategies outlined in this proposed plan would need to be modified. Without a central verification plan implementer, sampling would need to occur, for each verification task by IOU and DRP. By and large, such a modification will result in many more sample points evaluated if the sample remains program-specific.

Table 9-1 presents sample sizes by IOU and DRP, rather than by program or pilot for Task 1 (validating attestations of no Prohibited Resource present). We again assume here that 5 DRPs are participating in DRAM, with 100 service accounts in each portfolio. This assumes a sample design for 90/10 levels of confidence and precision in the estimates. As shown in the table, sampling by IOU and DRP results in 222 sample points for Task 1. In contrast, Nexant’s recommended approach informs 156 sample points; however the total cost of verification will be a function of the number of sample points and the cost of retaining a third party contractor.

<table>
<thead>
<tr>
<th>Margin of Error</th>
<th>PG&amp;E</th>
<th>SCE</th>
<th>SDG&amp;E</th>
<th>DRP 1</th>
<th>DRP 2</th>
<th>DRP 3</th>
<th>DRP 4</th>
<th>DRP 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>10%</td>
<td>38</td>
<td>42</td>
<td>32</td>
<td>22</td>
<td>22</td>
<td>22</td>
<td>22</td>
<td>22</td>
</tr>
</tbody>
</table>

Table 9-2 presents sample sizes by IOU and DRP for Task 2 (validating that a Prohibited Resource is not used for load reduction during DR events). Sampling by IOU and DRP rather than program and pilot would result in 235 sample points, as opposed to 160 sample points for Nexant’s recommended approach to sample by program and pilot. Again, we assume here for the sake of illustration that there are 5 DRPs involved in DRAM and that they have 100 enrolled participants each.
### Table 9-2: 90/10 Sample Sizes for Task 2
Sampling by IOU/DRP rather than by Program/Pilot

<table>
<thead>
<tr>
<th>Margin of Error</th>
<th>PG&amp;E</th>
<th>SCE</th>
<th>SDG&amp;E</th>
<th>DRP 1</th>
<th>DRP 2</th>
<th>DRP 3</th>
<th>DRP 4</th>
<th>DRP 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>90%</td>
<td>10%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10%</td>
<td>39</td>
<td>42</td>
<td>34</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>24</td>
</tr>
</tbody>
</table>

Table 9-3 presents sample sizes by IOU and DRP for Task 3 (validating the nameplate capacity as stated as the DAV). We again assume 5 DRPs with 100 participating customers each. Using this sampling strategy results in 105 sample points selected, in contrast to Nexant’s proposed approach which calls for 100 sample points.

### Table 9-3: 90/10 Sample Sizes for Task 3
Sampling by IOU/DRP rather than by Program/Pilot

<table>
<thead>
<tr>
<th>Margin of Error</th>
<th>PG&amp;E</th>
<th>SCE</th>
<th>SDG&amp;E</th>
<th>DRP 1</th>
<th>DRP 2</th>
<th>DRP 3</th>
<th>DRP 4</th>
<th>DRP 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>90%</td>
<td>10%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10%</td>
<td>23</td>
<td>34</td>
<td>13</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>

Finally, Table 9-4 presents sample sizes by IOU and DRP for the optional (and recommended) Task 4, which is an assessment of how accurately DR customers affected by the prohibition maintain the operating logs of their Prohibited Resource. Assuming current program enrollment levels for AP-I, BIP, and CBP, and assuming 5 DRAM DRPs with 100 participants each, sampling by IOU and DRP results in 247 logger installations. Nexant’s recommended approach for sampling informs a total sample selection of 160 customers, however, sampling by IOU and DRP results in 247 customers selected for logger installation. This has significant implications for overall costs: a total sample size of 160 results in a data acquisition cost of $82,350. This outlay assumes centralized project management. For 247 sample points, the $675 per point cost estimate would yield a total cost of $166,725, however the true costs of that would be significantly higher with each IOU and DRP managing their own field study.

### Table 9-4: 90/10 Sample Sizes for Task 4
Sampling by IOU/DRP rather than by Program/Pilot

<table>
<thead>
<tr>
<th>Margin of Error</th>
<th>PG&amp;E</th>
<th>SCE</th>
<th>SDG&amp;E</th>
<th>DRP 1</th>
<th>DRP 2</th>
<th>DRP 3</th>
<th>DRP 4</th>
<th>DRP 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>90%</td>
<td>10%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10%</td>
<td>40</td>
<td>42</td>
<td>35</td>
<td>26</td>
<td>26</td>
<td>26</td>
<td>26</td>
<td>26</td>
</tr>
</tbody>
</table>

### Alternative Sampling Plan 2: Forgoing Separate Sampling by Task

Not only does Nexant recommend sampling by program and pilot, rather than IOU and DRP, we also recommend obtaining separate estimates of compliance for each of the three possible parts that DR participants can attest to. An alternative approach would be to draw a sample of
participants, again, by program and pilot, without distinguishing by what part of the three-part attestation applies. Such a sample design would imply that Tasks 1, 2, and 3 be collapsed into a single task. Sample sizes for this overarching sampling approach are shown below in Table 9-5. At a 90/10 levels of confidence and precision, this alternative approach results in 166 total sample points drawn across AP-I, BIP, CBP, and DRAM (assuming that there are 500 service points enrolled in DRAM through DRPs). This is in comparison to a total of 416 sample points chosen to support separate estimates of compliance for each part of the attestation. Since the majority of work required to evaluate the sample points in Tasks 1, 2, and 3 is deskwork, this approach is not likely to result in commensurate reductions in verification costs, and visibility into how compliance varies by attestation part will not be possible.

Table 9-5: Sample Sizes with No Sample Stratification by Attestation Part

<table>
<thead>
<tr>
<th>MOE</th>
<th>AP-I</th>
<th>BIP</th>
<th>CBP</th>
<th>DRAM (Strawman)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>80%</td>
<td>90%</td>
<td>95%</td>
<td>99%</td>
</tr>
<tr>
<td>1%</td>
<td>811</td>
<td>922</td>
<td>984</td>
<td>1055</td>
</tr>
<tr>
<td>5%</td>
<td>97</td>
<td>151</td>
<td>204</td>
<td>312</td>
</tr>
<tr>
<td>10%</td>
<td>26</td>
<td>42</td>
<td>59</td>
<td>98</td>
</tr>
<tr>
<td>15%</td>
<td>12</td>
<td>19</td>
<td>27</td>
<td>46</td>
</tr>
<tr>
<td>25%</td>
<td>5</td>
<td>7</td>
<td>10</td>
<td>17</td>
</tr>
</tbody>
</table>
Appendix A  Literature Review on Auditing in Other Industries

The principal objective of this project is to identify a practical method for verifying whether California DR participants are complying with the Commission’s order to refrain from using certain electricity generators (i.e., fossil fueled standby generators and topping cycle cogeneration machines) during DR operations. In support of this effort, Nexant undertook a review of administrative procedures used to enforce compliance with various governmental regulations and assess the effectiveness of enforcement efforts by departments responsible for those regulations. Enforcement procedures were examined for three federal agencies – the U.S. Securities Exchange Commission, the U.S. Environmental Protection Agency and the U.S. Internal Revenue Service.

The goals of the literature review were to review academic and government publications to determine:

- The likely effectiveness of different enforcement strategies; and
- The appropriate methods for calculating sample sizes sufficient to ensure reasonable confidence in the results of the audits

The review was completed by searching internet sites supported by Google, the US government’s websites supporting the Securities and Exchange Commission (SEC), the Environmental Protection Agency (EPA) and the Internal Revenue Service (IRS). We also searched websites operated by various national laboratories specializing in energy policy and websites operated by state and federal agencies governing the use and operation of emergency and on-site electricity generation. A wide range of search terms were employed including various combinations of terms: audit, investigation compliance, taxpayer, standby generation, effectiveness and sample size.

After reviewing the enforcement strategies used by these agencies, Nexant has concluded that modified version of the approach used by the U.S. IRS is best suited for enforcing the CPUC’s guidelines regarding the use of prohibited generation facilities during DR operations. This conclusion is based on the following considerations:

- The IRS audit mechanism (providing for risk based and random audits) is known to encourage compliance with IRS regulations regarding filing and income reporting;
- The IRS audit mechanism will minimize both the burden of the enforcement mechanism on program participants and the cost of enforcement;
- The IRS audit mechanism is capable of producing an accurate and reliable estimate of the extent of compliance with the Commission’s order; and
- Virtually all participants in the program will be familiar with the audit enforcement process used by the IRS and will likely appreciate the level of seriousness associated with the Commission’s guidelines and the likelihood that any violation they willfully engage in will be discovered and punished.
The evidence underlying these conclusions will be discussed as we review each enforcement regime in detail below.

A.1 The U.S. Securities and Exchange Commission (SEC)

The Securities and Exchange Commission is responsible for overseeing the functioning of the markets for publicly traded securities in the United States and other entities located outside the U.S. with substantial trading positions on US stock exchanges. Securities laws set forth a wide range of regulations regarding the actions that can be taken by parties engaged in securities trading (i.e., investment advisors, investment companies, brokers, dealers, and self-regulating organizations (stock exchanges).

The principal work of the SEC is the establishment of rules (and exceptions to rules) governing the services offered by different actors in the capital markets. Enforcement of the rules is a secondary, but still important function. To ensure compliance with these regulations, the SEC has established the Office of Compliance Inspections and Examinations (OCIE) which conducts the National Examination Program (“NEP”). OCIE’s mission is to protect investors, ensure market integrity and support responsible capital formation through risk-focused strategies that: (1) improve compliance; (2) prevent fraud; (3) monitor risk; and (4) inform policy. The results of OCIE’s examinations are utilized by the Commission to inform rule-making initiatives, to identify and monitor risks, to improve industry practices and to pursue misconduct.

The OCIE promotes compliance with the federal securities laws and regulations through outreach, publications, examinations, and, where appropriate, referrals to the Commission’s Division of Enforcement. The NEP employs what it calls, a risk-based inspection and examination program that continually collects and analyzes a wide variety of data about all registrants with the SEC using modern quantitative techniques. This risk analysis assists in the selection of registrants for on-site examination designed to provide timely, accurate, and reliable information to assist the NEP in fulfilling its mission. On-site examinations also help the NEP to maintain a critical presence with market participants.

SEC’s risk-focused approach to enforcement involves a combination of: investigations of tips and complaints, routine and special risk-targeted examinations and monitoring industry trends and developments. In essence, this approach to enforcement largely focuses on identifying registrants that may be breaking the rules using a combination of tips and investor complaints, compliance filings (e.g. 10-Ks) and industry trends reported in various media outlets. Its investigations do not target registrants unless and until there is reason to believe there may be a violation of the rules or when registrants are seeking changes to the rules that require investigation of impacts.

Nexant did not find any studies of the effectiveness of the SEC’s enforcement strategy. So, the effectiveness of this enforcement approach is uncertain. In our view, this rather passive enforcement strategy may not satisfy the Commission’s desire to discourage the use of prohibited generators during DR operations. It is clear that the penalties for violating SEC regulations can be very extreme including fines, suspensions and exposure to significant economic penalties resulting from litigation supported by negative SEC findings. Given the
limited economic consequences for violating the Commission’s prohibition against using certain generating resources during DR operations, and the fact that the enforcement mechanism does not produce an estimate of the compliance resulting from enforcement, we do not think the SEC’s targeted enforcement strategy will be useful in this case.

### A.2 U.S. Environmental Protection Agency (EPA)

In stark contrast to the enforcement mechanism employed by SEC, virtually all facilities operated by enterprises that require operating permits under the Environment Protection Act are required to be inspected (i.e., audited for compliance) in some cases annually and for most parties either every two years or every five years depending on their size and the nature of pollutants they discharge into the environment.

Evaluations (such as on-site inspections) are defined by each program and states and local agencies are required to conduct appropriate site investigations and records reviews to meet the national pollution attainment goals. Typically, each program has an inspection frequency schedule that recommends more frequent inspections for the larger facilities and less frequent for smaller facilities. Within the foregoing general approach to enforcement there are differences among the various programs managed by the EPA. Interestingly, the effectiveness of this common enforcement strategy varies significantly by program.

**Clean Air Act (CAA)**

The CAA requires that all facilities that are classified as major sources of air pollution (i.e. emit more that 10 tons of hazardous air pollutants in total annually) as well as certain other facilities must obtain operating permits that limit the quantities of air pollutants they can discharge; and require monitoring to ensure compliance with the permit limits. To ensure compliance with permitted operations, EPA established the CAA Stationary Source Compliance Monitoring Strategy (CMS). The CMS establishes national goals of conducting a full CAA compliance evaluation at major facilities. So-called mega-sites (i.e., the largest Title V permitted facilities must be inspected every two federal fiscal years. Smaller sites are audited every three years to five years depending on their size. The bottom line result is that all major sources of air pollution are inspected at least every five years and as often as every two years to ensure compliance with record keeping and operating limits.

This enforcement protocol results in annual inspections of approximately 14,000 of 42,000 (32%) of major sources each year of which about 1,000 (4%) are found to have major violations. In other words, this level of surveillance and severity of penalty (i.e., fines and possible cancellation of operating permits) produces a relatively high compliance rate of approximately 96%. While we have seen no reports that break out the cost of enforcement (for operators and the government) from the total societal cost of the CAA, it is safe to say that given the quantities of inspections undertaken each year, the costs of this strategy for ensuring compliance is significant for both the government and facility operators.

**Clean Water Act (CWA)**

The Clean Water Act regulates the discharge of water into the public streams, rivers and lakes in the United States. As in the case of the CAA, parties discharging water into public streams,
rivers and lakes are required to obtain a permit that strictly limits the quantities of pollutants that can be discharged and requires the maintenance of records describing the results of water quality monitoring and deviations from permitted operations.

As in the case of the CAA, the CWA the Compliance Monitoring Strategy (CMS) sets the national inspection frequency goals for all categories of dischargers in the National Pollutant Discharge Elimination System (NPDES) program. In administration and oversight of the NPDES program, EPA regulations establish some dischargers as "majors." All dischargers that do not meet the definition of "major" are commonly referred to as "non-majors." For example, publicly owned treatment works (POTW) classified as majors are those discharging equal to or greater than one million gallons of water per day. Non-majors include smaller POTWs and industrial dischargers, municipal storm water, construction storm water and concentrated animal feeding operations (CAFOs). The national inspection frequency goal for NPDES major facilities is for each to be inspected at least once every two years. The inspection frequency goal for traditional non-major facilities (POTWs with designed discharge flows of less than one million gallons per day and active minor industrial facilities) is at least one inspection of each facility every five years.

In 2016 there were 7,051 major facilities permitted under the CWA. Of those about 3,700 (~50%) were inspected in 2016 and of those about 1,500 (43%) were found to have at least one major violation. In 2016 there were about 234,000 non-major facilities permitted under CWA of which about 21,000 were inspected. About 10,000 of those facilities (47%) were found to have a Category 1 (significant) violation. It is clear and somewhat surprising that compliance with the CWA is much lower than compliance with the CAA. No explanations have been offered in the literature for the differential effectiveness of this enforcement strategy for the two programs.

**Resource Conservation and Recovery Act (RCRA)**

The RCRA authorizes the EPA to regulate the storage, transportation and treatment of industrial products and waste classified as hazardous. The act defines three basic types of entities handling hazardous materials. First there are government and private facilities involved in the transportation, storage and treatment of hazardous materials (e.g., landfills, incinerators, etc.). There are relatively few of these (i.e., about 700 nation-wide in 2016). Next there are facilities classified as large quantity generators (LQGs) – who, as the name suggests, are responsible for generating large quantities of hazardous waste. There are about 41,000 of these nation-wide. Finally there are small quantity generators (SQG) – a much larger number of enterprises (i.e., about 136,000) that handle small amounts of hazardous wastes.

The regulations require that TSDFs operated by federal, state and tribal government be inspected annually. Those operated by private parties are required to be inspected at least every two years.

The national goal for the RCRA program is that all Large Quantity Generators receive a comprehensive inspection every five years, with a goal of 20% of the universe per year. To improve environmental outcomes from its compliance assurance activities, each state may seek approval of an alternative inspection plan that allows flexibility from the obligation to inspect at
least 20% of its LQG universe each year. The state may use this flexibility to provide for compliance monitoring of smaller generators, transporters, non-notifiers, and/or other RCRA handlers. The details regarding the inspection of small generators are negotiated on a state by state basis.

The statistics concerning the effectiveness of the enforcement program for RCRA cannot be broken down by type of generator. In the aggregate, about 15,000 inspections were carried out in 2016 and 5,700 new violations were found among these inspections – a compliance rate of approximately 61%.

It is clear from the foregoing discussion that inspecting each and every permitted enterprise for compliance with environmental regulations produces mixed success in encouraging compliance. It produces nearly 100% compliance with air quality regulations but between 50% and 60% compliance with water quality and hazardous waste treatment regulations. It is also clear that investigating compliance with each and every permit produces a very clear record of the extent of compliance with regulations – a key requirement called for by the commission in identifying a validation methodology. However, it goes without saying that the cost of using this enforcement strategy is very high to both regulatory bodies and the enterprises that must follow the regulations.

A.3 The U.S. Internal Revenue Service (IRS)

Impacts of Auditing on Compliance

The literature concerning the impacts of auditing on taxpayer compliance is large and complicated. There are literally dozens of thoughtful studies of the impacts of audits on taxpayer compliance. These studies all show that the presence of an audit strongly increases taxpayer compliance. Key investigations supporting this proposition include Alm and Mckee (2006), Beer et. al. (2006), Blumenthal et. al. (2014), Plumley (1998), Germmel and Ratto (2002) and Alm et. al. (2007).

While there is little disagreement among these authors about the effectiveness (and necessity) of audits as an element in the tax collection process, there are a number of other aspects of the enforcement process that are necessary to ensure the effectiveness of auditing. Audits alter the likelihood that taxpayers will cheat (in voluntarily paying their taxes) by increasing the perception on the part of the taxpayer that they will be caught and punished. However, the evidence in the research summarized by Kirchler (2007) indicates that beyond this simple mechanism the effectiveness of the audit mechanism is thought to be influenced by:

- The taxpayers’ perception of their likelihood of being audited (a subjective probability that varies from taxpayer to taxpayer) – the more likely they think they will be audited, the greater the compliance;
- The economic consequences of being audited (i.e., fines and other punishments) – the larger the fines or other punishments the greater the compliance;
- The taxpayers’ perception of the legitimacy of the tax collection regime – compliance is greater for taxpayers who believe the government’s use of taxes is appropriate and fair;
• Attitudes toward taxes – compliance is greater for taxpayers who believe taxes are legitimate and properly used;
• The existence of social norms favoring or discouraging compliance with regulations.

Most of the foregoing aspects of the tax collection process have implications for ensuring compliance with the CPUC’s regulations regarding the use of forbidden generation resources during DR events; and to ensure compliance with its regulations, the verification program must be designed with these elements of the problem in mind.

For example, to elicit compliance with the new operating regulations, the DR program participants must be made aware that their use of prohibited generation resources may be discovered during an audit. Presumably imparting this information will be the responsibility of the utilities and aggregators at the outset of each operating season. Empirical results reported by Alm and McKee (2006) and Plumley (1998) suggest that the higher the audit rate, the greater the compliance. The IRS audits a very small fraction of annual returns at random (i.e., about 0.6%). It is estimated that about 70% of taxpayers accurately report their income at this audit rate. Based on an evaluation of the compliance rates from jurisdictions with different audit rates (i.e., states), it is estimated that raising the audit rate only a few percentage points (to about 3.5%) would raise compliance to approximately 94%. So, the compliance rate appears to be very sensitive to the audit rate. Now this is not to say that auditing 3-4% of DR participants will be sufficient to produce 94% compliance. The public probably greatly overestimates their likelihood of being audited. Moreover, the consequences of non-compliance (i.e., fines and jail) are also significant drivers of compliance.

As discussed in the next section, the number of audits that will be required to estimate the true compliance rate to within +10% with 95% confidence is quite small and probably less than may be desirable from the point of view of producing maximum compliance.

DR participants must also be informed of the punishment they will experience for violating the operating rules during the upcoming operating season. So far, punishment for violating the operating rules has not been discussed and will have to be agreed upon by utilities and the CPUC. A reasonable starting point would be forfeiture of all DR incentives paid for the season in which the audit occurred as well as prohibition from future participation in DR for a specific period of years (e.g., 2 years).

To ensure that DR participants believe that the operating rules are legitimate, a compelling rationale for the regulation must be developed so that all DR participants can understand why the prohibition was adopted and that all participants are being treated evenly in the application of the regulation. The responsibility for developing and disseminating this rationale could rest with the CPUC or the IOUs and aggregators.

The importance of social norms in this instance cannot be overemphasized. There are strong social norms in business favoring compliance with regulations. That is, most reasonable sized businesses do not usually violate governmental regulations. So, once customers understand the
requirements, they are unlikely to violate them to achieve whatever small gains are possible through DR participation.

**Determining Audit Sample Size**

Auditing to verify compliance with accounting and government regulations is a highly developed discipline in accounting and procedures for selecting samples for purposes of carrying out compliance audits are specified in guidance documents by the American Institute of Certified Public Accountants AICPA (2009). These guidelines generally follow conventional statistical reasoning and suggest appropriate sample sizes for detecting departures from accepted accounting procedures and rules. The guidance document generally recommends random selection of control units for testing and provides tables of sample sizes said to be sufficient to achieve High, Moderate and Low confidence in the results of sampling where high confidence is in the range of 90% to 95%. An important assumption made in calculating the required sample sizes in the guidance is that the true compliance rate is 100%.

Based on the review of compliance with IRS taxpayer rules, it is probably more appropriate to assume that true compliance in the population is less than 100%. Instead, it is more reasonable to assume that true compliance among DR participants is in the range of 80% to 90%. This will cause the required sample size for the audit to be larger than recommended by the AICPA guidelines. To calculate an appropriate sample size for the verification exercise it is appropriate to consult an authoritative sample design text book. There are many, but the one most commonly used in designing samples for business and surveying is by William Cochran (1977). In this text, formulae are provided for calculating required sample sizes for estimating proportions given assumptions about:

- The size of the population of interest;
- The expected incidence rate of the variable of interest (i.e., non-compliance);
- The acceptable rate of error in estimating the incidence rate from the sample; and
- The desired level of confidence in the measurement (e.g., 90%, 95%, 99%).

The formulae found in the text book are installed in dozens of commercially available calculators that are available on the internet and can be easily programmed in Excel to estimate appropriate sample sizes given reasonable assumptions about the above parameters.

**A.4 References**

“Audit Certainty, Audit Productivity and Taxpayer Compliance” by James Alm and Michael McKee; Andrew Young School of Public Policy Work Paper; 2006


Alternative Sampling Procedures

“The Impact of the IRS on Voluntary Tax Compliance: Preliminary Empirical Results”; by Alan Plumley; Proceedings of the 95th Annual Conference on Taxation; November 2002

“Behavioral Responses to Taxpayer Audits: Evidence from Random Taxpayer Inquiries” by Normal Germmell and Marisa Ratto; in National Tax Journal, March 2012

“Getting the word out: Enforcement information dissemination and compliance behavior” by James Alm et. al.; in Journal of Public Economics; 2008


“Audit Sampling Considerations of Circular A-133 Compliance Audits”; in GAS A-133 Guide; AICPA; 2009

Sampling Techniques: Third Edition; by William Cochran; Wiley; 1977

“Examining the Efficiency and Effectiveness of the U.S. Security and Exchange Commission”, U.S. Chamber of Commerce, Center for Capital Markets


Attachment B

Proposed Expedited Process for Dispute Resolution of Violations of the Prohibited Resources Policy
Attachment B

Proposed Dispute Resolution for Violations of Use of Prohibited Resources

Proposed Expedited Process for Dispute Resolution of Violations of the Prohibited Resource Policy
(To be Approved by the Resolution then Posted on the Commission’s website)

Definitions

Complainant: the aggrieved party that is a customer who is submitting a complaint requesting resolution of a dispute on either a Type I or a Type II violation against the use of prohibited resources.

Complaint or Notice: The notice that is requesting for a formal dispute resolution. The complaint shall contain the following:

- Specific dispute and the relief sought
- Express notice by the complainant that it is requesting resolution using the Commission’s Expedited Process as described in this Schedule.
- Relevant known facts pertaining to the dispute
- Efforts to date to resolve the dispute directly with the IOU

Day: a calendar day unless specified otherwise.

Expedited Prohibited Resource Dispute Resolution Process (“Expedited Process”): a process in which the California Public Utilities Commission’s Executive Director of Energy Division issues binding determinations on Prohibited Resources violations within 10 days of receiving the dispute. Determinations are made based on the recommendations of the Prohibited Resource Dispute Resolution Review Panel.

IOUs: Investor Owned Utilities: Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric Company (SDG&E) and Southern California Edison Company (SCE).

Prohibited Resource Dispute Resolution Review Panel (“Review Panel”): Energy Division shall choose a Review Panel of five members representing (1) Energy Division, (2) Office of Ratepayer Advocates, (3) Customer’s Third Party Aggregator (or IOU for direct enrolled or self-aggregated customers), (4) IOU Representative, and (5) Verification Administrator.

Third Party Aggregator: The third party service provider aggregates one or more service accounts of one or more end-use customers, for the purpose of participating in an IOU-administered demand response program.

Verification Administrator: The third party technical expert that conducts the verification process on the customer’s attestation of the use of prohibited resources.

Violations:

(1) Type I Violation:
   i. Invalid Attestation: This type of infraction includes mistakes that may be reasonably found to be clerical or administrative in nature, such as inaccurate representation in an attestation of a nameplate value of a prohibited resource or that no prohibited resource is on site, as long as the resource is not used to reduce load during a DR event. These instances of “Type I” infractions may be subject to a 60-day cure period for customer correction and third party aggregator validation. IOU or its Verification Administrator will notify the third party aggregators of any identified Invalid Attestation. Once notified, if the violation is not cured within 60 days, the participating account will be
Attachment B
Proposed Dispute Resolution for Violations of Use of Prohibited Resources

removed from this Schedule at the next regularly scheduled meter read date. Once removed from this Schedule, if the participating account is able to provide the IOU with a valid attestation at the time of re-enrollment, the participating account may re-enroll at any time, subject to availability of space for the program, which may subject the customer to going onto a waitlist.

ii. No Attestation: Any returning customer's participating account that does not agree to the prohibition or does not submit an attestation by December 31, 2017, will be removed from this Schedule no later than January 7, 2018, but will be eligible to re-enroll subject to the submittal of the attestation. Once removed from this Schedule, if the participating account is able to provide the IOU with a valid attestation at the time of re-enrollment, the participating account may re-enroll at any time, subject to availability of space for the program, which may subject the customer to going onto a waitlist.

(2) Type II Violation: Type II Violation is defined as a violation of the term(s) of its attestation when (a) the customer attested to the “does not have” or “no-use” provisions of the Prohibited Resource attestation, but is determined to have used a Prohibited Resource to reduce load during a demand response event, or (b) a participating account submits an invalid nameplate capacity value, within 5 kW or 10% of the attested nameplate capacity, whichever is greater. The IOU or its Verification Administrator will notify the third party aggregators of any identified Type II Violation. A participating account identified with a single instance of a Type II Violation shall be removed from this Schedule for one year, and must wait 12 months to be eligible to re-enroll in this Schedule and all other “affected DR programs,” subject to availability of space for the program, which may subject the customer to going onto a waitlist. A participating account with two or more instances of Type II Violation shall be removed from this Schedule for a period of three years, and must wait 36 months to be eligible to re-enroll in this Schedule and all other “affected DR programs,” subject to availability of space for the program, which may subject the customer to going onto a waitlist. “Affected DR programs” are all DR programs and pilots subject to the prohibition requirements in Decision 16-09-056.
Process Overview and Steps
The expedited prohibited resource dispute resolution process shall be administered by Energy Division and consist of the steps described in this section.

**Figure 1. Overview of the Expedited Process**

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
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</table>
| 1. | Applying for Expedited Dispute Resolution  
The complainant sends Energy Division a written notice ("complaint") requesting resolution of a dispute using the Expedited Process. |
| 2. | Eligibility Verification, Review Panel Selection, and IOU Response  
Within 3 business days, Energy Division notifies the IOU, complainant, and complainant’s aggregator, whether the dispute is eligible. For eligible complaint, Energy Division selects a 5-member Review Panel to review the complainant’s complaint and IOU’s response. |
| 3. | Review Panel Review & Recommendation  
Within 30 days of the Commission receiving the complaint, the Review Panel reviews the dispute over violation status and makes recommendations to the Executive Director. |
| 4. | Submitting Comments on Review Panel Recommendation  
The IOU, complainant, third party aggregator, and members of the Review Panel may submit written comments on the Review Panel’s recommendation within 10 days of its issuance. |
| 5. | Order from the Executive Director  
Within 30 days of receipt of the Review Panel’s recommendation, the Executive Director issues an Order to the IOU and/or complainant resolving the dispute. |
| 6. | Appealing the Executive Director’s Order  
The IOUs, complainant, third party aggregator, and members of the Review Panel seeking Commission review of the Executive Director’s Order shall submit the request for review within 10 days of the Order’s issuance. |
1. Applying for Expedited Dispute Resolution

Eligibility
If a customer is unable to resolve a dispute over the prohibited resource violation status after working with the IOU, the customer may file a notice with the Energy Division and seek to resolve the dispute using the expedited prohibited resource dispute resolution process approved in Resolution E-xxxx (tied to this AL). Customers are eligible to apply for dispute resolution within 10 days from the day the customer is notified of its violation status by the IOU, or the third party aggregator. A dispute may be considered eligible for the Expedited Process when there is an unresolved disagreement between the customer and IOU.

Application Process
To request resolution of a dispute via the Expedited Process, the complainant shall document the dispute in a written notice ("Complainant") from the complainant to the Energy Division Director. The notice shall contain the following:

- Specific dispute and the relief sought
- Express notice by the complainant that it is requesting resolution using the Commission’s Expedited Process as described in this Schedule.
- Relevant known facts pertaining to the dispute
- Efforts to date to resolve the dispute directly with the IOU

The complainant shall attach materials that may aid in review of the dispute, including a copy of any documentation and correspondence between the complainant, third party aggregator and/or IOU regarding the dispute. The Energy Division and the utility may request additional information from the customer and its aggregator. For treatment of confidential materials, please see Treatment of Confidential or Proprietary Information.

The notice shall serve the notice to Energy Division, IOU, complainant, complainant’s third party aggregator, and members on the Review Panel, according to the procedures outlined in “Service of Documents and Online Access to Information”.

Withdrawal
The complainant may withdraw its dispute from the Expedited Process at any time. If the complainant and IOU reach a settlement independent of the Commission, it is not necessary for the Commission to approve the settlement. Notices of withdrawal should be sent to the IOU, the complainant, the complainant’s third party aggregator, and members on the Review Panel (see Service of Documents and Online Access to Information).

2. Eligibility Verification, Review Panel Selection, and Initial Response from the IOU

Eligibility Verification
Energy Division will evaluate the complaint’s submission and notify the complainant and IOU of the dispute’s eligibility within three business days of receiving the request. For eligible disputes, the notice will contain the following:

- The date the application for dispute resolution was submitted to the Commission (this is the "start" date for the 60-day expedited procedures).
- Express notice that Energy Division has deemed the dispute eligible for the Commission’s expedited process.
- A unique dispute identification number. Energy Division will assign identification numbers sequentially, beginning with the first dispute.
- The names of the five members chosen by Energy Division to serve on the individual dispute’s Prohibited Resource Dispute Resolution Review Panel ("Review Panel").
Attachment B

Proposed Dispute Resolution for Violations of Use of Prohibited Resources

- A copy of the complainant’s written notice requesting resolution of the dispute, and any supplementary materials submitted.
- Notice to the IOU to review the materials submitted by the complainant and to submit any remaining documents in its possession to the Review Panel within five business days (see Initial Response from the IOU).
- Notice to the complainant and IOU that the Review Panel will complete its recommendation within 30 days of the date the Commission received the dispute, and there will be an opportunity to submit comments and/or reply comments on the recommendation.
- Notice to the complainant and IOU that the Executive Director will issue an order resolving the dispute within 30 days of the Review Panel’s recommendation, and there will be an opportunity to request Commission review of the order via a Draft Resolution within 10 days of the order’s issuance.

Review Panel Selection

Energy Division shall choose a Review Panel of five members representing the five parties below:

- Energy Division
- Office of Ratepayer Advocates
- Customer’s Third Party Aggregator (or IOU for direct enrolled or self-aggregated customers)
- Verification Administrator
- IOU Representative

Initial Response from the IOU

Upon receiving notice from Energy Division of the dispute’s eligibility, the IOU shall have five business days to present its view on the dispute in response to the complainant’s submission. The IOU’s response shall be sent to the Review Panel and shall include the relevant known facts pertaining to the dispute and a description of the efforts to date to resolve the dispute directly with the complainant.

The IOU shall also review the materials submitted by the complainant and submit any remaining or missing documents in its possession to the dispute’s Review Panel, including the complainant’s Prohibited Resource attestation form/agreement, any Prohibited Resource logs, and any relevant correspondence between the complainant and IOU regarding the dispute. For treatment of confidential materials, please see Treatment of Confidential or Proprietary Information. Such materials shall be provided within five business days upon receiving notice from Energy Division of the dispute’s eligibility.

3. Panel Review and Recommendation

The Review Panel shall review the dispute and make a recommendation to the Executive Director of the Commission within 30 days of the date the Commission received the dispute.

Review

The scope of the Review Panel’s review shall be limited to issues regarding the violation status of the use of the prohibited resources.

The Review Panel shall request any necessary documents from the complainant and IOU involved in the dispute beyond the documents initially provided. Both the complainant and the IOU shall supply the Review Panel with any needed information or materials within five business days of receiving the complaint for dispute resolution. Any IOU failure to produce documents in a timely manner shall subject the IOU to either forfeiture of its side of the dispute, and/or vice versa with the complainant of the dispute.

If either side fails to prepare materials in a timely fashion, the Review Panel can decide to make a decision based on whatever limited information is available.
**Recommendations**

The Review Panel is limited to making recommendations to resolve specific customer disputes and recommending associated corrective actions, and shall have no authority to assess penalties or credits.

The Review Panel’s recommendation shall include a summary of the facts of the dispute, a description of the panel’s review process, a recommendation for actions the Executive Director should take to resolve the dispute, and clear justification for the recommendation. The Review Panel shall include all relevant information necessary for the Executive Director to make an informed determination. The Review Panel shall include a record of any meetings or interviews conducted in the course of its investigation, and shall attach any documents it received through the course of its investigation.

The Review Panel shall take the time necessary to review the technical issues in a dispute and develop a well-reasoned recommendation.

The Review Panel is strongly encouraged to submit a consensus recommendation. If, however, the Review Panel cannot agree on recommendations, then each Review Panel member who chooses may submit a separate recommendation to the Executive Director, who shall make a final determination. In cases of non-consensus, Review Panel members with similar opinions shall submit joint recommendations where possible.

Once complete, the Review Panel members will attach signed statements affirming they have no employment or financial interest in the contested application (see “Review Panel Selection”) and will serve the recommendation to Energy Division, the IOUs, the complainant, the complainant’s third party aggregator, and members on the Review Panel according to the procedures outlined in “Service of Documents and Online Access to Information.”

**Exceptions to the 30-day Review Period**

In cases where more than 30 days of review are necessary to recommend a fair resolution to the dispute, the Review Panel may request the Executive Director grant an extension to the review period. The request for extension shall include justification for why the Review Panel believes more than 30 days of review are necessary.

The Review Panel shall request the extension if an extension is necessary and briefly describe the arguments for and against requesting an extension.

The Review Panel may request one extension of no more than 30 days. The Review Panel shall email extension requests to Energy Division, and shall copy the complainant and IOU.

**4. Submitting Comments on Review Panel Recommendations**

IOUs, complainant, complainant’s third party aggregator, and members on the Review Panel shall have the opportunity to submit written comments regarding the recommendation of the Review Panel. In order to allow the Executive Director time to consider any comments submitted, comments shall be served to Energy Division, IOUs, complainant, complainant’s third party aggregator, and members on the Review Panel according to the procedures outlined in “Service of Documents and Online Access to Information” within ten days of the date the recommendation is issued.

The IOU and complainant may reply to any comments via the same procedures within five business days of the date the opening comments are due.
5. Order from the Executive Director

The Executive Director shall have 30 days from receipt of the Review Panel’s recommendation to review the recommendation and to prepare an order to the IOU resolving the dispute. The Executive Director may direct staff to assist him/her in preparing the Resolution.

An order issued by the Executive Director that resolves a dispute will take the form of a letter from the Executive Director. The Order will contain the Executive Director's determination and analysis supporting such determination. The Order will summarize the facts of the dispute, summarize and discuss the Review Panel Recommendation and any comments submitted, present findings, and issue orders resolving the dispute to the IOU and/or complainant.

6. Appealing the Executive Director’s Order

The IOU, the complainant, complainant's third party aggregator, and the members of the Review Panel, may request Commission review of an Order within 10 days of its issuance.

The request must set forth specifically the grounds on which the requester considers the Order to be unlawful or erroneous. Requests for review should be emailed to the Energy Division Director.

Upon receiving the request, the Energy Division Director shall prepare and place on the Commission’s meeting agenda a Draft Resolution affirming the Order, or affirming the Order with modifications. For further information on the rules governing public review and Commission consideration of Draft Resolutions and Alternative Draft Resolutions, please refer to the Commission's Rules of Practice and Procedure. If affirmed by the full Commission, the vote of the Commission can be appealed.

If the IOU, complainant, complainant's third party aggregator, and member of the Review Panel appeals a Commission vote approving the Resolution Affirming the Executive Director’s Order, the expectation is that the dispute would be escalated to a formal complaint.
Service of Documents and Online Access to Information

Service of Documents
The Commission shall prepare its e-filing system to support the public comment process and the submission and posting of public documents associated with the Expedited Process. These documents include all written notices requesting resolution using the Expedited Process, Energy Division notices confirming or denying eligibility, Review Panel recommendations, comments, replies, Orders from the Executive Director, and requests for Commission review of an Order. Once the necessary modifications to the e-filing system are complete, public documents associated with the Expedited Process will be submitted, cataloged and distributed to the IOU, the complainant, the complainant’s third party aggregator, and members on the Review Panel in the dispute’s proceeding via the Commission’s e-filing system. A service list and docket will be created and posted on the Commission’s website for each dispute.

Dispute Distribution Lists
The default service list for any dispute proceeding shall include the following:

- Energy Division
- The applicant
- The utility
- Members of the dispute’s Review Panel (who shall be added once identified by Energy Division)

The Commission’s Process Office shall manage service lists for disputes.

Public Access to Documents
All written notices requesting resolution using the Expedited Process, Energy Division notices confirming or denying eligibility, Review Panel recommendations, comments, replies, Orders from the Executive Director, and requests for Commission review of an Order, are public records and open to public inspection, except as provided under statute or Commission order. Staff intends that all such notices be posted to the dispute’s Docket Card. Staff expects that the IOU, the complainant, the complainant’s third party aggregator, and the members on the Review Panel have the opportunity, through timely and efficient means, to inspect such documents, receive notice when such documents are issued, and find information on the status of any such document associated with a dispute.

Treatment of Confidential or Proprietary Information
Procedures for treatment and transfer of confidential information will be developed in accordance with applicable law and regulations, including Commission Decision 16-08-024. Confidential versions of documents must be submitted via hard copy and may not be filed using the Commission’s e-filing system. The Commission will consider whether Review Panel members shall sign nondisclosure agreements with relevant parties prior to reviewing confidential information.

Central Webpage for Expedited Process
Energy Division shall maintain a central webpage for the Expedited Process on its public website. The webpage will contain:

- Information about the Expedited Process
- Detailed instructions for submitting a dispute
- Instructions for treatment of confidential information
- A link to the location of documents related to specific disputes on the Commission’s e-filing system
- Instructions to be added to the “service list” for a dispute
- Point of contact for questions or comments about the Expedited Process
Attachment C

Proposed Tariff Language for the Prohibited Resources
Verification Plan and Dispute Resolution
Attachment C
Proposed Tariff Language for the Prohibited Resources Verification Plan and Dispute Resolution

Special Condition ##

Use of Prohibited Resources

e. DISPUTE RESOLUTION

(1) Definitions

**Complainant:** the aggrieved party that is a customer who is submitting a complaint requesting resolution of a dispute on either a Type I or a Type II violation against the use of prohibited resources.

**Complaint:** The notice that is requesting for a formal dispute resolution. The complaint shall contain the following:

- Specific dispute and the relief sought
- Express notice by the complainant that it is requesting resolution using the Commission’s Expedited Process as described in this Schedule.
- Relevant known facts pertaining to the dispute
- Efforts to date to resolve the dispute directly with the IOU

**Expedited Prohibited Resource Dispute Resolution Process (‘Expedited Process’):** a process in which the California Public Utilities Commission’s Executive Director of Energy Division issues binding determinations on Prohibited Resources violations within 60 calendar days of the Energy Division’s receipt of the notice. Determinations are made based on the recommendations of the Prohibited Resource Dispute Resolution Review Panel.

**Prohibited Resource Dispute Resolution Review Panel (‘Review Panel’):** Energy Division shall choose a Review Panel of five members representing (1) Energy Division, (2) Office of Ratepayer Advocates, (3) Customer’s Third Party Aggregator (or IOU for direct enrolled or self-aggregated customers), (4) IOU Representative, and (5) Verification Administrator.

**Third Party Aggregator:** The third party service provider aggregates one or more service accounts of one or more end-use customers, for the purpose of participating in an IOU-administered demand response program.

**Verification Administrator:** The third party technical expert that conducts the verification process on the customer’s attestation of the use of prohibited resources.

(2) Dispute Resolution Process

The following procedures will apply for disputes arising from the Dispute Resolution in this Schedule:

a) Scope

A dispute may be considered eligible for the Expedited Process when there is an unresolved disagreement between the Complainant and utility on which an independent panel of reviewers may provide resolution. The California Public Utilities Commission (Commission) has the authority to resolve disputes regarding the customer’s Type I or
Proposed Tariff Language for the Prohibited Resources Verification Plan and Dispute Resolution

Type II Violation status pursuant to this Schedule. The Commission’s Executive Director of Energy Division shall issue binding determinations on Prohibited Resources violations within 60 calendar days of receiving the dispute based on the recommendations of the Prohibited Resource Dispute Resolution Review Panel (“Review Panel”).

b) Procedures

Any dispute arising between the IOU, customer and/or third party aggregator acting on behalf of the customer, regarding the customer’s Type I or Type II Violation status under this Schedule shall be resolved according to the following procedures:

Expedited Process as defined on the Commission’s website

If a customer is unable to resolve a violation status dispute after working formally or informally with the utility or the third party aggregator, within 10 calendar days from the day the customer is notified of its violation status by the IOU, or the third party aggregator, the customer may act as a Complainant and file written notice with Energy Division of Commission and seek resolution of the dispute using the Expedited Distribution Prohibited Resource Dispute Resolution process as defined in Resolution E-XXXX and on the Commission’s website. Under the expedited procedures, the Energy Division shall appoint a 5-member Review Panel to review the disputes and provide recommendation for resolution. Then, Executive Director of Energy Division shall prepare an Order resolving the prohibited resource violation dispute to the Complainant, the utility, and/or the third party aggregator, if applicable, within 60 calendar days from the time the Complainant is formally filed. The Order shall be based on the recommendation of the Review Panel selected by the Commission. Either party has an opportunity to request Commission review of the order via a Draft Resolution within 10 calendar days of the issuance of the Order.

Please refer to Resolution E-XXXX for more information and instructions for applying to the Commission for expedited dispute resolution. Information can also be found on the Commission’s website at [XXX].cpuc.ca.gov.

Either party may file a formal complaint before the Commission pursuant to California PUC section 1702 and Article 4 of the Commission’s Rules of Practice and Procedure.

Nothing in this section shall be construed to limit the rights of any party to exercise rights and remedies under Commission law.

(3) Eligibility for Participation During Dispute

Customer who is to be removed or removed from this Schedule due to either Type I or Type II Violation will remain ineligible for this Schedule and all other “affected DR programs” during the Dispute Resolution process.

“Affected DR programs” are all DR programs and pilots subject to the prohibition requirements in Decision 16-09-056.

*utility will be replaced with the name of the IOU in the final tariff version.
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*PG&E Gas and Electric*  
Advice Filing List  
General Order 96-B, Section IV