



California Public Utilities Commission December 20, 2021

Guide to CPUC's Load Impact Protocols (LIP) Process Version 2.0

Table of Contents

A.	Introduction and Purpose of This Guide.....	1
B.	Background	1
C.	Best Practices for LIP Filings.....	4
D.	Filing Schedule for LIP Reports.....	9
E.	Process for Updating DR Resource QC During RA Compliance Year.....	10
F.	Quarterly Test Results	12
G.	Using Templates	13

Tables

Table 1: Schedule for Obtaining Demand Response Qualifying Capacity Through the Load Impact Protocols	9
Table 2: Schedule for Submitting Bi-Annual Updates for Qualifying Capacity	11
Table 3: Sample Table Generator	14

A. Introduction and Purpose of This Guide

The Guide to the CPUC's Load Impact Protocols (LIPs) Process (Guide) is a compilation of the Energy Division's interpretation of the CPUC's Decisions in Resource Adequacy (RA) and Demand Response proceedings. This Guide is intended to serve as a convenient reference point for Demand Response Providers (DRPs) and Load Serving Entities (LSEs) interested in seeking Resource Adequacy-eligible Qualifying Capacity (QC) for their Demand Response (DR) resources.

This Guide will be updated periodically to reflect current Decisions and requirements. Although the Guide is organized for quick reference, the filing party is encouraged to read the entire Guide and associated LIPs to become familiar with its contents. To the extent that this Guide is incomplete or does not address a particular issue that the DRP or LSE may discover, they are encouraged to read the related CPUC Decisions or to contact the Energy Division staff.

Inquiries on the Load Impact Protocols can be directed to Andrew.Magie@cpuc.ca.gov and LoadImpactProtocolsInfo@cpuc.ca.gov.

Resource Adequacy inquiries can be directed to Natalie.Guishar@cpuc.ca.gov.

B. Background

The Load Impact Protocols (LIPs) and the LIP filing requirements to obtain Resource Adequacy (RA)-eligible Qualifying Capacity (QC) for DR resources were adopted by [D.08-04-050](#)¹ and prescribe a set of guidelines for estimating the impact on load (or load change) resulting from Demand Response activities. These guidelines established a consistent method for measuring program performance across DR resources and for forecasting anticipated performance. The resulting estimates are used to analyze the cost-effectiveness of DR resources and for other CPUC activities such as the resource adequacy framework and long-term integrated resource planning.

The LIPs also define the minimum data outputs needed to understand the impact of a resource and statistical measures to assist in determining the accuracy of these impact estimates. The LIPs allow flexibility on the part of the load impact evaluators to choose methodologies which are both feasible for and suitable to the type of DR activity being analyzed. The protocols allow the evaluators to define any additional purposes and needs of a particular evaluation beyond the minimum required data. To the extent appropriate, the

¹ "Decision Adopting Protocols for Estimating Demand Response Load Impacts," in R. 13-09-011

protocols provide direction and guidance on what methods might be appropriate in different situations and raise issues that evaluators should consider when choosing their methods.

The LIP filing requirements were subsequently modified by [D.10-04-006](#),² which required parties to submit all LIP-associated filings to the Energy Division and to serve them to parties of the specified service list, instead of filing to the proceeding. In [D.14-03-026](#),³ the CPUC established that all event-based DR programs must be market integrated. In [D.16-06-045](#), the CPUC granted a temporary exemption from the LIPs for all market-integrated third-party DR resources that were being bid into the market by the DRP for the 2017-2019 RA compliance years. During that period, contract capacity was used in lieu of LIPs, to establish RA eligible QC values for the above resources. In [D.19-06-026](#),⁴ the CPUC recognized the expiration of this exemption and noted that LIPs were once again required for determination of QC values for all market-integrated DR resources, whether third-party DRP or LSE-managed, except for resources participating in the Demand Response Auction Mechanism (DRAM) pilot in 2020-2023, where an alternative counting method is in place.⁵

On December 13, 2019, the Energy Division initiated a LIP process for third-party DRPs, in addition to the IOUs, to obtain QC values through LIP filings beginning in 2020. Parties submitted comments on December 27, 2019, and the Energy Division released an updated LIP schedule and requirements on January 3, 2020.

On February 2, 2020, the Energy Division clarified that, for any current or future LSE solicitations for market-integrated DR capacity, the LIPs for the DR resources being bid into the solicitation need not be completed prior to the solicitations. However, after the solicitation, all contracted RA capacity on the year ahead and month ahead CPUC RA filings must be supported by the Energy Division-approved QC values established for the contracted year (N) via a completed LIP process in the prior year (N-1).

In [D.20-06-031](#),⁶ the CPUC adopted a process to update the QC of market-integrated DR resources up to two times a year to reflect changes in customer enrollments *during* the RA compliance year, provided that the requested changes vary by more than 20 percent, or 10 MW, whichever is greater. The CPUC also directed a re-formation of the Supply Side Working Group (SSWG) to “(1) define the details of the biannual process; (2) further study the LIPs and

² “Decision Modifying Demand Response Load Impact Report Annual Filing Requirements,” in R. 07-01-041

³ OP 3 at 28, “Decision Addressing Foundational Issue of the Bifurcation of Demand Response Programs,” in R. 13-09-011: “Supply resources are defined as resources that are integrated into the California Independent System Operators energy markets.”

⁴ “Decision Adopting Local Capacity Obligations for 2020-2022,” in R. 17-09-020.

⁵ D. 19-06-26 at 41-42

⁶ “Decision Adopting Local Capacity Obligations for 2021-2023, Adopting Flexible Capacity Obligations for 2021, and Refining the Resource Adequacy Program,” in R. 19-11-009

potential enhancements to improve the accuracy, transparency, and applicability of the methodology; and (3) re-evaluate the QC update threshold (20 percent, 10 MWs) for potential future updates.”⁷ The Decision directed the SSWG to submit its recommendation for items (2) and (3) into Track 4 of R. 19-11-009.

For item (1), the Energy Division and the California Efficiency and Demand Management Council (CEDMC) each submitted a proposal on the bi-annual QC update process on October 15, 2020. On October 19, 2020, Energy Division held a SSWG meeting, after which the CEDMC submitted a revised proposal on October 19, 2020.

On February 10, 2021, the Energy Division released the final process and schedule for the QC update process for filing year 2021 as part of this Guide (version 1.0). The Guide was subsequently updated on May 7, 2021, and it is now being re-issued as version 2.0 with updates for 2022 and subsequent years.

⁷ OP 16 at 93-94, “Decision Adopting Local Capacity Obligations for 2021-2023, Adopting Flexible Capacity Obligations for 2021, and Refining the Resource Adequacy Program,” in D. 20-06-031

C. Best Practices for LIP Filings

Procedural

1. Follow all filing deadlines, content requirements, and reporting templates as directed in Protocols 26 and 27.
2. The evaluation protocols for all DR resources are defined in the LIPs. Alternative methods to calculate LIPs are outside the scope of this document. Proposals for alternative methods should be filed in the relevant proceeding.
3. Consistent with reporting requirements established in Ordering Paragraph (OP) 4 of [D. 08-04-050](#), parties are to submit their LIP-associated filings to the Energy Division and serve the files to the relevant service lists and to the Demand Response Measurement Committee (DRMEC).⁸ Filings containing confidential information⁹ can be served to the [Energy Division's KiteWorks Secure File Transfer Protocol \(SFTP\)](#) website by emailing them to LoadImpactProtocolsInfo@cpuc.ca.gov.

Report Requirements

1. Meeting the minimum data and analysis requirements is a pre-requisite for establishing confidence in the LIP Final Report:
 - a. Follow the LIP guidance on how to control for uncertainty that may result from the estimation methods and/or underlying variables when conducting evaluations (for example, appropriate sample sizes, sampling strategy, etc.)¹⁰
 - b. Understand that the goal of impact estimation is to establish a causal relationship between the DR resource and the load impact.
 - c. If creating a control group is not possible, utilize probability distributions associated with key drivers of the resource and reasonable assumptions, as prescribed by the LIPs.¹¹

⁸ The service lists are R. 19-11-009, A. 17-01-012, and the DR and RA proceedings current to the LIP filing year. The e-mail for the DRMEC is drmec@calmac.org.

⁹ Including materials that contain proprietary, market-sensitive information.

¹⁰ Protocol 5, Section 4.1.2: "The mean change in energy use per year shall be reported for the average across all participants and for the sum of all participants on a DR resource option for each year over which the evaluation is conducted."

And Protocol 6: Estimates shall be provided for the 10th, 30th, 50th, 70th and 90th percentiles of the change in energy use in each hour, day and year, as described in Protocols 4 and 5, for each day-type and level of aggregation described in Protocol 8."

¹¹ Protocol 16, Section 6.1: "For regression based methods, the following statistics and information shall be reported: (1) Adjusted R-squared or, if R-squared is not provided for the estimation procedure, the log-likelihood of the model, (2) Total observations, number of cross-sectional units and number of time periods, (3) Coefficients for each of the parameters of the model, (4) Standard errors for each of the parameter estimates, (5) The variance-covariance matrix for the parameters, (6) The tests conducted and the specific corrections conducted, if any, to ensure robust standard errors, (7) How the evaluation assessed the accuracy and stability of the coefficient(s) that represent the load impact."

2. All measurements of DR resource capacity or energy should be reported at the premise meter level and should exclude any adjustments for Distribution Loss Factor (DLF), Transmission Loss Factor (TLF), or Planning Reserve Margin (PRM).
3. Ex-ante and ex-post table generators should provide a breakdown for each hour according to each Local Capacity Area (LCA) matched to sub-Load Aggregation Points (sub-LAPs) at both the program and portfolio levels.
4. Ex-ante table generators must provide projections under both CAISO and utility weather 1-in-2 and 1-in-10 conditions.¹²
5. All ex-post and ex-ante tables must include a separate tab containing the raw data inputs that inform the table generators.
6. All ex-post and ex-ante projections must *exclude* any adders or adjustment factors such DLF, TLF, or PRM.
7. The following summary information should be included within the first page of the Executive Summary of the LIP report (please repeat the table as needed):

Ex-Ante Projections for Qualifying Capacity (Insert Year Here) Under 1-in-2 Utility Weather Conditions						
As of August	Scenario #1		Scenario #2		Scenario #...	
Local or System Capacity Allocation	Number of Customers	MWs	Number of Customers	MWs	Number of Customers	MWs
(If local, state the utility name; if system, state the TAC area ¹³)						

8. The summary section should include an attestation by the DRP that for the any given ex-ante month included the LIP report, the customers who are being counted for the ex-ante projected capacity (associated with the DR program for which the QC is being requested) are distinct from (and incremental) to the customers counted by the DRP for any other DR program commitments (such as, DRAM, IOU CBP/BIP, other DR procurement contracts) in the same month.
9. Summary of key program attributes of DR contracts with CCAs related to availability (# of hours in a day/month/year, continuity, consecutive days),

¹² Per Protocol 22, Section 6.1

¹³ [Transmission Access Charge](#) area

performance obligations, energy and capacity invoicing and payment terms, and penalties for non-performance or not meeting commitments.

10. Third-party DRPs should include the following information in the report summary, as well as in a separate tab in the ex-ante table generator (MWs should exclude any adders or adjustments):

	DRP (below) = Third-party DRP	2020	2021	2022	2023
1	Total August capacity awarded to DRP by the IOUs under DRAM?				
2	Total August DRAM capacity shown by the DRP on month-ahead supply plans?				
3	How much of the DRAM capacity in #2 above was invoiced as Demonstrated Capacity? (%)				
4	Total August DR capacity contracted by the DRP with non-IOU LSEs (such as, CCAs)?				
5	Total August capacity (related to #4 above) shown by the DRP on month-ahead supply plans?				
6	Total August capacity nominated (or to be nominated) by DRP into the IOU CBP				
8	Total August capacity enrolled (or to be enrolled) by the DRP into IOU BIP				
9	Total DR August capacity contracted by the DRP under other IOU procurement programs				

10	What is the aggregate August QC (under utility 1 in 2 conditions) requested via LIP process for 2023 – please indicate which scenario this QC applies to	MW	
11	Is the requested August QC for 2023 (via LIP process) in #10 inclusive of capacity associated with DRAM or IOU programs? If yes, please indicate how much capacity is associated with DRAM or IOU programs.		
12	What portion of the August QC requested for 2023 in #10 is already under contract (MW and %), presumably still contingent on Energy Division's determination of DRP's QC request?	MW	%

Analysis

1. The Protocols require a forecast exercise using the relevant Utility's 1-in-2 and 1-in-10 weather scenarios. To obtain these scenarios, please contact the following:

Gil Wong, PG&E: gil.wong@pge.com

Prapti Gautam, SCE: prapti.gautam@sce.com

Leslie Willoughby and Lizzette Garcia-Rodriguez, SDG&E:
leslie.willoughby@sdge.com and lgarcia-rodriguez@sdge.com.

2. A reference load measured at the premise level should attempt to establish a causal relationship between a load reduction and the dispatch of a DR event.¹⁴
3. If estimates are needed for scenarios that differ from those that have already occurred, refer to the guidance on alternative methods and explain them.¹⁵

New DR Resources

1. If submitting a study on new DR resources, the filing party may reference the available data that best approximates the anticipated performance of the new resources, either published data or the party's own historical performance for similar resources.¹⁶
2. When proposing new market integrated DR resources, a preferred practice is for the DRP to conduct pilots or participate in a Utility program as an aggregator to establish market dispatch history that is specific to California.

Data Quality Considerations

1. If no data exists, follow the guidelines on how to turn unobservable characteristics into observable ones.¹⁷
2. When sufficient data from the DR resource for the LIP filing doesn't exist, considerations as to whether alternative data planned to be use are "reasonable"
 - a. California data should be used unless all other options are exhausted.
 - b. Only like-for-like comparisons should be made. E.g., a resource previously performing under a BIP tariff is unlikely to have the same performance in a CBP-like program.
3. If, per the evaluator's determination, the existing data is not sufficient, document the differences and explain why the estimation was not possible.¹⁸

¹⁴ For example, an energy dispatch from a storage device could be responding to time-of-use management, instead of a DR event. Alternately, a premise's load may increase, which would reduce the portion of the load measured from the storage device. In either case, direct metering would not be able to establish causality.

¹⁵ Protocol 16, Section 6.1

¹⁶ Protocol 17, Section 6.1: "Whenever possible, ex ante estimates of DR impacts should be informed by ex post empirical evidence from existing or prior DR resource options. Evidence from resource options and customer segments most relevant to the ex ante conditions being modeled should be used, regardless of whether they come from the host utility or some other utility. If ex post estimates or models are not used as the basis for ex ante estimation, an explanation as to why this is the case shall be provided."

¹⁷ Protocol 16, Section 6.2.2

¹⁸ Protocol 17, Section 6.1

4. Ideally, to establish confidence in a DR resource's ability to meet the minimum RA requirements: 1) the ex-post data should include evidence of load impacts sustained over multi-hour events, multiple times per year, under different conditions, including performance over four consecutive hours and three consecutive days, with 2) ex-ante data that includes fatigue considerations.
5. A LIP-guided record of DR resource performance should be developed over the years so that subsequent LIP filings can track performance over time.

Third-Party DRP Contract and Market Participation

1. DRPs may enter into a contract with an LSE that is not subject to the Central Procurement Framework¹⁹ for three years of Local Resource Adequacy based on the Qualifying Capacity (QC) assigned to them for the first year.²⁰
2. Consistent with the Energy Division Guidance on applying LIPs to IRP Solicitations released on February 18, 2020, LIPs for the DR resources being bid into the solicitation need not be completed prior to the solicitations. However, subsequent to the solicitation, all contracted RA capacity on the year ahead and month ahead CPUC RA filings must be supported by Energy Division-approved QC values established for the contracted year (N) via a completed LIP process in the prior year (N-1).

Parties offering DR resources into current and future solicitations are advised to complete their LIPs in anticipation of any future solicitations of interest.

3. While the Energy Division is providing the above guidance, it is each DRP's responsibility to ensure that its potential countersigners or partners are aware of potential risks associated with the outcome of the LIP process.

As directed by D. 14-03-026, DR resources bid into the CAISO's wholesale market are considered supply-side DR resources (SSDR). These resources can be counted for RA and receive RA capacity payments, accompanied by a Must-Offer Obligation. DR resources that are not bid into the CAISO market are incorporated into the California Energy Commission's (CEC) peak demand forecasts through its Integrated Energy Policy Report (IEPR).²¹ These forecasts subtract the value of the load-modifying demand response resources²² from a LSE's peak demand, thus reducing the LSE's annual RA procurement obligations.

¹⁹ D. 20-06-002 in R. 17-09-020, "Decision on Central Procurement of the Resource Adequacy Program."

²⁰ The three-year forward Year Ahead Local Resource Adequacy requirement was adopted in [D. 19-02-022](#). This capacity is granted in the first year is based on the DRP's LIP Final Report filing on April 1, 2020.

²¹ IEPR values are adopted in the year after each forecast, while updates are approved two years thereafter (T+2). For example, the 2019 IEPR (T) was adopted on February 20, 2020 (T+1) and updated values will be approved at the March 17, 2021 meeting (T+2).

²² Per D. 14-03-026, LMR demand response are "resources that reshape or reduce the net load curve."

D. Filing Schedule for LIP Reports

Beginning in 2022, all filing deadlines are the same for IOUs and third-party DRPs.

Table 1: Schedule for Obtaining DR QC Through the LIP Review Process

Filing Requirement (Third-Party DRPs and/or LSEs ²³)	Deadline for Filing Year 2022+ (RA Year 2023+)
1. Draft Evaluation Plan distribution to service lists ²⁴ and to the DRMEC ²⁵	October 29 – December 31, 2021
a. Stakeholders and DRMEC comment on Draft Evaluation Plan via service lists	15 days after submission of Item 1.
b. Filing Party publishes a summary of comments from the DRMEC and stakeholders, and how they are addressed. ²⁶	No date requirement.
2. Draft LIP Report due to service lists, filing to include item 1b	March 11, 2022
a. Stakeholders, parties, and DRMEC comment on draft LIP Report via service lists	March 25, 2022
3. Final LIP Report due (including responses to comments) via service lists	April 1, 2022
a. Host LIP Report workshop	April 29 + May 2, 2022
4. Energy Division DR Section begins review of LIP filings	May 2022
5. Initial RA requirements assigned to Load Serving Entities (LSEs)	June 2022
6. Energy Division DR Section finalizes DR QC assignments	September 2022
7. Energy Division RA section assigns final RA requirements to LSEs	
8. Third-Party DRPs submit names of capacity buyers and associated MWs to Energy Division RA and DR Sections	October 2022
9. LSEs submit RA Year-Ahead compliance filing to the Energy Division RA Section	October 28, 2022

²³ Load Serving Entities including Investor-Owned Utilities (IOUs)

²⁴ R. 19-11-009, A. 17-01-012, and the DR and RA proceedings current to the LIP filing year.

²⁵ The email address for the Demand Response Measurement and Evaluation Committee is drmec@calmac.org.

²⁶ The party filing the evaluation plan is responsible for publishing a small summary of comments received and how or if they were incorporated into the final evaluation plan for each load impact study. The final evaluation plan will be made available to Joint Staff and parties upon request. (LIP 27, Section 10.1.3 at 147.)

E. Process for Updating DR Resource QC During RA Compliance Year

Beginning with 2021, two opportunities are available *during* the RA compliance year to update the QC values for DR resources qualified through the LIP process in the previous year:²⁷

- April 1 (for delivery beginning in July of the RA compliance year)
- July 1 (for delivery beginning September of the RA compliance year)

The update process is described below and summarized in Table 2.

1. For third-party DRPs, an update filing during the RA compliance year is *required* when the current capacity of the DRP's DR resource portfolio falls below the threshold of 20% below or 10 MW less than the QC value of the resource portfolio assigned through the prior year LIP process.
2. For third-party DRPs, an update filing is also *required* during the RA compliance year when:
 - a. The current capacity of the DRP's DR resource portfolio increases above the threshold of 20% or 10 MW greater than the assigned QC value **and**
 - b. The DRP plans to sell the incremental capacity to an LSE during the RA compliance year.
3. For third-party DRPs, an update filing is *optional* when:
 - a. The current capacity of the DRP's DR resource portfolio increases above the threshold of 20% or 10 MW greater than the assigned QC value **and**
 - b. The DRP has no plans to sell the incremental capacity to an LSE during the RA compliance year.
4. For IOUs, an update filing is *optional* when:
 - a. The current capacity of the LSE's DR resource portfolio increases above the threshold of 20% or 10 MW greater than the assigned QC value **and**
 - b. The IOU has no plans to increase the RA allocation assigned to the DR resources in the RA compliance year.
5. An update filing must utilize the "QC Update" standardized template and include the following information:

²⁷ OP 15 D. 20-06-031: "The following clarifications to the Load Impact Protocol (LIP) process for third-party demand response (DR) resources are adopted: (a) Ex post and ex ante load impacts are required at the subLoad Aggregation Point level. (b) Mid-year updates are permitted to reflect changes in customer enrollment if the change is reasonably large. In the compliance year, on a biannual basis, Energy Division shall update qualifying capacity (QC) values based on the actual customer enrollment volume associated with that resource in the California Independent System Operator's Demand Response Registration System. LIP results will be updated if QC values vary by more than 20 percent, or 10 MW, whichever is greater."

- a. Average per-customer ex-ante load impact for each sub-Load Aggregation Point (sub-LAP) from the last approved LIP results for the applicable RA delivery months.
 - b. Current customer enrollment in the CAISO Demand Response Registration System (DRRS) at the time of QC update request (in aggregate and by sub-LAP).
 - c. The ex-ante enrollment forecast from the last approved LIP results for the applicable RA delivery months.
 - d. Updated enrollment forecast, including all active and inactive locations as indicated by the CAISO DRRS.
6. The QC update request for the applicable RA delivery months shall be made as follows:
- a. Updated QC (in RA month N) = Actual customer enrollment (from CAISO DRRS in month of request) + Projected enrollment growth (for RA month N, per the last approved LIP results)) x Average ex-ante load impact per customer (from the last approved LIP results).
 - b. Updated QC allocation aggregated by sub-Load Aggregation Point (sub-LAP) level, mapped to individual resource IDs.²⁸
 - c. Indicate the proportion by which the MW value has changed on a portfolio level.

Table 2: Schedule for Submitting Bi-Annual Updates for Qualifying Capacity

Applicable to All IOUs and Third-Party DRPs	Updates for 2022 RA Year
1. Table of revised information as prescribed earlier, containing changes that meet either an increase or decrease of 20% or 10 MW of a portfolio's QC value.	April 1, 2022 (for delivery beginning in July 2022)
2. Table of revised information containing changes that meet either an increase or decrease of 20% or 10 MW of a portfolio's QC value since the filing in Item 1.	July 1, 2022 (for delivery beginning September 2022)

²⁸ Per D. 20-06-031 at 45. This information is used by CAISO to update its Customer Interface for Resource Adequacy (CIRA) system.

F. Testing Requirements

All DR resources must abide by the testing requirements set in D.14-06-050. Beginning with 2021, [D.20-06-031](#) established specific testing requirements for third-party DR resources procured by all Non-IOU Load Serving Entities.²⁹ The testing requirements for third-party DR resources procured by all non-IOU LSEs include:

1. The DR resources must be dispatched for four consecutive hours in the RA window at least once every quarter.³⁰
2. This requirement can be fulfilled either through a CAISO market dispatch or an out-of-market test with a preference for market dispatches.³¹
3. The quarterly dispatch must be done at the Resource ID (RID) level and all resources within the same Sub-Load Aggregation Point (Sub-LAP) must be dispatched concurrently.³²
4. Performance must be averaged over the four consecutive hours for each day.³³
5. The Scheduling Coordinator (SC) must submit the performance result for the quarterly dispatch to the DR buyer, DR provider, Energy Division, and the CAISO by the end of the quarter following the quarter in which the dispatch occurs.³⁴
6. The third-party DRPs must include the performance results of 4-hour dispatches in the LIP Reports submitted to the CPUC.³⁵
7. All DR resources belonging to a third party DRP for which results are not timely provided will be ineligible for RA showings until the results are submitted. If the DRP is unable to provide results by the appointed date due to inability to access the required meter data, they may submit documentation showing efforts to acquire the supporting data.³⁶

²⁹ Per D.20-06-031, OP 13 (testing requirements) and 14 (submitting results of test).

OP 13(a): "The DR resource must dispatch for four consecutive hours during the Resource Adequacy measurement hours in every quarter of the delivery year."

OP 13(b): "The test must be done at the resource ID level and all resources within the same sub-Load Aggregation Point must be dispatched concurrently."

OP 14(a): "The scheduling coordinator shall submit the test results to the DR buyer, DR provider, Energy Division, and the California Independent System Operator by the end of the quarter following the quarter in which the test dispatch occurs."

OP 14(b): "Third-party DR providers shall submit the test results in their Load Impact Protocol analysis and reports submitted to the Commission."

³⁰ Per D.20-06-031, OP 13(a)

³¹ Per D.20-06-031, p.40

³² Per D.20-06-031, OP 13(b)

³³ Per D.20-06-031, p.41

³⁴ Per D.20-06-031, OP 14(a)

³⁵ Per D.20-06-031, OP 14(b)

³⁶ Per D.20-06-031, p.41

8. All quarterly dispatch results and/or documentation of efforts to acquire the supporting data should be submitted to Energy Division (by the end of the quarter following the quarter in which the dispatch occurs) at LoadImpactProtocolsInfo@cpuc.ca.gov.

G. Using Templates

Protocol 26³⁷ of the LIPs details the required content of the reports, while Protocols 4-25 describe the output requirements and formats. Table 9-1 contains a template for ex-post estimation; Table 9-2 displays a template for ex-ante estimates.³⁸

In Table 1 below we provide an example of a preferred table generator format for ex-post and ex-ante results. This format allows for more efficient review of report outputs. A few elements are important to note:

1. The primary “Results” tab displays the underlying data found in the Summary, Lists, Enrollment, and Data tabs.
2. Underlying data tabs that support the primary “Results” tab must be included in the filing.
3. Pull-down menu options under each category shows several options:
 - Type of Results: Aggregate or average
 - Portfolio: Portfolio or Program Specific
 - Electric System: Relevant Utility or CAISO
 - Day Type: Monthly System Peak Day or Typical Event Day
 - Weather Year: 1-in-2 or 1-in-10
 - Forecast Year: Begins with Resource Adequacy Year (N) and (N+X, where X is each year thereafter for ten years [years 1-10]).
 - LCA: Relevant Local Capacity Areas for the relevant Utility
 - Sub-LAP: Sub-Load Aggregation Points for the relevant Utility
 - Month: Each month of the year

³⁷ Per Protocol 26 at 42

³⁸ At 143 and 144, respectively.

Table 3: Sample Table Generator

Microsoft Office Home | VMWare Horizon | connect.cpuc.ca.gov/portal/webclient/index.html#/desktop | SDG&E Filing Year (FY) 2019 Small Commercial and Industrial Critical Peak Pricing (CPP) Ex-Ante LI Tables (1) - Excel | Guishar, Natalie

File Home Insert Page Layout Formulas Data Review View Help Content Server Search

A15

Table 1: Menu options

Type of results	Aggregate
Portfolio	Portfolio
Electric System	CAISO
Day Type	MONTHLY SYSTEM PEAK DAY
Weather Year	1-in-2
Forecast Year	2022
Month	August
Event Window	1 to 6 pm

Table 2: Event day information

Total enrolled accounts	97,630
Load reduction 1 to 6 pm (MW)	4.46
% Load reduction 1 to 6 pm	1.2%

Hour ending	Reference load (MW)	Estimated load w/	Load reduction	% Load reduction	Weighted temp (F)	Uncertainty adjusted in				5th	10th	30th	50th	90th	95th	99th
						5th	10th	30th	50th							
1	159.14	159.14	0.00	0.0%	74.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	153.57	153.57	0.00	0.0%	73.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	149.72	149.72	0.00	0.0%	72.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	148.23	148.23	0.00	0.0%	72.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	150.30	150.30	0.00	0.0%	71.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	160.62	160.62	0.00	0.0%	71.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	177.20	177.20	0.00	0.0%	71.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	205.47	205.47	0.00	0.0%	72.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	255.38	255.38	0.00	0.0%	75.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	307.86	307.86	0.00	0.0%	80.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	348.61	348.61	0.00	0.0%	84.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	373.29	369.90	3.39	0.9%	86.6	4.86	4.54	3.86	3.39	2.92	2.23	1.91				
13	381.26	377.99	3.27	0.9%	88.0	4.78	4.45	3.75	3.27	2.79	2.09	1.76				
14	387.32	383.82	3.50	0.9%	88.4	5.03	4.70	3.99	3.50	3.02	2.31	1.97				
15	388.45	384.19	4.26	1.1%	88.6	5.79	5.45	4.75	4.26	3.77	3.07	2.73				
16	380.78	376.01	4.77	1.3%	88.4	6.27	5.94	5.25	4.77	4.30	3.61	3.28				
17	360.10	355.06	5.04	1.4%	87.4	6.46	6.14	5.49	5.04	4.59	3.94	3.63				
18	317.21	312.48	4.73	1.5%	86.0	5.98	5.70	5.13	4.73	4.33	3.76	3.48				
19	271.15	271.15	0.00	0.0%	83.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
20	250.31	250.31	0.00	0.0%	81.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
21	234.09	234.09	0.00	0.0%	78.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
22	207.42	207.42	0.00	0.0%	76.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
23	183.06	183.06	0.00	0.0%	75.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
24	168.44	168.44	0.00	0.0%	74.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00				

Results | Summary | Lists | Enrollment | Data