



California Public Utilities Commission

May 7, 2021

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

Table of Contents

A. Introduction and Purpose of This Guide	1
B. Background	1
C. Best Practices for Load Impact Protocol Reports Filings	3
D. The Load Impact Protocol Filing Schedule for Year 2021 and Beyond	5
E. Updating Demand Response Resource Qualifying Capacity	7
F. Using Templates	9

Tables

Table 1: Schedule for Obtaining Qualifying Capacity Through the Load Impact Protocols	5
Table 2: Schedule for Submitting Bi-Annual Updates for Qualifying Capacity	8
Table 3: Table Generator Example	10

A. Introduction and Purpose of This Guide

The Guide to Submitting LIP Reports (Guide) is a compilation of Energy Division's interpretation on previously issued Decisions in Resource Adequacy and Demand Response. The Guide is intended to serve as a single reference point to inform Demand Response Providers (DRPs) and Load Serving Entities (LSEs) interested in seeking Resource Adequacy-eligible Qualifying Capacity (QC) for their DR resources. The 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 Load Impact Protocols (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 contact Energy Division staff and request direction. Inquiries on the Load Impact Protocols can be directed to natalie.guishar@cpuc.ca.gov; Resource Adequacy inquiries can be directed to simone.brant@cpuc.ca.gov.

B. Background

The Load Impact Protocols (LIP) were adopted by [D.08-04-050](#)¹ and prescribe a set of guidelines for estimating the impact on load 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 Commission activities such as long-term resource planning.

The LIPs also define minimum data outputs needed to understand the impact of a resource and statistical measures to assist in determining the accuracy of these impact estimates, while allowing flexibility on the part of the load impact evaluators to choose methodologies that are both feasible for and suitable to the particular type of DR activity. The protocols allow the evaluators to define any additional purposes and needs of the particular evaluation, beyond the minimum required data. To the extent appropriate, the protocols provide direction and guidance on what methods might be appropriate in particular situations and raise issues that evaluators should consider in choosing their methods.

The LIP filing requirements were subsequently modified by [D.10-04-006](#),² which allowed parties to submit all LIP-associated filings to the Energy Division and to serve them on parties of the service list, instead of filing to the proceeding. In [D.14-03-026](#),³ the Commission established that all event-based DR programs must be market integrated. That is, beyond the specified exceptions, event-based load-modifying DR programs are not eligible for capacity determination. In [D.16-04-050](#),⁴ the Commission granted an exemption from the LIPs for all market-integrated third-party DR resources for the 2017-2019 RA compliance years. During that period, third-party DRPs could use contract capacity in lieu of LIPs, to establish RA capacity values. The Commission recognized the expiration of this exemption in [D.19-06-026](#)⁵ and noted that LIPs were once again required for determination of QC values for all market-integrated DR resources,

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

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.

⁴ OP 20 at 70, "Decision Adopting Local Procurement and Flexible Capacity Obligations for 2015, and Further Refining the Resource Adequacy Program."

⁵ "Decision Adopting Local Capacity Obligations for 2020-2022," in R. 17-09-020.

whether third-party or Utility-managed. The exception to this requirement is for resources participating in the Demand Response Auction Mechanism (DRAM), where an alternative counting method is in place.⁶

In accordance with this expiration, on December 13, 2019 the Energy Division initiated a LIP process for DRPs to obtain QC through LIP filings beginning in 2020.⁷ Parties submitted comments on December 27, 2019 and the Energy Division released an updated 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, 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 process in the prior year (N-1).

In [D.20-06-031](#),⁸ the Commission 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 Commission also directed a re-formation of the Supply Side Working Group⁹ (SSWG) to “(1) define the details of the biannual process; (2) further study the LIPs and 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.” The Decision directed the SSWG to submit its recommendation for items (2) and (3) into Track 4 of R. 19-11-009.¹⁰ For item (1), Energy Division implemented an informal process to meet this requirement, for which we provide the below background.

On October 15, 2020, 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 19, 2020, Energy Division held a SSWG meeting, after which CEDMC submitted a revised proposal on October 19, 2020. On February 10, 2021, Energy Division released a determination and schedule for the QC update process for filing year 2021 as part of this Guide. This process can be found in Section E of this document. The Guide was subsequently updated on May 7, 2021.

⁶ <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M309/K463/309463502.PDF> at 41-42

⁷ The process does not apply to Demand Response Auction Mechanism (DRAM) resources.

⁸ “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

⁹ Initially authorized in D. 19-12-040.

¹⁰ *Ibid.*, OP 15 and 16.

C. Best Practices for Load Impact Protocol Filings

1. Follow all filing deadlines, content requirements, and reporting templates as directed in Protocols 26 and 27.
2. 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.)¹¹
 - b. Understand that the goal of impact estimation is to establish a causal relationship between the DR resource and the load impact.
 - 1) 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.¹²
3. A reference load should attempt to establish a causal relationship between a load reduction and the dispatch of a DR event.¹³
4. 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.¹⁴
5. 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.
6. 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
7. If no data exists, follow the guidelines on how to turn observable characteristics into observable ones.¹⁶
8. If, per the evaluator's determination, the existing data is not sufficient, document the differences and explain why the estimation was not possible.¹⁷
9. Create a LIP-guided record of performance so that filings can track performance over time.
10. 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:

¹¹ Protocol 5, Section 4.1.2 and Protocol 6

¹² Protocol 16, Section 6.1

¹³ 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.

¹⁴ Protocol 17, Section 6.1 of LIPs

¹⁵ Protocol 16, Section 6.1

¹⁶ Protocol 16, Section 6.2.2

¹⁷ Protocol 17, Section 6.1

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.

11. 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.
12. DRPs may enter into a contract with a Load Serving Entity (LSE) that is not subject to the Central Procurement Framework¹⁸ for three years of Local Resource Adequacy based on the Qualifying Capacity (QC) assigned to them for the first year.¹⁹
13. 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 process in the prior year (N-1).
 - a. Parties offering DR resources into current and future solicitations are advised to complete their LIPs in anticipation of any future solicitations of interest.
14. As directed by D. 14-03-026, Demand Response resources bid into the CAISO's wholesale market are considered supply-side resources (SSR) and awarded Resource Adequacy (RA) capacity payments. Resources that are not bid are incorporated into the California Energy Commission's (CEC) demand forecasts through its Integrated Energy Policy Report (IEPR).²⁰ These forecasts subtract the value of the load-modifying resources (LMR)²¹ from Load Serving Entities' (LSEs) annual RA procurement requirements.
15. 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 any risks.
16. Consistent with D. 10-04-006, 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).²² Filings containing confidential information²³ can be served to the Energy Division's KiteWorks Secure File Transfer Protocol (SFTP) website by emailing them to EDDemandResponse@cpuc.ca.gov and natalie.guishar@cpuc.ca.gov.

¹⁸ D. 20-06-002 in R. 17-09-020, "Decision on Central Procurement of the Resource Adequacy Program."

¹⁹ 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.

²⁰ 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).

²¹ Per D. 14-03-026, LMR demand response are "resources that reshape or reduce the net load curve."

²² The service lists are R. 13-09-011, 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.

²³ Including materials that contain proprietary, market-sensitive information.

D. The Load Impact Protocol (LIP) Filing Schedule for Year 2021 and Beyond

For the 2021 Filing Year, third-party Demand Response Providers (DRPs) are to follow the below intermediary schedule, which is slightly different from the schedule for IOUs. Beginning in 2022, all deadlines will be the same for IOUs and third-party DRPs.

Table 1: Schedule for Obtaining Demand Response Qualifying Capacity Through the Load Impact Protocols

Schedule for Obtaining Qualifying Capacity (QC) for DR Resources Through the LIPs				
Item	Filing Requirement	Deadline for Filing Year 2021 (RA Year 2022 only)		Deadline for Filing Year 2022+ (RA Year 2023+)
		DRPs and (SCE) LCRs	IOUs and Other LSEs	DRPs, (SCE) LCRs, IOUs, + Other LSEs
1.	Draft Evaluation Plan distribution to service lists ²⁴ and to the DRMEC ²⁵	February 1, 2021	October 4 – December, 2020	October 4 – December 31
a.	Stakeholders and DRMEC comment on Draft Evaluation Plan via service lists	February 16, 2021 (15 days after submission)	15 days after submission	15 days after submission
b.	Filing Party publishes a summary of comments from the DRMEC and stakeholders, and how they are addressed. ²⁶	For 2021 filing only, see below.	For 2021 filing only, see below.	No date requirement.
2.	Draft LIP Report due to service lists; include Item b. for 2021 filing only	March 19, 2021	March 19, 2021	March 11, 2022
a.	Stakeholders, parties, and DRMEC comment on draft LIP Report via service lists	March 29, 2021	March 29, 2021	March 25, 2022
3.	Updated QC requests (1 of 2) for initial RA requirements due via service lists	April 2, 2021	April 2, 2021	April 1, 2022

²⁴ R. 13-09-011, 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.)

Schedule for Obtaining Qualifying Capacity (QC) for DR Resources Through the LIPs				
Item	Filing Requirement	Deadline for Filing Year 2021 (RA Year 2022 only)		Deadline for Filing Year 2022+ (RA Year 2023+)
		DRPs and (SCE) LCRs	IOUs and Other LSEs	DRPs, (SCE) LCRs, IOUs, + Other LSEs
4.	Final LIP Report due (including responses to comments) via service lists	April 16, 2021	April 1, 2021	April 1, 2022
a.	Host LIP Report workshop	April 30 + May 3, 2021	April 30 + May 3, 2021	April 29 + May 2, 2022
5.	Energy Division DR Section reviews LIP filings	May – August 2021	May – August 2021	May – August 2022
	Initial RA requirements assigned to Load Serving Entities (LSEs)	June 2021	June 2021	June 2022
	Energy Division RA Section finalizes QC values. a. For IOUs, results are posted on the RA website and credits are submitted to CAISO; b. For DRPs, Transmission and Distribution (T&D) and Planning Reserve Margin (PRM) adders are submitted to CAISO. ²⁷	July 2, 2021	July 2, 2021	July 1, 2022
6.	Updated QC requests (2 of 2) for final RA requirements due via service lists	July 2, 2021	July 2, 2021	July 1, 2022
7.	Final RA requirements assigned to Load Serving Entities (LSEs)	September 2021	September 2021	September 2022
8.	DRPs submit names of capacity buyers and associated MWs to Energy Division RA and DR Sections	October 2021		October 2022
9.	LSEs submit RA Year-Ahead compliance filing to Energy Division RA Section	October 29, 2021	October 29, 2021	October 28, 2022

²⁷ Acceptance of adders for both the IOUs and DRPs is pending a decision in R. 19-11-009 on Energy Division's Demand Response Proposals ("DR Proposals") and on CAISO's determination on the treatment of these adders.

E. Updating Demand Response Resource Qualifying Capacity (QC)

Beginning with the 2021 Resource Adequacy (RA) compliance year, there are two opportunities during the RA compliance year to update the existing QC values for market-integrated DR resources (except DRAM),²⁸ demonstrated in Table 1 below.

1. An update filing during the RA compliance year is *required* when the current capacity of the DRP's or IOU's DR resource portfolio falls below the threshold of 20% or 10 MW less than the assigned QC value of the resource portfolio.
2. For 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 current year.
3. For DRPs, an update filing is *optional* when:
 - a. The current capacity of the DRP's or LSE'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 current 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 current year.
5. An update filing must utilize the "QC Update" standardized template and include the following information:
 - a. Average per-customer ex-ante load impact for each sub-Load Aggregation Point (sub-LAP) from the last LIP Final Report 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 enrollment forecast from the last LIP Final Report for the applicable RA delivery months.
 - d. Updated enrollment forecast, including all active and inactive locations as indicated by the CAISO DRRS.
 - e. The QC update request for the applicable RA delivery months shall be made as follows:
 - 1) Updated QC (in RA month Z) = Current customer enrollment in DRRS + Projected enrollment growth for month Z
 - 2) Average per-customer ex-ante load impact (from the last LIP Final Report submitted in the prior year)

²⁸ OP 15 and 16 in D. 20-06-031.

- f. Updated QC allocation aggregated by sub-Load Aggregation Point (sub-LAP) level, mapped to individual resource IDs.²⁹
 - g. Comparison of average per-customer non-event peak load during the Availability Assessment Hours (AAH) in August of the prior year of the new customers (Compliance Year N) vs. the customer set used in the last LIP Final Report. (Year N-1).
 - h. Indicate the proportion by which the MW value has changed on a portfolio level.
6. The evaluation protocols for all DR resources are defined in the LIPs. Alternative methods to LIPs are outside the scope of this document. Proposals for alternative methods should be filed in the relevant proceeding.

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

Schedule for Making Bi-Annual Updates to Qualifying Capacity Values for DR Resources		
Item	Applicable to All IOUs and Third-Party DRPs	Updates for 2021 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. a. Increased portfolio value may be voluntarily filed, while decreased portfolio values must be filed.	April 9, 2021 ³⁰ (for delivery beginning in July 2021)
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, 2021 (for delivery beginning September 2021)

²⁹ Per D. 20-06-031 at 45. This information is used by CAISO to update its Customer Interface for Resource Adequacy (CIRA) system.

³⁰ This is an extension to the original April 2, 2021 deadline, which was issued in the original February 10, 2021 version of this Guide.

F. Using Templates

Protocol 26³¹ of the LIPs provides a detail of 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, while Table 9-2 displays a template for ex-ante estimates.³²

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. 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

³¹ At 42

³² At 143 and 144, respectively.

Table 3: Sample Table Generator



