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“Simplified LIPs” Proposal

Prepared for: California Energy Commission DR QC Working Group

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Table of Contents

Introduction.....	3
Summary of Proposed Changes	4
Description of Proposed Changes.....	6
<i>Proposed Changes to Outputs (Protocols 1-26).....</i>	<i>6</i>
<i>Proposed Changes to LIP Evaluation Process (Protocol 27).....</i>	<i>8</i>
Appendix A: Proposed Final Set of Revised LIPs	10
Appendix B: Evaluation Plan Template	11

Introduction

Since the California Public Utilities Commission (Commission) affirmed the applicability of the Demand Response (DR) Load Impact Protocols (LIPs) to third-party DR in Decision (D.) 19-06-026, it has become apparent that today's LIPs process is burdensome and inefficient, both for third-party DR providers (DRPs) who participate in the Resource Adequacy (RA) market, as well as Energy Division Staff. One potential way to mitigate these problems is to streamline the LIPs so that evaluations are easier to perform while ensuring they remain sufficiently robust for the Energy Division to conduct an informed assessment of each DRP's DR portfolio. To the extent that the load impact evaluations are performed for the limited purpose of determining DRPs' Qualifying Capacity (QC) value, OhmConnect proposes that:

1. Certain protocols be streamlined or eliminated;
2. the evaluation process be simplified and shortened; and
3. that transparency around the determination of QC values from ex ante estimates be increased.

Each of these is discussed further below.

Why is simplification necessary?

The purpose of this proposal is to winnow down the LIP requirements to *just* those that are necessary for the determination of RA QC. At nearly 150 pages, the current LIP Guidance document is intimidating and incredibly confusing to DRPs. Many spend considerable time and effort determining which protocols are relevant and end up producing outputs that are not useful for RA QC. In a process where the learning curve is already steep, the continued inclusion of protocols/requirements that are not applicable only serves to increase the perceived barrier to entry and causes frustration for DRPs undertaking the evaluation for the first time.

The LIP guidance document should be as simple and to-the-point as possible for DRPs undertaking the evaluation for RA QC purposes only.

Does this proposal apply to all DRPs?

This proposal is intended to apply to DRPs that are undertaking the evaluation for the purposes of receiving an RA QC only (i.e., most LIP reports done by third-party DRPs). Some protocols, while completely unnecessary for RA, may still be useful for long-term planning and other purposes. To that end, it may be necessary to retain two version of the LIP guidance document: the full document as it exists today for a broader set of applications, and a briefer document for DR RA QC.

How does this proposal apply to the 24-hour slice-of-day framework?

This proposal does not affect the methodological approaches as described in the present LIPs; it simply removes unnecessary outputs and shortens the process. To that end, it can be compatible with any number of approaches to modify the LIP outputs for the slice-of-day RA program. OhmConnect does not opine on any individual proposal here. However, the need to eliminate unnecessary analyses and processes that exist today is only amplified if the modification of the LIPs to comport with the 24-hr framework *increases* the cost and complexity of the evaluation.

Summary of Proposed Changes

Table 1. Summary of Proposed Changes

Group	Protocol	Summary	Proposed Disposition
Evaluation Plan	1	Evaluation plan is required	Replace the narrative with a standardized tabular form Mandatory <u>only</u> for DRPs performing evaluations for the first time or if material changes to the DR program or evaluation approach are expected
	2	Requirements beyond resource planning and additional to protocol 4-27, i.e., resource adequacy	Eliminate
	3	Questions/issues that must be addressed by the evaluation plan	Mandatory <u>only</u> for DRPs performing evaluations for the first time or if material changes to the DR program or evaluation approach are expected
Ex post for event-based DR	4	Hour-of-day and daily impact estimates	Keep
	5	Average and total impact	Eliminate. Not a useful reporting metric.
	6	Percentile-based uncertainties	Keep
	7	Tabular output format	Keep
	8	Reporting requirements	Keep at individual event OR representative monthly roll-up level if no of events > n: <ul style="list-style-type: none"> • list of events • No. of customers enrolled • No. of customers called • Event start and end times Eliminate typical and average event day
	9	Error metrics for day matching results	Keep
Ex post for non-event-based DR	10	Error metrics for regression method results	Keep
	11	Hour-of-day and daily impact estimates	Eliminate
	12	Average and total impact	Eliminate
	13	Percentile-based uncertainties	Eliminate
	14	Tabular output format	Eliminate
	15	Reporting requirements	Eliminate

	16	Error metrics for regression method results	Eliminate
Ex ante	17	Ex ante based on ex post results	Keep
	18	Hour-of-day impacts for all day types	Keep for slice-of-day purposes; Align required "day type(s)" with the adopted SOD program
	19	Change in monthly/annual energy use	Eliminate
	20	Uncertainty-adjusted impacts by percentile.	Keep
	21	Tabular reporting format	Keep but reduce "day type(s)" needed to those required for the RA program
	22	Estimates for typical event, average, and system peak day types (1-in-2 and 1-in-10)	Keep RA-relevant day type(s) only (Currently, this is monthly system peak under IOU 1-in-2 weather)
	23	Statistical tests and methods (same as 10,16 regression statistics)	Keep
Misc. technical	24	Portfolio adjustments	Eliminate
	25	Sampling requirements	Eliminate
Evaluation report	26	Evaluation report requirements	Keep as optional
		Study methodology	Keep
		Validity assessment	Keep
		Detailed study findings	Mostly keep Eliminate comparison to prior year's study in ex ante. This introduces confusion when done for third-parties that receive a QC based on a two-year old analysis and may sell only a portion of the QC.
Process and public review	27	Process and public review	Shorten process; eliminate public review unless common transparency metrics are adopted

Description of Proposed Changes

This sections below review each of the proposed changes to the outputs and process. A summary is provided in Table 1, above. The final set of proposed protocols is provided in Appendix A.

Proposed Changes to Outputs (Protocols 1-26)

- **Protocols 1, 3, and part of 26 (evaluation plan):** These protocols require the submission of an evaluation plan and specify requirements for its content.

Proposal: In instances where a DRP has done LIP evaluations for several years, and very little has changed in terms of the program or the methodological approach, the evaluation plan loses value. To reduce time and cost—as well as the review burden placed on ED staff—evaluation plans should only be mandatory for DRPs undertaking the process for the first time, or when, per the evaluator’s judgment, material changes are expected in the methodological approach. If judged valuable, the Commission may require all other DRPs to submit a brief filing stating that their evaluation approach remains unchanged from the prior year.

The Commission may also consider replacing the current narrative format with a standardized template that asks the evaluator to respond to a prescribed set of questions. In addition to reducing the time-intensity of this exercise, an evaluation plan that solely requires responses to a simple table or form may facilitate Staff review and DRP-to-DRP comparisons. A template is provided in Appendix B.

- **Protocol 2 (evaluation plan):** This protocol requires DRPs to state whether the evaluation is intended to meet the requirements beyond long-term resource planning.

Proposal: For third-party DRPs are undertaking this evaluation only for the purposes of receiving a QC value, this protocol is moot and can be eliminated.

- **Protocol 5 (ex post)/Protocol 19 (ex ante):** These counterpart protocols require that average mean change in energy use per year be reported for all participants and for the sum of all participants on a DR resource for the year over which the evaluation is conducted.

Proposal: Protocols 5 and 19 should be removed in their entirety for load impact evaluations performed solely for determining the QC value of third-party DR. Annual averages are not necessary for the assignment of QC and are not telling for highly seasonal resources.

- **Protocol 8 (ex post):** This protocol describes the day types and level of aggregation for which load impacts are to be reported. It requires ex post impacts to be provided for “each day on which an event was called” and the “average event day” across the evaluation period (typically, over a year).

Proposal: The average event day impact over the course of a year does not lend itself to the calculation of ex ante impacts for the purposes of QC because QC values are assigned monthly. Moreover, for weather-sensitive or other seasonal resources, a yearly average event day may not be very instructive. For these reasons, the requirement to calculate ex post impacts (both per customer and in aggregate) for the average event day should be eliminated.

- **Protocols 11-16:** These protocols discuss evaluation methods for non-event based DR programs.

Proposal: These protocols are not applicable to third-party DR, all of which is market-integrated, and should be removed in their entirety.

- **Protocol 22:** This protocol specifies the analyses required for each day type using CAISO and IOU 1-in-2 and 1-in-10 weather conditions

Proposal: The day types and weather conditions should align with the requirements of the RA program. All extraneous scenarios should be eliminated.

Currently, only the “monthly system peak day” calculated under IOU 1-in-2 weather conditions is needed to estimate the QC value for RA purposes and should be the only scenario required by the protocol. Calculating the “average weekday” and the “typical event day” under 1-in-2 weather conditions and calculating anything under 1-in-10 weather conditions is not relevant to estimating the RA QC value of a DR resource and therefore represents unnecessary costs to the DRP to produce and describe.

Note that while the CAISO performs modeling under 1-in-10 weather conditions, *the outputs of third-party DRPs’ LIP reports’ 1-in-10 scenarios are not used as inputs by the CAISO in these exercises or any other agency for any purpose.* Moreover, given that approved QC often does not match the ex ante model predictions, it would be inappropriate for any external party to use the unapproved ex ante outputs for any planning purposes.

- **Protocol 26:** This protocol specifies the format and content of the load impact evaluation reports. One requirement of this protocol is that “a comparison of impact estimates derived from the analysis and those previously obtained in other studies and those previously used for reporting of impacts toward resource goals, and a detailed explanation of any significant differences in the new impacts and those previously found or used.”

Proposal: Some portions of this protocol should be eliminated because prior studies may not always be relevant. For example, studies using a methodology different from the LIPs would be like comparing apples to oranges. Even prior-year reports using the LIPs will often not be useful if a DRP’s portfolio changes significantly from one year to the next in terms of number and/or type of customers, enabling technologies, and customer location. Furthermore, DRPs that are new to the California market will have no prior-year studies.

- **Define number of forward-projection years:** IOUs have traditionally forecasted ex ante impacts a decade ahead. Third-party DRPs have thus far been asked to project impacts for three years out to match the three-year forward procurement requirement of Local RA. However, QC is only approved one-year forward; the subsequent two-year modeling is not approved or used at all. Therefore, it is currently unclear what value three-year forward projections serve in third-party load impact evaluations.

Proposal: The simplified LIPs should clarify the forward forecast requirements and how these requirements interplay with the final approved QC. If a DRP is required to provide impacts three years’ forward, it should ostensibly receive QC for three years based on ED assessment of the DRP forecasts. However, if ED determines that a DRP should only receive QC values for the following RA compliance year, the purpose of three-year forecasts becomes unclear. In this case, developing

and describing these forecasts is an unnecessary cost to the DRP and the forecast requirement should be reduced to one year ahead only.

Proposed Changes to LIP Evaluation Process (Protocol 27)

Public review of proprietary data should be reconsidered

The continued utility of public review for third-party DR LIP evaluations is unclear and should be reconsidered.

LIPs were developed for the purpose of long-term resource planning and determining the cost-effectiveness of regulated IOU DR programs. That environment has fundamentally changed with the proliferation of both third-party DRPs as well as non-IOU LSEs. In this new environment, DRPs are engaged in competitive activity with one another, so disclosure of market-sensitive information could cause harm to a DRP's competitive position. In response to this threat, many DRPs choose to redact large portions of their LIP reports. The public versions of the load impact evaluations submitted in recent years vary widely in their level of redactions. While some DRPs do not use redactions, others heavily redact large portions of their evaluations. At this time, there does not appear to be a uniform understanding of the data that can and cannot be redacted in a DRP's load impact evaluation.

The value of submitting heavily redacted reports to multiple listservs and requiring their presentation in public workshops is questionable. It is closer to spam than true public review and unnecessarily lengthens the timeline of the evaluation process.

One option is to determine an acceptable set of data privacy metrics and transparency requirements and continue public review. Another option is to eliminate public review for third-party DRP LIP evaluations. Continuing to require public review without common transparency requirements is a waste of resources.

For simplicity and efficiency, this proposal recommends the elimination of public review for third-party DRP LIP evaluations. Full, unredacted reports will be submitted to CPUC Energy Division Staff and CEC Staff as appropriate. They will also be available to other parties such as the Public Advocates Office and CAISO. These parties will be able to submit comments to the DRP directly by an established deadline.

QC Determination by Energy Division Should be Transparent

Energy Division Staff should continue to have discretion over final QC determination based on the available LIP evaluation. However, the QC assignment process must be significantly more transparent.

Currently, DRPs expend considerable time and resources performing rigorous evaluations. However, to the extent that ED Staff arrive at a QC valuation that is different from the ex ante model, the differences are not explained. This makes the process feel arbitrary, despite the time and expense involved, and results in a lack of trust. This status quo is both unfair and counterproductive.

Each DRP should receive, together with their QC values, a detailed explanation of any discrepancies between the ex ante modeling presented in the report and the approved QC. The explanation should identify and justify any differences between the submitted and approved customer count as well as per-customer impacts. The provided information, including any derates, should be granular enough for the DRP to reproduce the arrived at QC using the alternative set of customer enrollments and impacts.

The LIP Timeline Should be Shortened

The LIP timeline should be shortened and QC values assigned much earlier in the year.

The current timeline, which assigns QC values to third-party DRPs by mid-September is not workable. It creates a marketplace where resource-owners sell capacity well in advance of knowing the value of that capacity. While the ex ante modeling in the submitted reports should serve as a guide, the approved QC may not actually be consistent with the ex ante modeling (see discussion in next section). By the time final QC is approved, DRPs have just over a month to reconcile any differences between expected/contracted capacity and the actual QC ahead of the October 31 year-ahead showing deadline. This is not enough time and creates unnecessary risk for both the DRP and the purchasing LSE.

The below timeline reduces the LIP report production to approximately four months and results in a QC value by July 1.

Table 2. Proposed Timeline

Deliverable	Current	Proposed
Evaluation Plan	Dec 31	Jan 15 (if applicable)
>> Comments on evaluation plan	Jan 15	Jan 25 (if applicable)
Draft evaluation report	March 11	March 15
>> Comments on draft evaluation	March 25	March 30
Final evaluation report	April 1	April 20
LIP workshop	mid-May	n/a
QC values assigned	mid-Sep	July 1

Appendix A: Proposed Final Set of Revised LIPs

The following table outlines the protocols that should be included in the LIP guidance document for third-party DRPs performing evaluations for the sole purpose of RA QC.

Group	Protocol	Summary
Evaluation Plan <i>(If applicable)</i>	1	Submit evaluation plan
	2	Questions/issues that must be addressed by the evaluation plan
Ex post	3	Hour-of-day and daily impact estimates
	4	Percentile-based uncertainties
	5	Tabular output format
	6	Reporting requirements (Required for RA relevant day types only)
	7	Error metrics for day matching results
	8	Error metrics for regression method results
Ex ante	9	Ex ante based on ex post results
	10	Hour-of-day impacts for all day types
	11	Uncertainty-adjusted impacts by percentile
	12	Tabular reporting format
	13	Estimates monthly system peak day under IOU 1-in-2 weather
	14	Statistical tests and methods
Evaluation report	15	Evaluation report requirements
		Study methodology
		Validity assessment
		Detailed study findings
Process & Timeline	16	Process and Timeline

Appendix B: Evaluation Plan Template

In the cases where an evaluation plan is required, the written narrative should be replaced by a standardized form. The following template was put together by Josh Bode, Demand Side Analytics and generously shared with OhmConnect for the purposes of this proposal. The form can be created in Microsoft Excel or a similar platform.

LOAD IMPACT PROTOCOLS: EVALUATION PLAN TEMPLATE

Submitter Name	Answer
Submitter Email	Answer
Submitter Phone Number	Answer
Program Name	Answer
Demand Response Provider	Answer
Brief Program Description	Answer
Evaluator	Answer
Program Year	Answer
Sector	Answer
Service Territory Included	Answer
Is the resource weather sensitive?	Answer
Expected number of sites	Answer

Component	No	Evaluation Plan Element	Answer (Select from dropdown)	Notes
Ex-post	1	What data source will be used for the evaluation?	Utility AMI data	
	2	What will be the granularity of results?	Hourly data	
	3	Expected percent reduction (effect size)?	50% or more	
	4	Will the evaluation use control groups? If so, how will the control group be created?	Randomly assigned control group	
	5	If control groups via random assignment will be used, what share of participants will be randomly assigned to the control group?	Not applicable	
	6	If the evaluation used a matched control group, what is the size of the control candidate pool?		
	7	If the evaluation uses a matched control group, will matching be conducted with or without replacement?	Not applicable	
	8	If the evaluation uses a matched control group, what characteristics will be included in the matching?		
	9	Will non-event days included in the analysis? If so what types of non-event days are included?	The analysis only includes event days	
	10	What method will be used to estimate load impacts?	Simple comparison of means with control group	
	11	What variables will be included in the model?	Checkbox	
	12	Will you running an out-of-sample model tournament? If so, how will be the winning model be identified?		
	13	How will results be segmented?	Checkbox	
Ex-ante	1	Will the ex-ante estimates be grounded in historical data?	Yes	
	2	How many years of historical performance data be used to develop ex-ante impacts?	1 year	
	3	Are load impact values per site or per nominated MW?		
	4	What process will be used to model the relationship between event reductions and weather?	Directly model the relationship between load impacts (kW), weather, and other factors that affect performance	
	5	Does the ex-ante load impacts for future years factor in the share of functioning devices and communication success rates?	Yes	
	7	Will the evaluation produce a time-temperature matrix?	Yes	
	8	Are significant changes expected over the forecast horizon to either the program or participants characteristics?	Yes	
	9	How will expected changes in the participant mix or program rules incorporated into the ex-ante estimates?		
	6	Are there other data sources or factors that will be incorporated into the ex-ante load impacts?		
	10	Will an operation plan be developed in preparation for the subsequent year in order to introduce variation in weather conditions, event start times, duration, or weekday/weekend conditions?	Yes	