FILED
10/29/24
03:45 PM
R2310011

APPENDIX C

1.1. Adopted Modifications to Decision (D.) 08-04-050

The following modifications to D.08-04-050 and Attachment A are adopted. Adopted additions are underlined in blue and deletions are struck through in red.[1]

(1) Conclusion of Law 6, D.08-04-050 at 34:

The DR Load Impact Estimation Protocols in Attachment A should be adopted for use by third party demand response providers, SCE, SDG&E, and PG&E.

(2) Ordering Paragraph 1, D.08-04-050 at 35:

The Demand Response (DR) Load Impact Estimation Protocols in Attachment A (Adopted Protocols) are adopted for use by Third-Party Demand Response Providers, Southern California Edison Company (SCE), San Diego Gas & Electric Company (SDG&E), and Pacific Gas and Electric Company (PG&E).

(3) Protocol 5, D.08-04-050, Attachment A at 37:

The mean change in energy use per year may optionally~~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.

(4) Protocol 6, D.08-04-050, Attachment A at 38:

Estimates shall be provided for the 5th ~~10th, 30th~~, 50th, ~~70th and 90th~~and 95th 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.

(5) Protocol 7, D.08-04-050, Attachment A at 39:

Impact estimates shall be reported in the format depicted in Table 4-1 for all required day types and levels of aggregation, as delineated in Protocol 8.

[1] Note that we only include adopted modifications or deletions in this Appendix. The omission of part of the Protocol language or existing decision language means the language remains unchanged.

Table 4-1. Reporting Template for Ex Post Impact Estimates (Separate Tables Shall Be Provided for Each Required Day Type)

Hour-Ending	Estimated Reference Load (kWh/hour)	Observed Event Day Load (kWh/hour)	Estimated Load Impact (kWh/hour)	Average Temperature (deg F)	Uncertainty Adjusted Impact (kWh/hr)- Percentiles			Standard Error
					5th%ile	50th%ile	95th%ile	
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
By Period:	Estimated Reference Energy Use (kWh/hour)	Observed Event Day Energy Use (kWh/hour)	Estimated Change in Energy Use (kWh/hour)	Average Temperature (deg F)	Uncertainty Adjusted Impact (kWh/hr)- Percentiles			Standard Error
					5th%ile	50th%ile	95th%ile	
Average Event Hour								

*Blue rows indicate the event window hours. kWh/hour is used for average customers, whereas MWh/hour is used for aggregate customers.

(6) Protocol 8, D.08-04-050, Attachment A at 42-43:

The information shown in Table 4-1 shall be provided for each of the following day types and levels of aggregation:

- *Required: Each day on which an event was called;*
- *Optional: The average event day over the evaluation period;*
- *Required: For the average across all participants notified on each day on which an event was called;*
- *Required: For the total of all participants notified on each day on which an event was called; and*
- *Optional: For the average across all participants notified on the average event day over the evaluation period.*

Optional: An average event day is calculated as a day-weighted average of all event days. The number of event days that apply to each hour may vary for resource options that have variable length event periods. As such, for the average event day, the following information must be provided:

- *The number of actual event days included in the calculation for each hour of the average day;*
- *Average number of customers enrolled in the resource option over the year; and*
- *Average number of customers notified across all event days in the year.*

(7) Protocol 10, D.08-04-050, Attachment A at 47-48:

For regression-based methods, the following statistics and information shall be calculated and stored by the evaluator for a period of one year after filing date of April 1~~reported~~:

- *Adjusted R-squared or, if R-squared is not provided for the estimation procedure, the log-likelihood of the model;*
- *Total observations, number of cross-sectional units and number of time periods;*
- *Coefficients for each of the parameters of the model;*
- *Standard errors for each of the parameter estimates;*
- *Optional: The variance-covariance matrix for the parameters;*
- *The tests conducted and the specific corrections conducted, if any, to ensure robust standard errors.~~; and~~*
- ~~*How the evaluation assessed the accuracy and stability of the coefficient(s) that represent the load impact.*~~"

(8) "5. Ex Post Evaluation for Non-Event Based Resources," D.08-04-050, Attachment A at 78:

This section contains protocols and guidelines for ex post evaluation of non-event based, DR resource options. As delineated in Section 2, non-event based resources fall into three broad categories:

- **Non-event based pricing**—This resource category includes TOU, RTP and related pricing variants that are not based on a called event—that is, they are in place for a season or a year.
- **Scheduled DR**—There are some loads that can be scheduled to be reduced at a regular time period. For example, a group of irrigation customers could be divided into five segments, with each segment agreeing to not irrigate/pump on a different selected weekday.
- **Permanent load reductions and load shifting**—Permanent load reductions are often associated with energy efficiency activities, but there are some technologies such as demand controllers that can result in permanent load reductions or load shifting. Examples of load shifting technologies include ice storage air conditioning, timers and energy management systems.

All protocols within this section (protocols 11-16) are only applicable to filers that have non-event based resources. Filers without those resources are exempt.

(9) Protocol 12, D.08-04-050, Attachment A at 82:

The mean change in energy use per year may optionally ~~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.

(10) Protocol 13, D.08-04-050, Attachment A at 79:

Estimates of the ~~10th,30th, 50th, 70th, and 90th~~5th, 50th, and 95th percentiles of the change in energy use in each hour, day and year, as described in Protocols 11 and 12, for each day-type and level of aggregation described in Protocol 15, shall ~~to~~ be provided.

(11) Protocol 14, D.08-04-050, Attachment A at 82:

Impact estimates shall be reported in the format depicted in Table 4-1 for all required day types, as delineated in Protocol 15. In lieu of an average event hour, provide an average hour as applicable to resource. For example, provide the average on-peak window for a non-event based pricing resource like a Time-of-Use (TOU) rate.

(12) Protocol 15, D.08-04-050, Attachment A at 82-83:

The information shown in Table 4-1 shall be provided for each of the following day types for the average across all participants sum of all participants:

- *For the average weekday for each month in which the DR resource is in effect*
- *For the monthly system worst~~peak~~ day for each month in which the DR resource is in effect.*

Monthly System Worst~~Peak~~ Day for Each Month: The day with the highest system load in each month. In addition to reporting all of the information shown in Table 4-1, the following information shall be provided:

- *Temperature for each hour on the system peak day for each month*
- *Average degree hours on the system peak day for each month.*
- *Average number of customers participating in the DR resource option on the system peak day for each month*

(13) Protocol 16, D.08-04-050, Attachment A at 83-84:

For regression-based methods, the following statistics and information shall be calculated and stored by the evaluator for a period of one year after filing date of April 1~~reported~~:

- *Adjusted R-squared or, if R-squared is not provided for the estimation procedure, the log-likelihood of the model;*
- *Total observations, number of cross-sectional units and number of time periods;*
- *Coefficients for each of the parameters of the model;*
- *Standard errors for each of the parameter estimates;*
- *Optional: The variance-covariance matrix for the parameters. Must be stored only if used to calculate the uncertainty adjusted impact percentiles; and*
- *The tests conducted and the specific corrections conducted, if any, to ensure robust standard errors.~~; and~~*
- ~~*How the evaluation assessed the accuracy and stability of the coefficient(s) that represent the load impact.*~~

(14) Protocol 19, D.08-04-050, Attachment A at 95:

The mean change in energy use per month may optionally~~shall~~ be estimated for non-event based resources and the mean change in energy use per year shall be estimated for both event and non-event based resources for the average across all participants and for the sum of all participants on a DR resource option for each year over the forecast horizon.

(15) Protocol 20, D.08-04-050, Attachment A at 95:

Estimates of the ~~10th,30th, 50th, 70th, and 90th~~5th, 50th, and 95th percentiles of the change in energy use in each hour, day and year, as described in Protocols 17 and 18, for each day-type and level of aggregation described in Protocol 22, shall be provided."

(16) Protocol 21, D.08-04-050, Attachment A at 95:

Impact estimates shall be reported in the format depicted in Table 6-1 for all required day types and levels of aggregation, as delineated in Protocol 22.

Table 6-1. Reporting Template for Ex Ante Impact Estimates (Separate Tables Shall Be Provided for Each Required Day Type)

Hour-Ending	Estimated Reference Load (kWh/hour)	Estimated Event Day Load (kWh/hour)	Estimated Load Impact (kWh/hour)	Average Temperature (deg F)	Uncertainty Adjusted Impact (kWh/hr)- Percentiles			Standard Error
					5th%ile	50th%ile	95th%ile	
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								

24								
By Period:	Estimated Reference Energy Use (kWh/hour)	Estimated Event Day Energy Use (kWh/hour)	Estimated Change in Energy Use (kWh/hour)	Average Temperature (deg F)	Uncertainty Adjusted Impact (kWh/hr)- Percentiles			
					5th%ile	50th%ile	95th%ile	Standard Error
Average RA Hour								

* Blue rows indicate the RA window hours. kWh/hour is used for average customers, whereas MWh/hour is used for aggregate customers.

(17) Protocol 22, D.08-04-050, Attachment A at 96-98:

The information shown in Table 6-1 shall be provided for each of the following day types using 1-in-2 ~~and 1-in-10~~weather conditions for the average across participants and for the sum of all participants for each forecast year:

- *Optional: For a typical event day for a 1-in-2 ~~and for a 1-in-10~~ weather year for event-based resource options.*
- *Optional: For the average weekday for each month in which the resource option is in effect for a 1-in-2 ~~and for a 1-in-10~~ weather year for non-event based resource options*
- *For the monthly system worst~~peak~~ day for each month in which the resource option is in effect, for a 1-in-2 ~~and for a 1-in-10~~weather year for event-based and non-event based resources.*

Day type definitions and additional reporting requirements for each day type are summarized below:

Typical Event Day for a 1-in-2 ~~and 1-in-10~~ Weather Year may optionally be reported: This day type requirement applies primarily to event-based resources. It is meant to capture both the exogenous factors such as weather and the event characteristics for a day on which an event is likely to be called. The relevant characteristics can be defined by the evaluator. At a minimum, the following information shall be provided:

- *An explanation of how the weather and any other relevant day-type characteristics were chosen*
- *Detailed information on the timing and duration of the event or any other factors (e.g., notification lead time) that were explicitly factored into the impact estimates (e.g., factors that, if different than those reported, would change the estimated impacts)*
- *The number of notified consumers included in the aggregate impact estimate*
- *Any other factors that have been explicitly incorporated into the impact estimate, such as prices for price based resource options and population characteristics (e.g., air conditioning saturation, business type, etc.).*

Average Week Day for Each Month In A 1-in-2 ~~and for a 1-in-10~~ Weather Year may optionally be reported: This day type applies primarily to non-event based resources. It is meant to capture the weather conditions and other relevant factors for an average weekday. In addition to the information contained in Table 6-1, the following information must be provided:

- *An explanation of how the weather and any other relevant day-type characteristics were chosen for the typical weekday in each month*
- *The number of enrolled customers included in the aggregate impact estimate*
- *Any other factors that have been explicitly incorporated into the impact estimate, such as prices for price based resource options and population characteristics (e.g., air conditioning saturation, business type, etc.).*

Monthly System Worst~~Peak~~ Day for Each Month In a 1-in-2 ~~and for a 1-in-10~~ Weather Year: This day type applies to event- based and non-event based resources. It is meant to capture impacts for the day with the highest system load in each month. In addition to reporting all of the information shown in Table 6-1, the following information must be provided:

- *An explanation of how the weather and any other relevant day-type characteristics were chosen for the typical monthly system worst~~peak~~ day*
- *The number of enrolled customers included in the aggregate impact estimate*
- *Any other factors that have been explicitly incorporated into the impact estimate, such as prices for price based resources and population characteristics (e.g., air conditioning saturation, business type, etc.).*

(18) Protocol 23, D.08-04-050, Attachment A at 98:

All ex ante estimates based on regression methodologies shall calculate and store~~report~~ the same statistical measures as delineated in Protocols 10 and 16 for a period of one year from filing date of April 1.

(19) Protocol 26, D.08-04-050, Attachment A at 142:

Table 9-1. Reporting Template for Ex Post Impact Estimates*

Hour-Ending	Estimated Reference Load (kWh/hour)	Observed Event Day Load (kWh/hour)	Estimated Load Impact (kWh/hour)	Average Temperature (deg F)	Uncertainty Adjusted Impact (kWh/hr)- Percentiles			Standard Error
					5th%ile	50th%ile	95th%ile	
1								
2								
3								
4								

5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								

By Period:	Estimated Reference Energy Use (kWh/hour)	Observed Event Day Energy Use (kWh/hour)	Estimated Change in Energy Use (kWh/hour)	Average Temperature (deg F)	Uncertainty Adjusted Impact (kWh/hr)- Percentiles			90% CI
					5th%ile	50th%ile	95th%ile	Significant?
Average Event Hour								

*This table is the same as Table 4-1 of the report. kWh/hour is used for average customers, whereas MWh/hour is used for aggregate customers.

D.08-04-050, Attachment A at 143:

Table 9-1. Output Template for Ex Ante Impact Estimates*

Hour-Ending	Estimated Reference Load (kWh/hour)	Estimated Event Day Load (kWh/hour)	Estimated Load Impact (kWh/hour)	Average Temperature (deg F)	Uncertainty Adjusted Impact (kWh/hr)- Percentiles			Standard Error
					5th%ile	50th%ile	95th%ile	
1								
2								
3								
4								
5								
6								

7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								

By Period:	Estimated Reference Energy Use (kWh/hour)	Observed Event Day Energy Use (kWh/hour)	Estimated Change in Energy Use (kWh/hour)	Average Temperature (deg F)	Uncertainty Adjusted Impact (kWh/hr)- Percentiles			Standard Error
					5th%ile	50th%ile	95th%ile	
Average Event Hour								

*This table is the same as Table 6-1 of the report. kWh/hour is used for average customers, whereas MWh/hour is used for aggregate customers.

D.08-04-050, Attachment A at 144:

Table 9-3. Day Types to be Reported for Each DR Type*

	Event Based Resources			Non-Event Based Resources		
Day Types	**Event Driven Pricing**	**Direct Load Control**	**Callable DR**	**Non-event Driven Pricing**	**Scheduled DR**	**Permanent Load Reductions**
Ex Post Day Types						
Each Event Day	X	X	X			
Average Event Day	O~~X~~	O~~X~~	O~~X~~			
Average Weekday Each Month				X	X	X
Monthly System Worst~~Peak~~ Day				X	X	X
Ex Ante Day Types						
Typical Event Day (1-in-2 Weather Year)	O~~X~~	O~~X~~	O~~X~~			

Average Weekday Each Month (1-in-2 ~~and 1-in-10~~ Weather Year)	O~~X~~	O~~X~~	O~~X~~	O~~X~~	O~~X~~	O~~X~~
Monthly System Worst~~Peak~~ Day (1-in-2 ~~and 1-in-10~~ Weather Year)	X	X	X	X	X	X

*This table is the same as Table 1-2. X=Required; O=Optional.

(20) Protocol 27, D.08-04-050, Attachment A at 147-148:

The protocols include a process protocol that would provide for public review and comment. This will occur at three stages in the evaluation effort.

Protocol 27:

A review and comment process will be used at three stages in the implementation of the Load Impact estimation effort. These stages are:

1. *The evaluation plan used to develop the research questions to be answered and the corresponding methods to be used to answer them;*
2. *The interim and draft final reports for all load impact studies conducted for demand response resources; and*
3. *Public Review of Final Reports to determine how comments were addressed.*

This process protocol is meant to ensure that the products of each of the two stages in the estimation effort benefits from a ~~public~~ review by ~~stakeholders,~~ Joint Staff and the Demand Response Measurement Evaluation Committee (DRMEC)~~, and the CAISO (California Independent System Operating).~~ The ~~Demand Response Measurement Evaluation Committee (~~DRMEC~~)~~ would be used to initiate evaluation planning, review the final evaluation plan, and review draft load impact reports.

Two processes are set out below for comments – one for review and comment on the Evaluation Planning effort and a second for the review of interim and draft impact reports.

10.1. Evaluation Planning—Review and Comment Process

~~The DRMEC~~Commission staff will be responsible for working with the utilities (or another identified lead entity) in developing evaluation plans for all statewide or local DR programs that are to have load impacts estimated. ~~The DRMEC will develop a process to determine which demand response programs/activities or tariffs should be evaluated and how frequently meetings should be held. The DRMC is responsible for finalizing the process of deciding~~

~~which DR programs or tariffs should have impact evaluations within 90 days of this order.~~ The DRMEC will also be responsible for ensuring the issues identified in the evaluation planning sections of the load impact protocols are covered during this planning process. The following actions will be undertaken:

1. DRMEC members will identify utility or state staff leads that will be responsible for developing draft evaluation plans for selected projects. The DRMEC will also review draft and final research plans for local utility programs.
2. The DRMEC is to oversee the drafting of the IOU evaluation plans. These drafts should be sent to CPUC staff and DRMEC for comment. ~~interested utility program managers and/or evaluators and to the service list (preferably the list established for the review and authorization of DR programs in the last round) or for those who want to participate on the DRMEC for comment.~~
3. The ~~Utility or DRMEC~~ member responsible for drafting the evaluation plan is responsible for ensuring that comments are solicited from DRMEC and Joint Staff~~key stakeholders~~ and 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 comment period, including responses to them, will be set by ~~the DRMEC~~Commission staff, taking into account the complexity and length of the documents. Absent good reason, the period for comments on evaluation plans will be 15 business days.
4. The final evaluation plan will be made available to Joint Staff and DRMEC members~~and parties to previous DR proceedings~~ upon request.
5. Responses to the evaluation plan comments are required by filing parties that have received comments from DRMEC, Energy Division, Public Advocates Office, California Energy Commission, or other reviewing party. Updated methods sections specifically addressing the comments made by reviewers are due by the second week of March or as determined by Energy Division.

~~10.2. Review of Interim and Draft Load Impact Reports~~

~~The utility or contract manager is responsible for facilitating the production of a readable first draft of the load impact report. There may also be interim reports specified in the evaluation plan that will also be subject to a review and comment process. Interim reports may be useful to the impact estimation effort by ensuring interim work products are to be consistent with the protocols. The review and comment process will consist of:~~

~~1. The interim or draft load impact report will be sent to both the members of the DRMEC and the service list and Joint Staff with a request for comments in at least 5 business days or more, within the time limit determined by Commission staff the DRMEC. The DRMEC can, at its discretion, choose to meet to discuss any the study or conduct the study review by e-mail.~~

10.2.~~3.~~ Review of Final Load Impact Reports

The utility or research manager is responsible for reviewing the comments received and identifying which comments have been incorporated or responded to in the final report.

Copies of the final load impact report should be filed on the CALMAC website and a notice of its availability should be sent out to the service list for the previous demand response rulemaking.

1.2. Adopted Modifications to D.10-04-006

The following modifications to D.10-04-006 are adopted. Adopted additions are underlined and deletions are struck through.

D.10-04-006, Appendix 1 at 1:

Southern California Edison Company, San Diego Gas & Electric Company, and Pacific Gas and Electric Company (collectively, the Utilities) may optionally~~shall~~ prepare the following executive summary and are required to prepare the summary tables described below as a part of their annual load impact reports, and shall file this summary information in R.07-01-041 or its successor proceeding, as long as such a proceeding is open. While the executive summary is not required to be in its own, separate filing, the information required herein is still required in either the individual DR program filings or the executive summary.

The executive summary (if filed separately from individual DR program filings) and the summary table are due three weeks after the individual DR program filings are due. If individual filings are due April 1, the executive summary and summary tables are due April 22.

Optional Executive Summary ~~Requirement~~

Consistent with D.08-04-050, Attachment A, Protocol 26 under item 4, the utilities shall prepare Executive Summaries of their load impact reports. These executive summaries shall include an overview of the evaluation findings and the study's recommendation for changes to the demand response resource. In addition, it should also describe briefly the methodology, the enrollment forecast and the inputs and assumptions used for calculating the ex post and the ex ante load impact estimates. The utilities should also report the regression model specification for each demand response program.

The Executive Summary shall also contain an explanation of how the Monthly System Worst~~Peak Load~~ Day under the "1-in-2 Weather Conditions" ~~and the "1-in-10 Weather Conditions"~~ were derived and disclose the temperature or Weather Year used for those conditions. It shall also disclose the assumption used for ex ante "portfolio basis" load impacts.

Summary Table Requirement

The Summary Tables to be filed along with the Executive Summary of each utility's load impact reports shall include the aggregate average ex ante load

impacts for each Monthly System Worst~~Peak Load~~ Day under a 1-in-2 Weather Condition ~~and a 1-in-10 Weather Condition~~ for the next 10 years. The average impact shall be based on the hours ~~from 2 p.m. 6 p.m. or other peak hours~~ consistent with the average hours used in calculations in the current Resource Adequacy proceeding, R.23-10-011~~09-10-032~~, or a successor Resource Adequacy proceeding. Each utility's summary tables shall include two sets of ex ante load impact estimated tables for each Demand Response resource program: "program-specific" load impact estimates that would occur if events are called only under that program; and "portfolio basis" load impact estimates that would be attributed to that program if simultaneous events were called under all programs. All utility demand response programs must appear in the Summary Table, and shall be divided into five categories: Emergency Programs, Price Responsive Programs, Demand Response Aggregator Managed Programs, Demand Response Enabled Programs, and Non-Event Based Resource(s). The list in the Summary Table need not be identical to those contained in the utility's demand response monthly reports.

1.3. Adopted Modifications to D.10-06-036

The following modifications to D.10-06-036 are adopted. Adopted additions are underlined and deletions are struck through.

D.10-06-036, Appendix B at 22:

In order for DR programs to receive local capacity credit for RA, the load impact must be broken down by local areas. ~~However, this breakdown is not required for all months – it is only required for August.~~If a filer is not requesting any local RA, breakdown at the Sub-LAP level in ex ante are not required.

(End of Appendix C)