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Stakeholder Comments Template: Methodology Minimum Components

Submit comments to: Tom.Flynn@energy.ca.gov

Comments are due Thursday, Oct 21 by 5:00 p.m.

Partial or draft responses may be discussed on Monday, Oct 18. Please contact Tom by Thursday, Oct 14 if you are interested in presenting.

All comments received will be posted to CEC Docket 21-DR-01

Instructions (Sponsors only): CEC staff is requesting stakeholder clarification on QC methodology proposals from sponsors of the initial QC methodologies and hybrid approaches. This comments template includes two components considered the minimum required for a complete proposal, as well as three other components that may support a methodology proposal but are not required.

For each component, please describe what is proposed under the proposed methodology with as much specificity as possible and explain how the proposed methodology satisfies each component. The status quo approach has been completed as an example.

Minimum Required Components

- **Ex ante Resource Capability Profile:** Resource capabilities refer to the characterization of load impacts over a coming term (e.g. RA showing month). Capabilities may be influenced by factors including ambient temperature, day of the week, time of the day, and locational marginal price (LMP), among others. Typically, these are modeled from historical load impacts. Resource capabilities also includes resource constraints such as dispatch time, maximum number of dispatches or dispatch hours, load impacts outside of dispatch hours (such as pre-cooling and snapback). Finally, resource capabilities include any predicted changes in enrollment and customer composition.
 - a. **Status Quo (LIP+CPUC):** The LIPs include a regression of load impacts over the availability assessment hours (AAH), which are currently 4–9 p.m. on non-holiday weekdays. For weather-sensitive DR resources, the regression is specified as a function of temperature. The results are summarized as an hourly supply curve for a “peak day” for each month. For aggregations of small resources such as residential customers, capabilities are expressed per customer, then adjusted by forecasted enrollment.

- b. **PJM/NYISO Model:** Resource capability is based on the IOU/DRP's assessment of its current and future capabilities under the CPUC-approved availability requirements which currently consist of:

- Availability Assessment Hours (currently 4:00-9:00 p.m.)
- Monday-Saturday availability
- Capable of dispatching for three consecutive days for up to four hours per dispatch
- Capable of dispatching for up to 24 hours/month

The capabilities are based on the following inputs:

- Customer class/size
- Nature of load being aggregated
- Dispatch method
- Current and projected number of Service Accounts
- Projected aggregated load (aggregated capacity in the case of BTM energy storage)
- Projected % of load impact or reduction (projected % of capacity delivered for energy storage)
- Historical performance data

- **Ex ante Qualifying Capacity:** *Ex ante* QC is the translation of resource capabilities (above) to a single value capacity value representing a contribution to reliability. Crucially, this value (and the capacity price) directly determines the capacity compensation DRPs earn. QC is calculated annually for supply planning and monthly for RA showing.

- a. **Status Quo (LIP+CPUC):** QC is the average predicted load impact under the utilities' monthly 1-in-2 peak temperature forecast conditions over the AAH. The AAH were selected to reflect the hours under which loss of load probability (LOLP) tends to be highest and in that way attempts to quantify contribution to reliability. However, the AAH windows are prescriptive, and the methodology does not account for the variability in factors like LOLP or LMP over that timeframe. These calculated QC values are then sent to the CPUC, which makes a reasonableness determination of the claimed values and adjusts them at staff discretion.
- b. **PJM/NYISO Model:** QC is a single monthly value representing the average predicted load impact under 1-in-2 weather conditions over the AAH time frame during the Monday-Saturday window for up to three years in advance. A three-year outlook is needed to allow capacity to be sold for up to three years rather than the current one-year limit. This is especially relevant for DRPs intending to sell Local Resource Adequacy (RA), which is currently a three-year forward market, and will also provide added flexibility for DRPs who seek to execute multi-year RA contracts. IOU/DRPs may use whatever proprietary analytical tools they choose to determine their QC values. As will be discussed further below, it is in the IOU/DRP's best interest to accurately predict their QC values.

If this methodology is applied to IOU DR programs, QCs are determined by program at the System and Local Capacity Area (LCA) levels. For DRPs, QCs are determined by portfolio at the System level at minimum, and at the LCA level as well if the DRP intends to sell Local Resource Adequacy (RA) capacity. Unlike the current methodology, IOUs and DRPs would not be required to provide QC values at the sub-Load Aggregation Point (subLAP) level because it is often very difficult to predict with any accuracy the exact customer composition within each subLAP.

Additional Components

The following components may not be required for determining QC but are identified as important interrelated aspects of a QC methodology proposal. If relevant, describe any changes required for your proposed methodology relative to the status quo for each of the following.

1. **Event Load Impacts:** Load impacts are the calculated reductions in electric demand relative to some baseline for a given DR event or dispatch. One topic of the CPUC request for the CEC to address through this working group is the “alignment of DR M&V methods in the operational space for CAISO market settlement purposes with methods to determine RA QC in the planning space.” Describe the extent to which the methodology addresses any misalignment in load impact calculation methods between settlement (i.e., operational) and in determining QC (i.e., planning).
 - a. **Status Quo (LIP+CPUC):** Under the Load Impact Protocols (LIPs), load impacts are typically calculated by independent evaluation, measurement, and verification (EM&V) consultants. The accepted methods to do so are generally the same as those used in CAISO settlements: day-matching, weather-matching, and control groups. However, some demand response providers (DRPs) have reported barriers to implementing control groups for settlements and still others have reported barriers implementing control groups for QC valuation. As such, weather-dependent DR resources are at risk of being undervalued in both markets.
 - b. **PJM/NYISO Model:** IOU/DRP performance relative to their Awarded QC is measured by comparing the Demonstrated Capacity of the constituent resources to the month-ahead Supply Plan. Demonstrated Capacity reflects CAISO market performance through economic dispatch or test events, or, when there is no economic dispatch or test event, market bids during the Availability Assessment Hours. This approach will directly align CAISO market settlement with M&V because IOU/DRPs will be required to bid consistent with their monthly Supply Plans.
2. **Capacity Measurement & Verification:** The CPUC asks the CEC “to develop recommendations for a comprehensive and consistent M&V strategy, including a new capacity counting methodology for DR addressing *ex post* and *ex ante* load impacts.” Describe the role of M&V in the proposed capacity counting methodology.
 - c. **Status Quo (LIP+CPUC):** DR performance is measured by bids during the AAH. So long as these bids are entered into the market, there is no assessment of actual performance to

CEC staff's knowledge. To the extent DR resources do not perform when dispatched, they are subject only to replacing the energy in the spot market.

- d. **PJM/NYISO Model:** As described in the response immediately above, M&V will consist of comparing Demonstrated Capacity (i.e., ex post load impacts) to monthly Supply Plan QC values (i.e., ex ante load impacts). As discussed below, this M&V will inform any necessary penalties for underperformance.
3. **Incentive Mechanisms:** Incentive mechanisms exist to ensure DRPs accurately claim, offer, and deliver capacity awards. Typically, incentive mechanisms exist as financial penalties for underperformance. The ELCC methodologies enumerated in the CPUC request include requested exemptions to the Resource Adequacy Availability Incentive Mechanism (RAAIM). Describe whether the RAAIM, no incentive mechanism, or an alternate mechanism would be appropriate. Include a description of any alternate mechanisms or proposed changes to the RAAIM if appropriate.
- e. **Status Quo (LIP+CPUC):** The RAAIM is imposed on resources that fail to bid their capacity obligations over the AAH. Because the AAH are fixed and do not account for the variable nature of DR, DRPs are concerned they would be penalized for placing realistic bids that are less than QC. However, the RAAIM is not imposed on resources <1 MW, so many DRPs have simply aggregated their underlying participants into resources under 1 MW, leaving DRPs with no availability penalty in practice.
 - f. **PJM/NYISO Model:** This proposal will eliminate the need for the RAAIM because IOU/DRPs would be subject to capacity-based penalties for underperformance in the CAISO market based on Demonstrated Capacity relative to monthly Supply Plan values. This penalty structure will be applied annually to IOUs and DRPs but would be implemented in distinct ways. DRPs would be subject to an up-front \$2,500/MW-year collateral requirement for contracted QC only, prorated by month, held in escrow by the Energy Division. DRP performance will not be based on their Awarded QC values unless the entire amount of Awarded QC is contracted out. IOU performance will be based on their portfolio-level Awarded QC values and will be subject to the same penalty structure as DRPs but through a separate penalty payment. The process for applying this penalty is to be determined.

In the penalty table below, Demonstrated Capacity (DC) would be determined through either a market dispatch, test event, or bids during the CAISO Must-Offer Obligation (MOO) hours.

PJM/NYISO Model Penalty Structure	
Monthly Supply Plan vs. DC Value	Penalty
100% - 90% of month-ahead supply plan	None
<90% to >=75% of month-ahead supply plan	10% of DC
<75% to >=50% of month-ahead supply plan	25% of DC

<50% of month-ahead supply plan	50% of DC
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Any additional comments

The table below shows the process for each QC assessment which could be done as frequently as quarterly.

<u>“PJM/NYISO” Model</u> <u>QC Assessment Process</u>			
<u>Stage</u>	<u>Step #</u>	<u>Dates</u>	<u>Action</u>
IOU/DRP analysis	1	N/A	IOU/DRP performs internal analysis to calculate Claimed QC (i.e., the amount of QC the IOU/DRP forecasts that it can provide) for each month at the System- and LCA-level (IOUs only) and at the System-level with an option for LCA-level for DRPs. Claimed QC values can be made for up to three years in advance
Energy Division Assessment	2	<ul style="list-style-type: none"> - February 1 - May 1 - August 1 - November 1 	IOU/DRP provides completed Claimed QC Reporting and appropriate Supporting Data for Claimed Qualifying Capacity templates to Energy Division for review
	3	N/A	Energy Division assesses and follows up with IOU/DRP as necessary for additional documentation or clarifying questions
	4	<ul style="list-style-type: none"> - March 1 - June 1 - September 1 - December 1 	Energy Division awards final QC values (Awarded QC) and posts on current CPUC NQC List
Implementation	5	N/A	IOU updates year-ahead/month-ahead Supply Plan as applicable; DRP contracts out QC and includes <u>contracted QC only</u> in year-ahead/month-ahead Supply Plan as applicable
Measurement & Valuation	6	January 1	On an annual basis, IOU/DRPs submit to Energy Division their completed Demonstrated Capacity template

	7	February 1	Energy Division assesses underperformance penalties to IOU/DRPs as necessary
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Template 1 Claimed Qualifying Capacity												
Area	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Bay Area												
Fresno												
Humboldt												
Kern												
NCNB												
Sierra												
Stockton												
LA Basin												
Big Creek-Ventura												
San Diego-IV												
System												

Template 2 Supporting Data for Claimed Qualifying Capacity – Residential Customers												
Area	Load Type(s) (Air Conditioning, Energy Storage-Building Load, Pumps, Electric Vehicles, Other - describe)	Dispatch Method (DRP Controlled, Customer Automated, Manual or Other - describe)	# Registered Service Accounts	# Forecasted Service Accounts	Total Projected Service Accounts	Projected Load of Registered Customers (kW)	Projected Load of Forecasted Customers (kW)	Total Projected Load (MW)	Per-customer Impact of Registered SAs (kW)	Per-customer Impact of Forecasted SAs (kW)	Total Projected Load Impact (kW)	Total Load Impact/ Total Load (%)

Bay Area												
Fresno												
Humboldt												
Kern												
NCNB												
Sierra												
Stockton												
LA Basin												
Big Creek-Ventura												
San Diego-IV												
System												

	Template 3 Supporting Data for Claimed Qualifying Capacity – Non-residential Customers											
Area	Load Type(s) (Air Conditioning, Energy Storage-Building Load, Pumps, Electric Vehicles, Other - describe)	Dispatch Method (DRP Controlled, Customer Automated, Manual or Other - describe)	# Registered Service Accounts	# Forecasted Service Accounts	Total Projected Service Accounts	Projected Load of Registered Customers (kW)	Projected Load of Forecasted Customers (kW)	Total Projected Load (MW)	Total Impact of Registered SAs (kW)	Total Impact of Forecasted SAs (kW)	Total Projected Load Impact (kW)	Total Load Impact/ Total Load (%)
Bay Area												
Fresno												
Humboldt												
Kern												
NCNB												
Sierra												
Stockton												
LA Basin												

Big Creek- Ventura												
San Diego-IV												
System												

[Insert Template 4 – Demonstrated Capacity Worksheet and Template 5 – Penalty Calculation Worksheet]