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Panel 3: Stakeholder Working Group Process and Path Forward

December 3, 2021

Qualifying Capacity

- Qualifying Capacity (QC): Maximum capacity eligible for Resource Adequacy
- Methodologies for QC valuation
  - Natural Gas Power Plant: Nameplate capacity
  - Wind and Solar: Effective Load Carrying Capability (ELCC)
  - Demand Response: Demand reduction predicted using Load Impact Protocols (LIP)

DR QC History

- California ISO moved to require all DR on supply plans
- CPUC agreed, subject to conditions:
  - DR permitted to bid variably and exempt from CAISO penalty
- ISO agreed, subject to conditions on QC methodology:
  - DR's contribution to reliability as a variable-output resource
  - Interactive effects with other similarly-situated resources

See CAISO PRR 1280, CPUC D.21-06-029

CPUC Request to CEC

Develop actionable recommendations for several DR QC issues:

1. Bid-informed ELCC (CAISO)
2. LIP-informed ELCC (PG&E)
3. Other proposals

QC Methodologies
Initial working group focus

4. Alignment of operational and planning spaces
5. Intra-cycle adjustments to DR QC during RA compliance year
6. Phasing of modifications to DR QC methodology
7. Reflecting changes to DR adders in DR QC methodology

See CPUC D.21-06-029

CEC Working Group Approach

Robust stakeholder process with weekly meetings including utilities, DR and storage providers, energy consultants, agencies, and the ISO

Phase 1: Parallel Working Groups

1. **Principles:** Develop set of principles used to assess proposals
2. **Methodologies:** Catalog, compare, and contrast proposals

Phase 2: Combined Working Group

- Recent focus on possibility of interim solutions for 2023
- Assess proposed methodologies using Principles

Identified DR Issues

1. **Crediting:** Majority of IOU DR resources are not subject to CAISO's rules for ensuring reliability
2. **QC Methodology:** Current approach imprecisely values contribution to reliability
3. **Incentive Mechanisms:** Penalties for falling short of commitments were not designed for DR
4. **Settlements:** Baseline methods do not accurately account for weather-sensitive resources
5. **Process:** Load Impact Protocols and QC assignment process are onerous, expensive, and opaque

IOU = Investor-Owned Utility

Proposed Principles from Working Group 1-5

The QC methodology should:

1. Be transparent and understandable.
2. Use best available information regarding resource capabilities, including recent historical performance and participant enrollment and composition projections.
3. Allow DR providers to quickly determine or update QC values.
4. Be consistent and compatible with the resource adequacy program.
5. Account for any use limitations, availability limitations, and variability in output of DR resources.

Proposed Principles from Working Group 6-9

The QC methodology should:

6. Translate a DR resource's load reduction capabilities into its contribution to reliability.
7. Include methods to determine delivered capacity (ex-post) that are compatible with the determination of qualifying capacity (ex-ante).
8. Not present a substantial barrier to participation in the RA program.
9. Flexibly account for the reliability contribution of a resource given the other resources on the system.

RA = Resource Adequacy

Methodology Library

1. Load Impact Protocols *Status Quo*
2. Effective Load Carrying Capability
3. Market-based Bidding Approach
4. Enhancements to Load Impact Protocols

Stakeholder Proposals

PJM/NYISO-informed Market-based Approach
Luke Tougas, California Efficiency + Demand Management Council

LIP + ELCC
Gil Wong, Pacific Gas & Electric

Thank You

California Energy Commission IEPR Workshop on Supply-Side Demand Response

QC Methodology Proposals

December 3, 2021

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Current DR QC Process

- Currently, IOUs and third-party DR providers ("DRPs") determine their DR Qualifying Capacity ("QC") values using the Load Impact Protocols ("LIPs")
- There are 27 LIPs which 1) provide guidance on how to perform regression analyses to determine DR ex post (actual) values for the prior year and ex ante (forecasted) values for ten years into the future, and 2) specify the requirements for reporting on the regression analyses
- IOUs/DRPs must retain consultants to perform the analyses which can be very costly
- Annual process begins at end of Delivery Year - 2 (e.g., end of 2021 for 2023 delivery) and lasts 7+ months long before IOUs/DRPs receive their final QC values from the CPUC Energy Division

The LIPs Are Not Well-Suited to DRPs

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- The LIPs have been fairly effective for estimating DR QC values for IOU DR programs because they tend to me more static and typically have greater participation compared to third-party DRPs
- However, the LIPs are problematic for third-party DRPs which can act as a barrier
- Accuracy of LIPs is questionable for dynamic portfolios
  - DRP portfolios can change frequently
  - Looks at historical performance from 2 years prior to delivery year
  - Requires IOUs/DRPs to forecast QC values at the subLAP level
- LIP process lacks transparency, and is very costly and time-consuming
  - Difficult to know exactly how Energy Division assesses LIP evaluations
  - Consultant costs exceed $100,000 with no certainty of cost recovery
  - Approximately 7-month process to receive QC values
- Need for consultants acts as a bottleneck

A New Approach is Needed

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- DR growth will continue to occur through DRPs, so a new QC methodology is needed that better conforms with their business realities while ensuring reliability of DR resources
- Key requirements include:
  - Reflect actual IOU/DRP capabilities based on the most current information
  - Reduce the timeline for QC value determination
  - Improve transparency of Energy Division assessment
  - Minimize cost to IOUs/DRPs
  - Eliminate or reduce need for outside consultants
  - Reduce Energy Division workload
- Propose 2 potential options
  - "PJM/NYISO" method (preferred) which can be deployed as early as 2023 RA year and easily modified for Slice-of-Day framework
  - Streamlined LIPs method – best deployed once Slice-of-Day framework is finalized

Option 1: "PJM/NYISO" Method

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- Propose to adopt the general approach used by the eastern ISO/RTOs
  - Replaces up-front analytical rigor of the LIPs with an after-the-fact assessment and penalty structure for under-performance
  - Maintains Energy Division oversight role
- Key elements of proposal
  - IOUs/DRPs perform internal analysis on QC values and submit proposed QC values and inputs to Energy Division
  - Energy Division retains its current role of making final QC determination
  - DRPs provide collateral based on amount of QC under contract
  - IOU/DRP monthly performance is measured against QC values (against contracted capacity for DRPs); penalties assessed for underperformance

Pros vs. Cons

- Pros
  - Addresses most of the key requirements mentioned above

Business Requirement	Satisfies?
Reflects actual IOU/DRP capabilities	Yes
Reduces the timeline for QC value determination	Yes
Improves transparency of Energy Division assessment	Somewhat
Minimizes cost to IOUs/DRPs	Yes
Eliminates need for outside consultants	Yes
Reduces Energy Division workload	Yes

  - Directly links QC values to CAISO market performance
  - Enforces reliability of QC deliveries through penalty structure
  - Maintains Energy Division oversight role
  - Can be easily implemented in interim beginning in 2023 and easily conformed to the Slice-of-Day framework as a long-term solution
- Cons
  - Represents a completely new approach so comfort level may be low

Option 2: Streamlined LIPs Method

- Streamline the current LIP process to shorten the time and cost
  - Meant to be a compromise proposal
  - Retains upfront analytical rigor to preserve a degree of comfort for key parties while addressing at least some of the DRP requirements
- Key elements of proposal
  - Eliminate approx. 50% of current LIPs and modify several others to focus solely on short-term (1-3 year) QC values
  - Would require development of one or more centralized, open-access models that IOUs/DRPs would use to calculate their QC values (similar to the Avoided Cost Calculator)
  - Energy Division retains its current role of making final QC determination

Pros vs. Cons

- Pros
  - Addresses some of the key requirements

Business Requirement	Satisfies?
Reflects actual IOU/DRP capabilities	Somewhat
Reduces the timeline for QC value determination	Yes
Improves transparency of Energy Division assessment	Somewhat
Minimizes cost to IOUs/DRPs	Somewhat
Eliminates need for outside consultants	Somewhat
Reduces Energy Division workload	Yes

  - Better comfort level by retaining the basic LIP structure
  - Maintains Energy Division oversight role
- Cons
  - Risks reducing flexibility of current LIPs
  - Does not directly link QC value to CAISO market performance
  - No enforcement structure other than RAAIM
  - Significant work required to implement; likely not a good fit for 2023
  - Additional work will be required to conform with Slice-of-Day framework

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Questions?

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IOU Recommendations for DR Qualifying Capacity Methodology

—A Phased Approach with Optionality

Gil Wong
PG&E
December 3, 2021

Together, Building a Better California

Overview

***Objective*: To offer a viable path forward to resolve the misalignment in the valuation of DR resources**

- The IOUs recommend a phased approach:
  - optionality with the interim approach is allowed for RA 2023 while a permanent methodology is being developed for RA 2024 and beyond
  - the interim approach for RA 2023 does not constitute precedence for the permanent methodology

- A guiding principle for RA 2024 and beyond: the permanent QC methodology should be compatible with the slice-of-day framework and any other RA relating framework activities that is initiated during this time period

Optionality for RA Year 2023

- Parties can choose between the current methodology (LIP-alone) or LIP-informed ELCC, with the understanding that CAISO will provide RAAIM exemption for QC derived from LIP-informed ELCC whereas QC based on LIP alone may not qualify for the exemption

- Interested stakeholders of the WG (IOUs, DRPs, CAISO, etc.) will seek better understanding of the ELCC modeling and modify the assumptions for RA 2023, where appropriate

LIP-informed ELCC for RA Year 2023

2 Approaches depending on Energy Division timeline

a) ELCC Heat Map

The IOUs would prefer a heat map of derates that incorporate DR characteristics (i.e., event duration and event frequency) be developed prior to the 4/1/22 Load Impact filings, such that the derate factors can be applied to the ex-ante load impacts

- With derate factors available by March, the current year-ahead RA allocation timeline can remain unchanged
- More certainty to stakeholders who want to adopt ELCC derates

b) ELCC using Load Impact Profiles

The IOUs are open to running ELCC using load impact profiles, if the IOUs can review/accept the results and ED can accommodate the ELCC results into the year-ahead RA allocation process

Example: ELCC Heat Map with Call Frequency and Event Duration

First-in ELCC

2019

ELCC (% of nameplate)	Max annual calls						
Max call duration (hrs)	1	2	4	5	10	15	20
1	46%	50%	51%	51%	51%	51%	51%
2	63%	73%	78%	78%	78%	78%	78%
4	70%	81%	94%	95%	95%	95%	95%
6	70%	81%	94%	95%	95%	95%	95%
8	70%	81%	94%	95%	95%	95%	95%

No interactions with storage – therefore no expected significant differences

2030

ELCC (% of nameplate)	Max annual calls						
Max call duration (hrs)	1	2	4	5	10	15	20
1	41%	43%	43%	43%	43%	43%	43%
2	60%	65%	65%	65%	65%	65%	65%
4	72%	91%	95%	95%	95%	95%	95%
6	73%	92%	98%	98%	98%	98%	98%
8	73%	92%	98%	98%	98%	98%	98%

Last-in ELCC

2019

ELCC (% of nameplate)	Max annual calls						
Max call duration (hrs)	1	2	4	5	10	15	20
1	59%	73%	73%	73%	73%	73%	73%
2	74%	90%	94%	94%	94%	94%	94%
4	77%	98%	100%	100%	100%	100%	100%
6	77%	98%	100%	100%	100%	100%	100%
8	77%	98%	100%	100%	100%	100%	100%

Significant degradation in last-in ELCC in 2030 is driven by saturation of energy-limited resources, primarily storage

2030

ELCC (% of nameplate)	Max annual calls						
Max call duration (hrs)	1	2	4	5	10	15	20
1	35%	37%	37%	37%	37%	37%	37%
2	44%	49%	49%	49%	49%	49%	49%
4	52%	65%	69%	69%	69%	69%	69%
6	56%	77%	77%	77%	77%	77%	77%
8	75%	91%	93%	93%	93%	93%	93%

Source: E3 ELCC Analysis

Recommended Next Steps

- A sub-group consisted of interested stakeholders to flesh out the interim approach and modify ELCC assumptions, where appropriate, for RA 2023
  - Expected completion date: Jan 2022
- The main group focuses on the permanent methodology for RA 2024 and beyond
- No later than 3/18/2022, WG report submitted to CPUC

Thank You!

Questions? Please contact Gil Wong (Gil.Wong@pge.com)