

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**



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Order Instituting Rulemaking to Oversee  
the Resource Adequacy Program, Consider  
Program Refinements, and Establish  
Annual Local and Flexible Procurement  
Obligations for the 2016 and 2017  
Compliance Years.

Rulemaking 14-10-010  
(Filed October 16, 2014)

**REVISED PROPOSALS AND RESPONSES TO ALJ RULING  
OF SAN DIEGO GAS & ELECTRIC COMPANY (U902E)**

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San Diego Gas & Electric Company (SDG&E) hereby submits its Revised Proposals pursuant to the Assigned Commissioner and Administrative Law Judge's Phase 2 Scoping Memo and Ruling issued by Assigned Commissioner Florio and Administrative Law Judge Dudney (Scoping Memo), on December 23, 2015, as supplemented by the E-mail Ruling of ALJ Dudney, issued February 17, 2016. SDG&E presents its revised proposal for a streamlined and updated version of the load impact analysis for Qualifying Capacity (QC) methodology and responds to the seven questions posed in ALJ Dudney's February 17 Ruling below.

**I. A SIMPLIFIED LOAD IMPACT PROTOCOL ANALYSIS FOR SUPPLY-SIDE DEMAND RESPONSE RESOURCES**

In its Comments, SDG&E outlined a streamlined and updated version of the load impact analysis for QC methodology for adoption in this proceeding:

The streamlined Load Impact Protocols (LIP) should include only inputs that pertain to the QC calculation. When performance of a Proxy Demand Response (PDR) is expected to be similar to historical performance rather than requiring Demand Response (DR) providers or Investor Owned Utilities (IOUs) to submit LIP analysis results, Energy Division should run the analysis for all parties as it does with other resources. IOUs can provide aggregate meter data of its participating customers by program. Third party DR providers would be able to request customer meter data from IOUs or Load Serving Entities (LSE) if the customer will participate in the third party program. Third party DR providers would then aggregate the meter data to Energy Division for the QC calculation. Since the CAISO baseline settlement method are allowed to be used by the LIP, the

Energy Division would have the flexibility to use either settlement results or alternate mathematical methods that comply with the LIP to inform the QC calculation.<sup>1</sup>

Indeed, the Commission noted in the Resource Adequacy (RA) proceeding “that the use of LIPs for QC and Effective Flexible Capacity (EFC) should be revisited and either refined or replaced in the future.”<sup>2</sup> However, at the workshop, Energy Division dismissed SDG&E’s alternate proposal for a simplified LIP as requiring a change to the current LIPs in the Demand Response Proceeding. SDG&E submits that its revised alternate proposal only refines the LIPs and does not remove it, unlike Energy Division’s proposal. The Commission should not eliminate the option of a simplified LIP analysis for supply-side DR resources.

The Demand Response proceeding established the LIP analysis to establish the megawatt value of DR. The RA proceeding, D.14-06-050 established the QC methodology for supply-side DR. There are 27 protocols within the load impact protocols analysis.<sup>3</sup> A list of the protocols and whether or not the outputs of each protocol are used to calculate the qualifying capacity for RA is included in Appendix “A”.

Only the output of two (2) of the 27 protocols are primarily used to determine the qualifying capacity for the RA proceeding for event based resources. The two primary protocols are #18 and #22. The forecast required by these ex-ante output protocols is calculated based on the ex-post historical results required by protocols #4 and #8. Therefore, SDG&E proposes that supply-side DR resources should submit data that satisfies protocols #4 and #8<sup>4</sup> to the Energy Division to calculate the monthly QC value required by protocols #18 and #22.

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<sup>1</sup> See, SDG&E Comments filed in R.14-10-010, January 29, 2016, at p. 8.

<sup>2</sup> See, D.14-06-050, at p. 34.

<sup>3</sup> D.08-04-050, Appendix A.

<sup>4</sup> Protocol #7 specifies the format for the information required by protocols #4 and #8 but has no requirements of its own.

It is not overly cumbersome to conduct an analysis that satisfies the load impact protocols that are relevant to the calculation of qualifying capacity for RA. For protocols #4 and #8, the CAISO settlement baseline already calculates the hourly ex-post results for the demand response resource for each hour the resource was dispatched as well as for any test events. Therefore, information is already available through the settlement process based on the PDR data that satisfies protocols #4 and #8. The Energy Division could take this data available from the CAISO and calculate monthly forecast based on an average of the most relevant subset of the historical dispatches to satisfy protocols #18 and #22. This result would provide the monthly QC value for the supply-side DR resource.

If the supply-side DR resource expects enrollment to increase, then it may submit a forecast that includes projected growth along with an explanation of why the forecast differs from the ex-post results as required by protocol #17. Also, the supply-side DR resource may submit a methodology to calculate the historical load impact required by the ex-post protocols #4 and #8 other than the CAISO settlement baseline if an alternative methodology more accurately estimates the ex-post results. In that case, the resource should be allowed to submit the historical results required by ex-post protocols #4 and #8 using the alternate methodology along with the statistics to demonstrate that the alternative methodology is accurate. This is required by protocols #9, #10 and #23 and would allow Energy Division to calculate the QC value based on those protocols in place of protocols #18 and #22. This is only necessary if the resource wishes a methodology other than the CAISO settlement baseline to be used.

In summary, SDG&E proposes the Energy Division calculate the QC values for existing PDRs using its annual CAISO subpoena to gather data for protocols #4 and #8. For new supply-side DR resources, both DR providers as well as IOUs should submit data to Energy Division

staff to calculate the QC value based on protocols #9, #10 and #23. The staff would perform the LIP based on the data and output the monthly QC value. This would enable supply-side DR resources to receive a QC value quickly and efficiently, similar to that of other resources.

SDG&E's proposal also would not rely on RA contracts including demonstrated capacity provisions because the LIPs provide the disincentives for non-performance. If the ultimate goal for supply-side DR resources to be treated similar to other generation resources, then the Commission should adopt SDG&E's proposal to realize the Commission's goal.

## **II. RESPONSES TO QUESTIONS POSED IN ALJ RULING**

ALJ Dudney has posed a number of questions regarding the CAISO proposal that, in order for a resource to be eligible for Local RA, it must meet one of the following requirements: (1) response time of 20 minutes or less, or (2) sufficient energy available for frequent dispatch on a pre-contingency basis has significant implications, particularly for Demand Response (DR) resources and should be considered on a fully informed basis. SDG&E presents its comments on this issue below.

### **a. DR Does Not Have to Be 20 Minute Responsive to Count for Local RA**

The CAISO has to be able to reconfigure the system within 30 minutes after a contingency occurs (N-1) to remain within ratings after a second contingency occurs (N-1-1). Shedding of load is not acceptable mitigation for dense urban areas (like portions of the San Diego Local area and certain monitored paths with System Operating Limits (SOL)). The N-1-1 Local Capacity Requirement (LCR) for San Diego started in 2012 after SONGS went off-line early in the year and the Sunrise Power Link went into service in the summer. Before 2012 the San Diego LCR was established based on the amount of dependable capacity needed within the San Diego local area to mitigate an overload that occurred following the largest San Diego area

power plant tripping (Otay Mesa - G1) and the Southwest Powerlink (SWPL) tripping N-1. The amount of dependable capacity required within the San Diego area to mitigate a G1/N1 contingency condition was much less than what is required for the current N-1-1 contingency condition (the outage of SWPL followed by the outage of the Sunrise Powerlink). Under the old G1/N-1 requirement load shedding within dense urban areas for an N-1-1 contingency condition was allowed mitigation.

Being 20 minute responsive would allow DR to count for Local RA, but this level of responsiveness is not required. The DR only has to be implemented within 30 minutes of a first contingency to assure a second contingency would not put the system outside of ratings. This can be accomplished by pre-dispatching DR (even day-ahead) so it is available if it were determined that a possible N-1-1 event would result in a violation of reliability standards. The CAISO does this type of pre-dispatch all the time for long-start resources. Whenever peak loads are expected in a local area, the CAISO will pre-dispatch the long start units (like the Encina steam boiler plant in the San Diego local area). The CAISO allows these long start units (> 30 minutes and often many hours) to count for Local RA. So the real question is: How many hours and occurrences must DR be able to be pre-dispatched for in order to count for Local RA?

**b. The CAISO's Proposal Mixes Planning and Operations Requirements**

At the February 18, 2016 RA proceeding workshop, the CAISO repeatedly represented that they could not tell when a contingency would occur, so the limited number of hours that DR is available each year makes it necessary for DR to be 20 minute responsive. This representation is misleading because it fails to acknowledge that option of pre-dispatching DR in anticipation of contingencies may be consistent with the limited hours of DR availability. It is true that contingencies can't be predicted. However, that is not what is important. Local LCRs are set

assuming the N-1-1 contingencies will occur at the time of 1-in-10 year peak load levels.

SDG&E agrees that the long start DR must be able to be implemented to cover this planning standard. Also the “long start DR” must be able to be implemented to cover load any time the load is above the 1-in-10 peak load level less the MW level of the DR that is not 20 minute responsive. For example, with a 1-in-10 year planning peak load of 5,500 MWs, 40 MWs of 20 minute DR and 60 MWs of long start DR; any time the local area load is predicted to exceed 5,440 MW (i.e., 5,441 MW), some or all long start DR must be pre-dispatched.

For most/all local areas, the amount of time the system is actually at this very high load level will be quite small. For the San Diego local area the expectation is that in a normal (1-in-2) year, there will be no occurrences when long-start DR would have to be pre-dispatched to assure reliability. Long start DR should be pre-dispatched annually on peak days for economic purposes, but it is only needed for reliability on the extremely hot days which, statistically, will happen infrequently. The CAISO has to be careful that its market rules do not overly dispatch DR (both long-start and 20 minute), fully using the resource, so as to prevent the DR from fulfilling its reliability role. SDG&E is concerned that the use-limitation framework the CAISO is developing will prevent DR from counting for Local DR, or if it does count, that it will be overused and have to be replaced at additional cost with another resource during each year.

**c. How Much Pre-Dispatch is Needed for Long Start DR to Count for LCR?**

The amount of pre-dispatch need has not been determined and discussion regarding this topic has been quite limited. To move this conversation forward, the following are a number of factors that drive the amount of pre-dispatch needed for long start DR:

- 1) Relative size of long start DR to load.

- 2) The number of hours that load levels can be expected to exceed 1-in-10 peak load level less the MW level of long start DR.
- 3) Relative size of other < 30 minute responsive local resources to load.
- 4) Relative size of other > 30 minute responsive local resources to load.
- 5) The probability that an N-1-1 contingency event will overlap with loads that exceed the expected 1-in-10 peak load level less the MW level of long start DR.
- 6) Forecast error around the peak load projections.

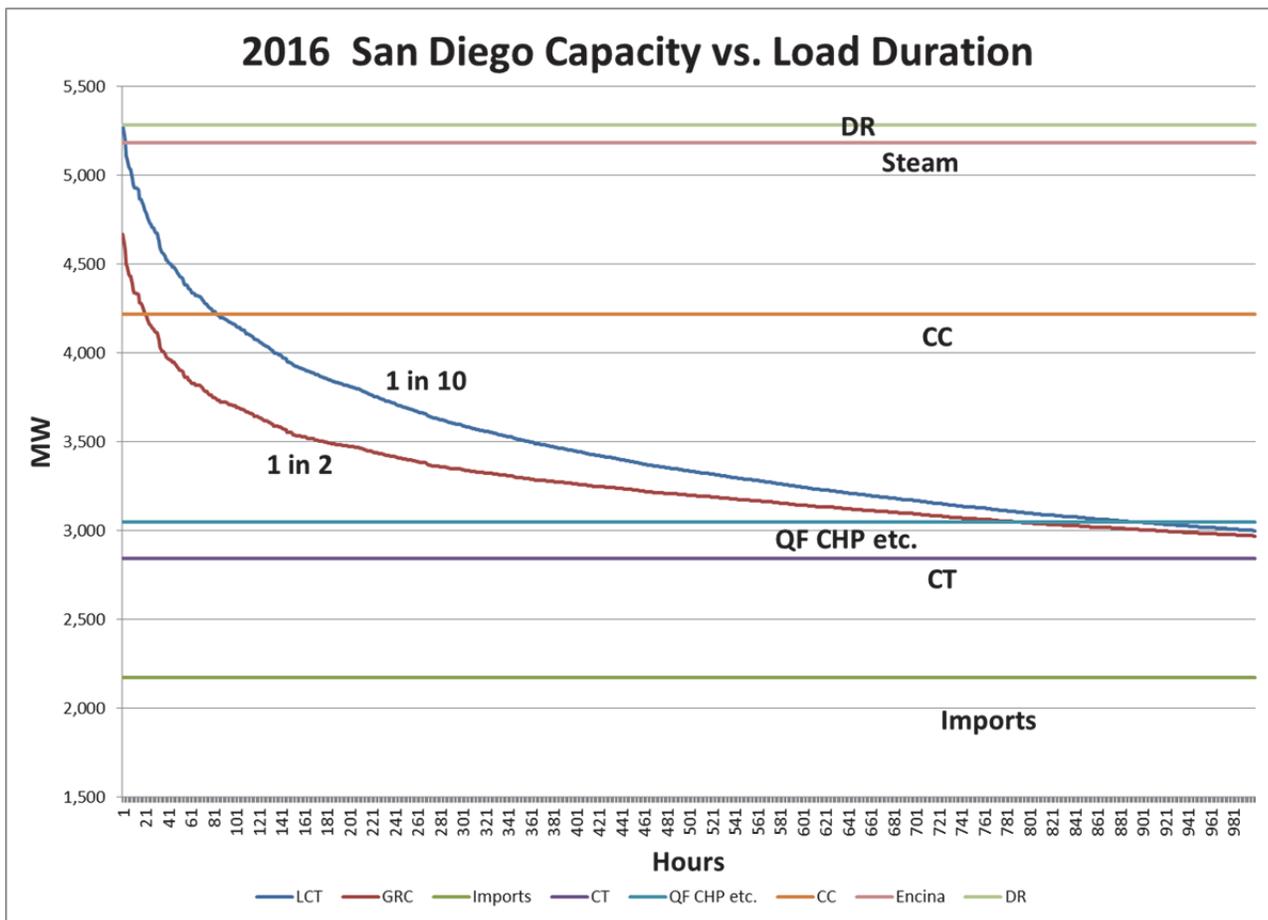
Variations of the above factors cause the amount of pre-dispatch needed to vary widely by local area. Using a common worst case-based pre-dispatch need for all local areas is inappropriate. A common worst case-based pre-dispatch need would not support the state's loading order and cost ratepayers avoidable replacement costs while not improving Local reliability. Each local area should have a unique pre-dispatch requirement determined to be able to count long-start DR for Local RA. For certain local areas it may be necessary that the requirement be based on both a number of occurrences and a number of hours.

Characteristics of the San Diego local area include:

- 1) DR programs are small relative to San Diego area loads because the San Diego area has limited industrial load.
- 2) The number of hours expected to be above the 1-in-10 year peak load level less the MW level of long start DR, are relatively few because San Diego area loads are mainly coastal and residential which lead to needle peaks.
- 3) The amount of other < 30 minute responsive local resources to load is very large because of the relatively large amount of flexible resources within the San Diego area (both gas turbines and combined cycle).

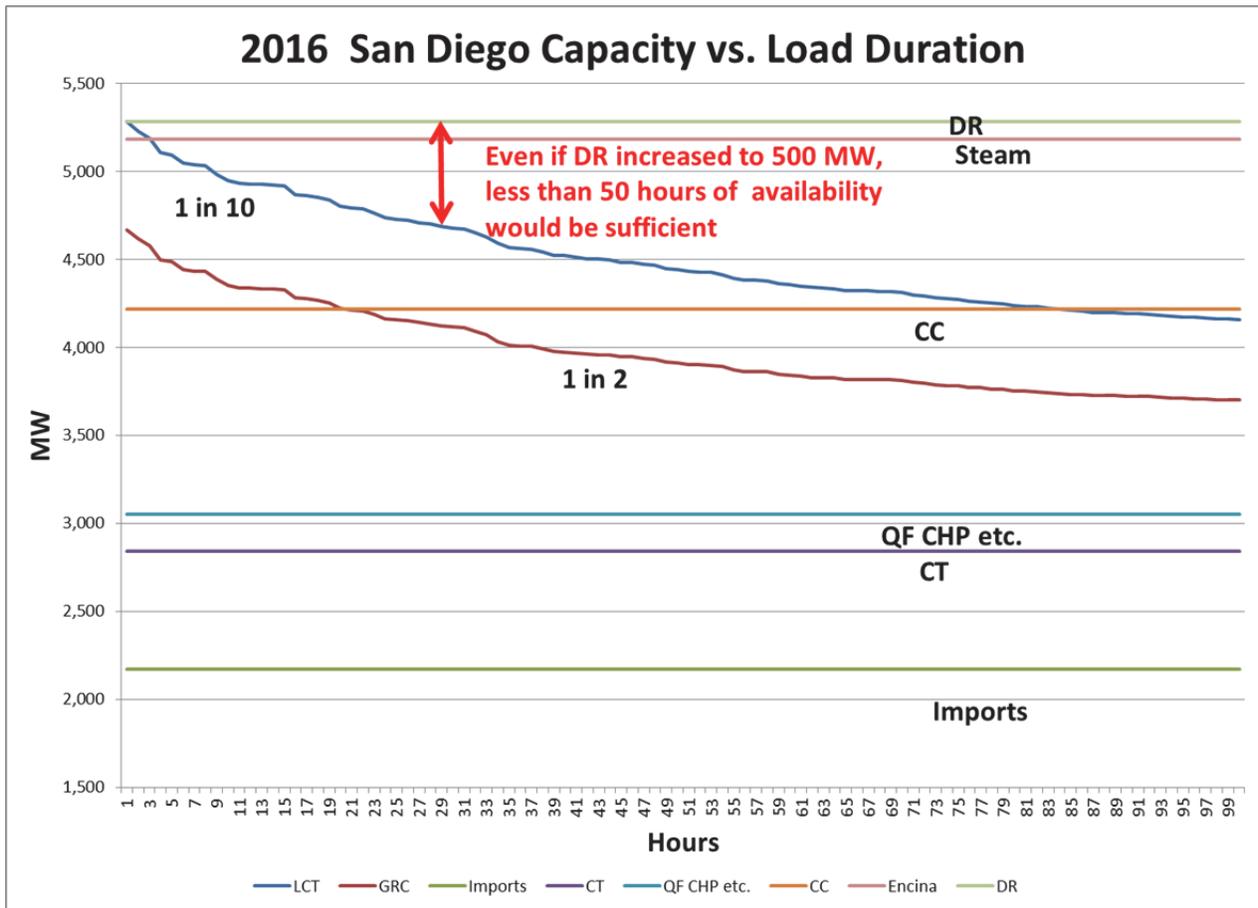
- 4) The relative size of other > 30 minute responsive local resources to load is very small; mostly the Pmin of CC units when the comparatively in-flexible steam units are replaced in 2018.
- 5) Peak load is relatively predictable at the day-ahead stage and early in the day-of as it is driven by well-understood correlations with temperature.

These factors result in quite low long start DR pre-dispatch needs for the San Diego Local area. In a normal year, DR is not needed in the San Diego area for reliability. Only during hotter than normal peaks (greater than 1 in 2 years) is DR needed to maintain reliability.



The 100 MWs of DR shown on the graph below is more than SDG&E currently has and it would only need about two (2) occurrences and ten (10) hours per year of pre-dispatch to

assure reliability because extremely hot weather is predictable day-ahead (which allows the CAISO time to pre-dispatch the DR). Even if DR grew to 500 MWs, 50 hours of pre-dispatch would be sufficient.



Requirements for other local areas could be significantly different (particularly in-land) and could need a more complicated type of analysis.

**d. The Exact Resource Response Time Needed Can Be Refined Between 20 and 30 Minutes**

More discussion is needed to determine how much closer to 30 minutes the response time for short start DR can be stretched from 20 minutes and not compromise reliability.

### III. CONCLUSION

SDG&E appreciates the opportunity to submit the forgoing revised proposal herein.

Dated: March 25, 2016

San Diego Gas & Electric Company

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## Appendix “A”

Protocol number	Subject Matter	Used to calculate QC for RA from 3 <sup>rd</sup> party providers
1-3	Evaluation Planning	No
4	Requires hourly ex-post load impacts for the DR resource	Yes
5	Requires an estimate of the annual change in energy use for the DR resource	No
6	Estimate of 10 <sup>th</sup> , 30 <sup>th</sup> , 70 <sup>th</sup> 90 <sup>th</sup> percentile	No
7	Specifies the format for the ex-post results	Yes
8	Specifies that an aggregate hourly load impact for the DR resource should be provided to for each event and for the average of event days. Also requires an average load impact per customer.	Partial. Only the aggregate ex-post results are required to be used for the QC calculation although results per customer may be necessary if an increase in enrollment is forecasted.
9	If a baseline is used requires statistics to demonstrate the baseline is accurate.	Yes, if baseline other than the CAISO baseline is used.
10	If a regression model is used requires statistics to be calculate to demonstrate that the regression model is accurate	Yes, if a regression model is used to calculate the ex-post results.
11-16	Non-Event based resources requirements	No
17	Requires an explanation of if the forecast is different from the historical results	yes
18	Requires an hourly forecast of the load impact of the DR resource by month.	yes
19	Requires an estimate of average change in energy use per month	no
20		
21	Requires forecast of the 10 <sup>th</sup> , 30 <sup>th</sup> , 70 <sup>th</sup> 90 <sup>th</sup> percentiles	no
22	Requires 1-in-2 and 1-in-10 forecast for the monthly peak days and typical event day to be provided.	Partial: only the 1-in-2 monthly peak day forecast is used to determine QC
23	Requires demonstration the ex-ante regression models are accurate	Yes, only if regression models are used.
24	Requires an estimate for the entire portfolio of DR programs with no double counting of dual participants.	Does not apply to third party DR providers
25	Requires a demonstration of the accuracy of the sampling methodology	No
26-27	Required content and review process for evaluation reports	No