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BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

STATE OF CALIFORNIA

Order Instituting Rulemaking Regarding Policies and Protocols for Demand Response Load Impact Estimates, Cost-Effectiveness Methodologies, Megawatt Goals and Alignment with California Independent System Operator Market Design Protocols	Rulemaking 07-01-041 (Filed January 25, 2007)

REPORT OF SOUTHERN CALIFORNIA EDISON (U 338-E) ON WORKSHOP 1 OF PHASE 3

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SOUTHERN CALIFORNIA EDISON WORKSHOP 1 REPORT

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REPORT OF SOUTHERN CALIFORNIA EDISON (U 338-E) ON WORKSHOP 1 OF PHASE 3

I. INTRODUCTION

Pursuant to Assigned Commissioner Chong's July 8, 2009 Ruling Amending the Scoping Memo and the Schedule of Phase 3 of this Proceeding (Ruling), and the August 17, 2009 e-mail ruling of Assigned Administrative Law (ALJ) Judge Sullivan modifying the due date for this report, Southern California Edison Company (SCE) hereby files this report on Workshop 1 of Phase 3 of this proceeding, held on August 10, 2009 at the California Public Utilities Commission's headquarters in San Francisco.

In attendance at Workshop 1 were ALJ Sullivan, Energy Division representative Karl Meeusen and Bruce Kaneshiro, representatives from Commissioner Chong's office, SCE, Pacific Gas & Electric Company (PG&E), San Diego Gas and Electric Company (SDG&E), California Large Energy Consumers Association (CLECA), California Independent System Operator (CAISO), Division of Ratepayer Advocates (DRA), The Utility Reform Network (TURN), EnerNOC, Inc., Blue Point Energy, Kinder Morgan Energy Partners, CPower, Inc., Energy Producers and Users Coalition (EPUC), APX, and Andrew Green Energy Consulting. This report summarizes and compiles the presentations and discussion of the participants at Workshop 1.[1]

II. BACKGROUND

A. Phase 3 Proceedings in 2008

As described in detail in the Ruling, Phase 3 of this Order Instituting Rulemaking (OIR) was initiated "to ensure that DR programs adapt to function within the day-ahead market that will be implemented with the CAISO Market Redesign and Technology Upgrade (MRTU)."[2] In August 2008, the Commission held a pre-hearing conference (PHC) to consider issues related to integrating emergency-triggered DR into MRTU. Under consideration were issues raised in parties' pre-hearing conference statements as well as in comments filed in Phase 1 of this proceeding regarding the ability of emergency-triggered DR to be useful for resource adequacy (RA) purposes and to help CAISO meet operating reserve criteria. In particular, the CAISO had raised concerns that emergency-triggered DR was not useful as RA capacity because CAISO must plan to serve the emergency-triggered load, and can only access the resources after an emergency is declared. In response to a ruling requesting its input and recommendation, the CAISO offered an analysis and recommendation that the desired level of emergency-triggered DR, from a systems operation standpoint corresponds to the level of 1 to 2 percent of system peak, or 500 to 1000 megawatts of emergency-triggered DR statewide for grid reliability purposes.[3]

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[1] All of the panelists for Workshop 1 were given an opportunity to review and comment on this report prior to its filing.

[2] Ruling, p. 2.

[3] As noted in the Ruling, the CAISO provided the following input: "the overall perspective of the CAISO that a MW range of 500 to 1000 MW, corresponding to a range between 1 and 2 percent of peak system load, is an appropriate quantity of emergency-triggered DR that would be useful to the system during serious system emergencies, to help prevent involuntary firm load shedding. This level is 700 to 1,200 MW less than the currently available amount of expected emergency-triggered DR." Ruling at p 8.

Division of Ratepayer Advocates echoed CAISO's concerns regarding "double procurement" for the IOUs' emergency-triggered loads.

The investor-owned utilities (IOUs) and customer representatives disagreed with CAISO's recommendation to cap the programs, arguing that emergency-triggered DR was a first priority resource that cost-effectively deferred generation capacity and met local transmission and distribution needs of the IOUs.

Although parties disagreed on the substance of the issues, at the PHC they all agreed that the Phase 3 issues should be examined in workshops rather than in litigation. However, workshops were delayed due to various timing concerns of the parties, as noted in the Ruling.[4]

B. Informal Agreements to Modify Interruptible Program Triggers

Subsequent to the August 20, 2008 PHC, the IOUs engaged CAISO and other stakeholders[5] in an informal process to explore possible changes to the emergency-triggered demand response programs and to CAISO's procedures for using these programs. The basic approach was to consider near-term changes to the Stage 2 program triggers and longer-term changes that may allow these programs to be triggered for both reliability and price.

In November 2008, these stakeholders reached agreement that the Base Interruptible Program (BIP) should be available to be triggered after a Warning Notice has been issued by the CAISO and when Stage 1 is imminent. Such a "Stage 1 Imminent" trigger would permit the CAISO to call the BIP resource before a Stage 1 Emergency, once CAISO has exhausted all other options available to it prior to declaration of an emergency, in order to prevent degradation of its operating reserves to below Minimum Operating Reliability Criteria. This Stage 1 Imminent trigger became effective on January 29, 2009 per Resolution E-4220, approving the

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[4] *See* Ruling, p. 6.

[5] Specifically, the IOUs and the large customer advocacy groups, CLECA and California Manufacturers and Technology Association (CMTA).

utilities' advice filings modifying BIP to incorporate the new event trigger. The resolution is to be in force through 2011.

Subsequently, SCE filed Advice 2325-E, modifying the Summer Discount Plan (SDP) and the Agriculture and Pumping Interruptible (AP-I) program to incorporate the Stage 1 Imminent Trigger. These modifications became effective March 29, 2009. PG&E's air-conditioning cycling program was not similarly modified because its tariff already allowed the CAISO to trigger the resource prior to a Stage 1 emergency.

With these new "event" triggers in place, the IOUs no longer consider their interruptible programs to be "emergency-only" programs.

C. <u>The Proposed Decision to Cap Interruptible Programs</u>

In Application (A.) 08-06-001 et al., the Commission is considering the funding requests of the IOUs for their 2009-2011 DR portfolios. A recently issued Proposed Decision (PD) of the Assigned Administrative Law Judge declines to authorize the expansion of the IOUs' interruptible programs; instead it proposes capping them at their current enrollment and funding levels pending the outcome of this Phase 3 of the DR OIR.[6] The merits of capping the interruptible programs pending conclusion of this Phase 3 was discussed by parties in Workshop 1, described in Section IV below.

D. <u>The Ruling's Amended Scope and Schedule</u>

The Ruling notes, "now that MRTU is in operation, it is reasonable to proceed with workshops on emergency-triggered DR."[7] The Ruling schedules three workshops to cover the Phase 3 issues: the first workshop will examine whether there is an optimal size for the Commission's emergency-triggered DR programs; the second workshop will generally examine alternatives to the current emergency-triggered programs; and the third workshop will address

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[6] *See* Proposed Decision of Administrative Law Judge Hecht issued June 30, 2009 in A.08-06-001 et al., pp. 26-27.

[7] Ruling, p. 7.

implementation issues for any changes to the emergency-triggered programs that arise out of the workshop process.[8] The Ruling anticipates that Assigned ALJ Sullivan will issue a ruling after the first workshop to provide additional direction for the remaining two workshops.[9]

The Ruling makes clear that workshops will not address whether the Commission's policy of counting interruptible programs toward RA requirements should change. Further, Workshop 1 will not address financial compensation for resources that provide emergency-triggered or "situational triggered" DR.[10]

The Ruling sets forth an Amended Schedule, which anticipates conclusion of this Phase 3 by May 2010. Workshop 1 was to be held on August 7, 2009. Subsequent to the Ruling, ALJ Sullivan rescheduled the date of Workshop 1 to August 10, 2009.[11]

The Ruling directs each of the IOUs to be responsible for preparing, filing and serving a report of one of the workshops. SCE agreed to prepare, file and serve the report for Workshop 1. At the workshop, SCE requested that ALJ Sullivan allow an additional three days to prepare and file the Workshop 1 report to account for the delayed start of Workshop 1 and allow for the full 10 days envisioned in the Ruling for this task. An additional three days for reply comments on the workshop report was also requested. ALJ Sullivan agreed to permit SCE to file the Workshop 1 report on August 20, 2009, and to allow reply comments on the report on August 27, 2009.

E. Pre-Workshop 1 Comments

The Ruling permitted parties to file pre-workshop comments by July 27, 2009 to set forth "proposals detailing the amount of MW, broken down by IOU service territory, that should be retained in a purely emergency-triggered DR program along with the justification for the

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[8] Ruling, p. 7.
[9] *See id.*
[10] *See id.*, p. 9
[11] *See* Administrative Law Judge's Ruling Rescheduling Workshop 1 in Phase 3 of this Proceeding, issued July 22, 2009.

proposed amount with data (to the extent possible).[12] Pre-workshop comments were filed by the IOUs, CAISO, DRA, and CLECA.

The Ruling also directed CAISO to "supplement its original recommendation with its estimate of MW reductions that currently could be assigned to each of the specific IOUs."[13] On July 27, 2009, CAISO filed its supplement to propose the use of its Emergency Operating Procedure (EOP)-508A as a means of allocating a pro-rata share of a statewide MW cap on interruptible programs to each of the IOUs.[14]

III. PURPOSE OF WORKSHOP 1

Pursuant to the Ruling, the primary purpose of Workshop 1 was to gather information to allow the Commission to determine whether there is an optimal size for the IOUs' interruptible (*aka* reliability-based DR) programs, and if so, what the optimal size is.[15] The discussion was to focus on determining the amount of emergency-triggered DR that is needed, by IOU service territory, to maintain grid reliability.[16] The information presented at the workshop was intended to support each party's position as set forth in the pre-workshop comments; to assess how well the interruptible programs are aligned with MRTU or how they should changed to better integrate with MRTU; and to assist ALJ Sullivan in providing additional direction for Workshops 2 and 3.

IV. PANEL SESSIONS

The workshop consisted of two panels. Panel 1 consisted of one representative from each of the IOUs (SCE, PG&E and SDG&E) and CLECA. Panel 2 consisted of two representatives from CAISO and one from DRA. The workshop was broken into two sessions. The morning

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[12] Ruling, p. 11.
[13] *See id.,* p. 9.
[14] *See* Supplemental Recommendation and Pre-Workshop Comments of the California Independent System Operator in Response to the Assigned Commissioner's Amended Scoping Ruling, filed on July 27, 2009 in this proceeding.
[15] *See* Ruling, p. 7.
[16] *See id.*

session allowed the panelists to present their positions in 10-15 minute presentations. Clarifying questions were permitted from the ALJ, the Energy Division and/or participants in the audience. The afternoon session allowed for more detailed questions and discussions among the panelists and participants. Karl Meeusen from Energy Division moderated the workshop.

A. Morning Session

1. Panel 1 (SCE, PG&E, SDG&E, and CLECA)

a) SCE

SCE began the morning session accompanied by a presentation. One of its key messages was that the programs in question are no longer emergency-only programs. SCE reiterated that the interruptible programs are preferred resources under the Loading Order that allow SCE to cost-effectively defer procuring additional supply-side resources to serve the participating customers' loads, and therefore a cap should not apply. SCE pointed out that the Base Interruptible Program (BIP), Summer Discount Plan (SDP), and Agricultural Pumping Interruptible (AP-I) have more value than just for CAISO purposes. SCE noted that these programs have been and will continue to be available for local transmission and distribution events. SCE believes that stakeholders will need to work together in order to improve the integration of "reliability-based DR" into the CAISO markets.

Next, SCE used a visual description to show the "boundary" at which non-market reliability actions occur. SCE pointed out that it is within this "boundary" that the issues related to integration of interruptible programs into MRTU arise and consequently the dialogue between stakeholders should focus on this boundary. When asked by the ALJ whether it is fair to view the boundary as demarcated by "hard-lines," SCE stated that there are a lot of things happening in the boundary, that it is not clear how the pieces fit together, and that the parties need to try to sort them out. CAISO during this time commented that it is utilizing Exceptional Dispatch in the "boundary" instead of calling for BIP or SDP resources.

SCE discussed a straw proposal that outlines principles for integration of Exceptional Dispatch, Out of Market Dispatch, and Interruptible DR Dispatch. SCE clarified that the straw proposal was not a joint stakeholder proposal, but rather was intended to start the dialogue between the parties.[17] SCE suggested that interruptible DR resources should be committed after all supply-side resources available to CAISO are committed, but prior to procuring non-RA or out-of-market resources, or resources above the bid cap. SCE clarified that its straw proposal does not contemplate price-responsive DR, which is dispatchable in the price-driven markets.

Last, SCE presented its perspective on how much emergency-only DR should exist. SCE explained that emergency-only DR does not currently exist, and would be assumed to be a non-RA program. Using a system reliability curve set out on page 4 of its presentation, which is attached hereto in **Appendix A**, SCE explained that the Planning Reserve Margin (PRM) is the point at which the cost of reliability and the value to customers are balanced. The existing interruptible programs are RA resources and therefore help satisfy/maintain the Planning Reserve Margin (PRM), *i.e.* they are counted as part of the PRM,. SCE believes that there should be *no* cap for programs that fall within the PRM (*i.e.*, BIP, SDP, and AP-I). These programs protect the firm load by being available to keep the actual reserve margin at or above the PRM level.

Emergency-only programs would provide additional reliability beyond the PRM. Such an emergency-only program would be targeted at a pool of customers who are on firm service (*i.e.*, not interruptible) but who would be willing to be interrupted first in an effort to avoid a rotating outage. SCE informed parties that it does not currently have a program that falls in the area beyond the PRM, which should be described as emergency-only and non-RA. However, SCE concurred that a cap for an emergency-only program could apply; however, it believed that it is not possible to determine a cap amount at this time. SCE noted that there is

[17] SCE also indicated that the proposal had not been fully vetted within the utility as of the time of the workshop.

literature from the 1980s on rank-ordering customers and setting up pricing mechanisms to compensate those customers who would be willing to be interrupted first in an effort to avoid a rotating outage. SCE stated that a reliability study can also be performed to determine the optimal size of such a program.

b) PG&E

PG&E began its presentation by stating its general agreement with what SCE had presented. It stated that the "bottom-line" is that there is no clear optimal size for emergency-triggered DR. PG&E also defined what it considers to be an "emergency-triggered" program, meaning one that is called in an emergency, which was true of BIP before the Stage 1 Imminent triggered was established. PG&E stated that an optimal size can be determined at any point in time based on economics from the value of service to customers; however the analysis to date was insufficient and inappropriate.

PG&E explained that two basic problems still exist; that is, what counts for RA and how to avoid Residual Unit Commitment (RUC) "double procurement" (*i.e*, potentially procuring resources to serve load that qualifies for RA but cannot be used for Residual Unit Commitment (RUC). PG&E's view is that any resource that keeps the system from a Stage 3 emergency (*i.e*. failure to serve firm load) qualifies for RA, and that CAISO's desire to stay out of emergencies is a higher level of reliability than RA requirements entail.

PG&E stated that one solution for the problem that exists for resource adequacy is to have more analysis of the PRM as it relates to Stage 1, 2 and 3. This is being done in the PRM proceeding. The value of higher and lower levels of reliability can be examined, and once that is established then it can be determined what contributes to levels of reliability within or beyond the PRM.

PG&E stated that the other potential solution is to look at transitioning BIP and A/C cycling to a price trigger. PG&E stated that it is already in the process of doing this with its Smart AC program and will be filing something in the next several months. Smart AC will remain callable for local distribution emergencies also, because these programs need to be callable to run a more efficient, lower-cost reliable system. However, accomplishing transition to a price trigger for BIP may not be a feasible since not all customers want to or can operate effectively in price-responsive programs.

Another option presented by PG&E was creation of an Ancillary Service (AS) product with a 30-minute notice period and a contingency flag. Also, CAISO could simply recognize these resources and adjust their RUC procurement down by the amount of BIP and AC cycling that is available to be called. CAISO questioned who would cover potential costs (*e.g.*, software upgrades) with the RUC adjustment. PG&E responded that possible cost savings could occur through the elimination of the "double procurement".

c) SDG&E

SDG&E agreed that a lot had been already covered by SCE and PG&E with regards to the optimal size of these programs and did not want to repeat the points made by SCE and PG&E. SDG&E used its portion of time to highlight the evolution of the recent interruptible program trigger. It mentioned that eight years ago in 2001, during California's energy crisis, the emergency-only triggers worked well and events were more "hard wired" (*i.e.*, the tariff would require that an event *will* be called under certain criteria). SDG&E called for the need to develop more "soft" triggers, to take the rigidity out of triggering the interruptible resources. It used a handout to highlight that BIP was no longer emergency-only; however it still provides value for emergency purposes (*e.g.*, wildfires). SDG&E finds that because of its smaller portfolio, it needs the flexibility to use the programs for various reasons. SDG&E also pointed out that its tariffs have continued to evolve (*e.g.*, now programs may be dispatched on weekends), which it finds necessary now because of signs of weekend peaking.

When questioned by the ALJ regarding what forum SDG&E thought was appropriate to change the programs and tariffs (this proceeding or an advice filing), SDG&E's

representative wasn't certain of the answer but believed it was appropriate to discuss that issue in this proceeding, which may trigger an advice filing.

d) CLECA

CLECA recognized that the IOUs covered in their presentations much of what CLECA stated in its pre-workshop comments. CLECA emphasized that one of its concerns with the rulemaking was that it focused too much on CAISO's market. CLECA emphasized that reliability programs should not only be seen through the lens of the CAISO. The Ruling focused on the programs' role in the CAISO context and gave the impression that all DR must participate in the CAISO market. However, CLECA does not believe that is correct, and that the parties need to focus on the multiple roles of the interruptible programs to meet system needs as well as local transmission and distribution (T&D) needs. CLECA pointed out that, although Federal Energy Regulatory Commission (FERC) Order 719-A allows DR to participate in markets on a comparable basis with supply side resources, it doesn't preclude other uses of DR. FERC acknowledged other uses of DR and the state's jurisdiction to use them as they see fit for the state's resource needs, CLECA stated.

CLECA also explained that the interruptible programs are reliability programs but they are no longer emergency programs in the traditional sense because an emergency is not required to trigger them. CLECA cited the agreement reached in the process of Resolution E-4220 that would allow interruptible programs to stand as currently structured through 2011, allowing parties sufficient time to work collaboratively to resolve the issues that have been raised in this proceeding. This timeframe is consistent with CAISO's implementation of scarcity pricing, CLECA pointed out.

CLECA pointed out how the Commission is currently working to integrate DR into CAISO markets with its requirement for dynamic pricing and that only by getting customers onto tariffs that provide dynamic pricing can the Commission better inform the CAISO on DR impacts on IOUs' load forecasts. The IOUs believe the load forecasts will be lowered so RUC procurement will be lower. With experience with dynamic pricing, we will be able to better estimate what the load response will be and CAISO can adjust procurement in response to DR impacts.

Another point from CLECA was that the workshop discussion should focus on how DR programs will be used before other resources (*e.g.*, Exceptional Dispatch and Out-Of-Market). Issues such as how often Exceptional Dispatch is being used, operator experience with Exception Dispatch and tracking Out-of-Market calls (how many and at what price) should be examined. Customers will want to know how often reliability DR programs will be called if they are called before these events.

In addition, CLECA recognized that the customer value of service issue should be addressed because programs offering $0.50/kW to shed load may understate the customer's value of giving up service. Lastly, CLECA noted that reliability-based DR could protect spinning and non-spinning reserves and avoid triggering scarcity pricing but that the CAISO includes Regulation Up in scarcity pricing and reliability-based DR cannot yet address regulation service. CLECA noted that the increased need to integrate intermittent of renewables will increase the need for Regulation.

2. Panel 2 (CAISO and DRA)

a) CAISO

CAISO's John Goodin, the CAISO Lead for Demand Response, began the presentation by stating how the CAISO is encouraged by the IOUs' willingness to take the next steps to help their programs fit better with MRTU. CAISO agreed that not all DR needs to be dispatchable in the CAISO market, but that the CAISO has to know about the DR and to be able to plan around it. CAISO emphasized that work must begin now in order to achieve the agreed to 2012 date. The CAISO suggested that the enrolled megawatts as currently situated for the IOUs' price responsive and reliability program portfolios should be reversed, *i.e.* more price-responsive and less reliability programs. CAISO stressed the importance of its role in maintaining grid reliability. CAISO further went to describe the various proceedings it participated in and how the Energy Division's mark up of the proposed caps and allocations would apply to the three IOUs. CAISO explained its rationale for the proposed cap on reliability DR programs, which it estimates should exist at 1 to 2 percent of system peak. In other words, at 45,500 MW system peak, the maximum amount necessary of emergency-only DR should be approximately 500-1000 MW to 1,000 MW.

CAISO then described the three analytical approaches that it undertook in determining its recommended cap amount. The first approach that CAISO took was to examine historical load shedding since 1998, excluding data for the energy crisis years of 2000-2001. The two situations where Firm Load Shedding occurred were March 8, 2004 and August 25, 2005 due to transmission emergencies in Southern California. Emergency-based DR resources were dispatched at 393 MW and 922 MW respectively in one or more IOU's service territories.

The second approach the CAISO took was looking at how to protect spinning reserves. CAISO stated they are required to maintain spinning reserve capacity to stay in compliance with NERC/WECC reliability criteria. The CAISO spinning reserve requirement in 2007 had an average of 756 MW and a max of 1,490 MW, thus their second approach resulted in a 700 to 1,500 MW cap.

The third approach CAISO undertook was to examine other ISOs' use of emergency-only programs due to the restricted-use nature of the interruptible programs in California. However, CAISO expressed that it is difficult to find a similar program. CAISO found ERCOT's Emergency Interruptible Load Service (EILS) program was most similar; CAISO reported that it is not market-based, is not deployed ahead of other resources, and unlike California, it is not used as a backstop to insufficient PRM or as a tool to meet long-term capacity needs.

CAISO then discussed its proposed allocation of statewide emergency-triggered MW pursuant to EOP 508-A, which sets forth fixed pro-rata load-shedding shares by UDCs and MSSs at the UDCs' coincident demand at system peak. The CAISO included allocations of non-jurisdictional entities within each IOU's service area into the IOU's total allocation percentage in order to reach a 100% allocation factor. CAISO noted that the allocations under EOP 508-A are updated in April or May each year.

Next, CAISO's Tim VanBlaricom, Manager of Real-Time Operations, provided the workshop group an overview of the market timelines that take place as a reference for where DR fits into the process, from Post-Market, to an Alert with a 24-hour Forecast for Potential for Firm Load Interruptions noticed. CAISO explained that PG&E questioned whether during the situations described by CAISO, if the CAISO looks to Imminent Stage 1 DR resources. CAISO responded that it does not plan on the pre-Stage 1 resources in covering their load. CAISO stated that from a physical standpoint, things haven't changed much operationally with the pre-Stage 1 triggers, that it was "largely optics." CLECA expressed concern that characterizing the trigger change as "largely optics" was dismissive. CAISO clarified that if the potential for firm load shedding exists, then they will issue a notice. CAISO further explained the Warning through Stage 1 process. CAISO stated that during a Warning the CAISO is required to declare a WECC Energy Emergency Alert 1 (EEA1) and, at this stage, may among other things, request certain pumps loads be reduced and ask for emergency assistance from other balancing authorities. At a Warning with Stage 1 Imminent, CAISO must be in a WECC Energy Emergency Alert 2 (EEA2) to request BIP. CAISO reported there the CAISO staged alerts and WECC emergency alerts are not identical and so there is some misalignment between what the Federal standards say versus what ISO has historically implemented for emergency operations.

The CAISO added further clarification to what it meant by "optics" by explaining what it can do in Stage 1. At Stage 1 some IOUs may be able to take QFs to full load; and CAISO may also request additional pump load reductions, Federal hydro, and whatever additional resources the interties may have. If CAISO could quantify what additional resources it has in Stage 1, it would have maybe 100 MW from QFs, maybe 100-200 MW from pump load and whatever may be available from interties, but nothing is firm in Stage 1.[18]

In Stage 2, the CAISO reported relying on 2% of non-spinning reserve, about 800 MW. Between Stages 2 and 3, the rest of non-spinning reserve is converted to energy, about another 800 MW. At Stage 3, CAISO would use what is left of non-spinning reserve and then go into rotating outages.

CAISO noted that it will dispatch all non-RA resources before getting load reductions from either BIP or AC Cycling. When asked why the CAISO doesn't plan to use the interruptible MW when they are short on meeting their forecast, the CAISO responded that it plans to serve the interruptible load, so that is why they commit resources. When asked why they cannot commit the interruptible DR, CAISO said it cannot be planned around because the interruptible DR is only available at a Warning with Stage 1 Imminent and is use-limited. The CAISO stated it would not take a lot on its side to modify its operating procedures to commit DR, but that this would require a lot of retail tariff changes and customer changes. But, the DR would need to be something CAISO can plan around day to day to meet the load. The CAISO did acknowledge that, at least twice a month, it misses its load forecast by 1000 MW or more, and that if the IOUs want to offer the interruptible DR to be reduced to address this problem, and give the CAISO a prescribed tool, it could administer that.

CAISO acknowledged that pumping load can be dispatched at various stages of its protocols.

Finally, the CAISO described what occurred during two actual "worst case" events. The first event was a transmission emergency which occurred on August 25, 2005 and the second event was a system emergency (all time system peak) on July 24, 2006. In both instances CAISO showed that there were price responsive and reliability-based DR megawatts

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[18] CAISO notes that its basic point was that there are not a lot of new resources or added authority between Stage 1 or Stage 2 as most actions occurred during the Warning notice stage to prevent the Stage 1 emergency in the first instance.

that were unused or unavailable during those events. CAISO presented a table of reliability events from 2004 to 2009 YTD and clarified that the event numbers shown in its presentation, attached hereto in **Appendix A**, are cumulative for that category of event. CAISO also clarified that, depending on system conditions, CAISO may declare any stage of emergency without first declaring a preceding emergency stage *i.e.*, CAISO could declare a Stage 3 emergency without having to declare a Stage 1 or Stage 2 emergency first.

CAISO summed up by stating that from a systems operations standpoint, there is an overabundance of emergency-based DR programs. Resolution E-4220 did not resolve the "double procurement" issue because CAISO plans to serve the interruptible load, and emergency-based DR programs load does not prevent scarcity pricing, provide ancillary services, help integrate intermittent renewable resources or add depth to the market.

b) <u>DRA</u>

DRA stated that their biggest issue with the reliability programs is the associated ratepayer impacts and it highlighted the "double procurement" issue noted earlier. In addition to the "double procurement" issue, DRA provided a handout that showed the amount of megawatts received from the reliability programs over the last five years along with the total funding for these programs. DRA highlighted that nearly $0.5 billion has been spent among all of the proceedings over three years.[19] DRA believes that some of these resources need to increase their value and that mandatory test events will be useful to assure megawatts. Although a final decision has not been issued regarding the determination of cost-effectiveness of DR programs, DRA stated that a trigger should also be included to either inflate or deflate the cost-effectiveness values. When asked to clarify its position on these programs, DRA stated that it agrees these programs have reliability value and it does not envision having zero reliability MW, but it does support more flexible triggers in the future.

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[19] Some parties noted a lack of clarity as to DRA's expenditure data; *i.e.,* whether it accounted for reliability program costs only, or all DR program costs.

B. Afternoon Session

The purpose of the afternoon session was to allow parties to question further the proposals put forth in the morning. Karl Meeusen from Energy Division moderated the questioning throughout the afternoon.

1. Panel 1 (SCE, PG&E, SDG&E, and CLECA)

A key theme early in the discussion was the Transmission & Distribution (T&D) relief associated with the BIP and AC Cycling programs. The CAISO asked the panel members whether any of them had any analysis or quantification of the degree of T&D benefits to provide to the workshop, as the Ruling had indicated that parties should bring analysis to support their recommendations. CLECA indicated that it did not, but would expect to look to the utilities for such information. The utility panel members indicated that they did not provide quantification or analysis in their pre-workshop comments. However, PG&E contended that determining the amount is "squishy," however the need for T&D relief will continue to increase. SCE stated that it has an increased need for reliability-based DR for distribution reasons. SCE pointed out that in its cost-effectiveness estimates for its DR Application for 2009-2011 Funding, SCE included estimates of the value of BIP and SDP for T&D loading relief based on a percentage of customers in areas of SCE's service territory impacted by loaded circuits. SCE noted that it is still working to refine those benefits. SCE acknowledged that biggest challenge is determining where the system needs these resources most. Both SCE and P&GE stated that there is no optimal size for reliability-based DR for T&D; it is a function of when the IOU builds an upgrade, and it can vary dramatically over a 5-year period. PG&E also noted that technology changes and economic changes will also affect an optimal size. CAISO disagreed and stated that having no limit, much less increasing the size of the programs, does not make sense.

Another key theme was how the reliability-based DR products are incorporated into the IOUs' or the CAISO's procurement. The CAISO asked whether the DR program resources are factored into procurement in terms of resources that the utilities do not procure.

The IOUs explained to CAISO that they do not include BIP, AC Cycling, and AP-I in their day-ahead procurement because they are pure reliability and that only price-responsive programs are included. The CAISO explained that it, too, does not include the reliability programs in its procurement for the same reasons. CLECA contends that the CAISO is not double procuring because when it procures power to serve load participating in a reliability program, when the program is dispatched this power is used by the CAISO to serve the generation need of other, firm, customers. It would not have those resources to protect firm load if it had not procured them.

A question was raised as to what was solved with Resolution E-4220, which approved the BIP trigger modification. CLECA stated that the resolution addressed the CAISO's specific issue of not wanting to declare an emergency in order to use the reliability DR resources. The ALJ expanded the question further to include tariff limitations. CLECA responded that tariff limitations are needed from a customer perspective and that the level of incentives is adjusted by the A/B Factor to take these limitations into account. SCE explained that the move to the Imminent Stage 1 trigger was an acknowledgement by the IOUs that the valuation process for BIP, SDP and AP-I was incompatible with an incentive based on a full avoided CT because the incentive was CT-based yet the programs couldn't be called on to maintain operating reserves as a CT can. Now with the Imminent Stage 1 trigger, the reliability-based DR programs can be called on to maintain operating reserves. That leaves the "double procurement" issue, which requires the parties to work out what changes in the use of the programs by the CAISO is appropriate to reflect the value proposition.

The ALJ questioned whether the programs could have different notifications to allow for CAISO to use them at different points in its planning. SCE agreed that the key issue is how to coordinate and integrate these programs into MRTU.

TURN then raised another issue regarding RA resources like DR being bid into the CAISO markets at the price cap. SDG&E expressed that CAISO could simply allow the interruptible DR to be bid into RUC at a high price at the end of their dispatch stack; or even in the Real Time market at an even higher price. At this time, the ALJ questioned CAISO as to how many times it goes out-of-market. CAISO responded that it has been a "hand full" since 2001 and typically applies to local and not system situation when it goes out-of-market. CLECA contends that customers will want to know how many times it is likely that CAISO would trigger the use of reliability-based DR programs prior to going out of market or calling non-RA resources in order to provide some measure of the risk, because customers are not power plants. In essence a customer needs to know the value proposition and the risk proposition. SCE followed up on SDG&E's comments by stating that just because pricing is above the bid cap does not mean the nodal price will be below it. If additional resources relieve constraints and allow resources to be dispatched more efficiently, then we can have nodal prices above the bid cap.

PG&E stated that much analytical work needs to be done to value of the options, and urged consideration of a non-RA, emergency-only program.

CAISO responded to a previous comment raised by CLECA and agreed that not all DR programs have to fit into the CAISO markets, but if they are to fit, CAISO needs to be aware of them so they can plan around it. CAISO went on to explain why notifying it of available resources is insufficient because the CAISO still needs to serve that associated load; it doesn't plan to be in an emergency.

Last, parties from Panel 1 were provided with a final opportunity to address the workshop participants. SCE made three final points: (1) that a lot of progress has been made in moving away from an emergency-only trigger, that solves CAISO operating reserve criteria problem; (2) that parties still need to work together to integrate the interruptible DR resources into MRTU; and (3) the Commission should not cap these programs, because they are cost effective and at the top of the loading order; don't kill them because we don't yet have a home for them because they are not only just for grid purposes, but also for local relief.

PG&E agreed with SCE's straw proposal presented in the morning session and that it is already in the process of moving its programs to price-responsiveness with its Smart

AC. PG&E also stated that: (1) work still needs to occur to find ways to adjust the RUC for these resources; (2) that the PRM proceeding will provide some guidance; (3) that the IOUs need time to transition these programs; and (4) there is no value to capping the programs now.

SDG&E agrees that capping the programs is premature and that it was important that CLECA was present in the discussion to provide the customers' perspective. CLECA agreed with what had been said by the IOUs. CLECA wanted to close by stating that if the programs are moved into the CAISO market, then a couple of points must be kept in mind. Those are: (1) it will mean different things to different customers (*i.e.*, how often will it be called); (2) additional information will be needed about how often CAISO goes ED, OOM, etc. so that customers can make informed decisions of whether to participate; and (3) if these customers' interruptible load is included in the day-ahead market and called upon, it won't be there for reliability purposes if it is needed for them.

2. Panel 2 (CAISO and DRA)

Karl Meeusen from Energy Division started the Panel 2 afternoon session inquiring about the CAISO's WECC requirements. This brought the discussion back to an earlier key theme that the CAISO plans to serve all load. SCE questioned CAISO why it purchases out-of-market, launches Exceptional Dispatch, and performs other measures prior to calling for DR. CAISO explained this is the nature of the emergency-based DR programs, they are only callable at a Warning with Stage 1 Imminent. SCE also inquired of the CAISO as to how often it goes out-of-market; CAISO did not provide a number. CAISO noted that it cannot talk about price; however it referred back to its operating protocol EOP 508-B, which sets forth explicit instructions for an operator from the 24-hour forecast to an Alert to a Warning Notice. The timing issue with planning for Exceptional Dispatch and OOM was discussed. The CAISO stated that the timing of ED is largely tied to the lead time required to get the unit on line to satisfy the issue. They try to avoid committing a limited resource only to find later they didn't need it or could have waited to use it. For example, at 10 a.m., a 6-hour resource might be available for dispatch, however it would not be prudent to dispatch a resource that may not be needed. CAISO was asked to address a timing issue with respect to two generators: an old steam unit and a CT. CAISO stated they look at their past experience with the operating unit.

PG&E referenced Slide 5 of its presentation and then questioned CAISO on its proposals, to which CAISO agreed that items 1 through 3 on Slide 5 would make the products integrated because they triggered on price or as an ancillary service product. As to PG&E's proposal to adjust RUC to include these resources, when questioned by the ALJ about it, CAISO stated it cannot adjust RUC for these resources because it cannot plan to be in an emergency. The ALJ questioned how the resource could be shaped differently to be used before going into an emergency. CAISO stated that a warning is essentially an emergency, so these resources are being provided in an emergency. The ALJ questioned whether it was a legal requirement or a WECC requirement or just the CAISO's opinion that a warning should not be issued; or whether there was any requirement that it has to hit its forecast. CAISO reiterated that it defines a warning as an emergency and an interruptible load is a tool that is available after a warning is issued. TURN inquired how often a DR resource would be called if it was put in at the bid cap. CAISO responded that if a "contingency flag" was placed on the resource it might work in limiting the number of dispatches.

The discussion then focused on the different treatments of DR resources for resource adequacy (RA). For the CAISO, RA is used in planning and it cannot plan around BIP and AC Cycling; CAISO stated that EOP 508-B requires it to dispatch non-RA and OOM before triggering the interruptible programs, but it feels it should be able to dispatch all RA because it is being given a capacity payment. DRA claimed interruptible DR fulfills 2 out of 3 RA requirements so it should not get a full RA payment.

PG&E questioned CAISO on SCE's straw proposal, and whether it would solve CAISO's problem. CAISO responded that it was encouraged by the proposal, that it was a good start but that it entails different products from what are available today. The focus then turned to what types of products fit within or beyond the PRM. The IOUs stated that customers participating in programs within (or to the left of PRM on SCE's reliability curve on page 4 of its presentation) the PRM have a lower value of service and customers beyond the PRM (or to the right of the PRM on SCE's reliability curve) are firm service customers, for whom the IOU will build a CT to serve but those customers may still be willing to leave the system in a 1:10 year event. The target audience beyond the PRM is not BIP customers because as interruptible customers, BIP customers have not indicated they want firm service; instead the target audience is a set of customers which the IOUs don't have in DR programs today.

The remainder of the afternoon session raised a few more questions of the panel. CLECA questioned that by imposing a cap on interruptible programs, the IOUs would need to procure additional capacity resources to meet the PRM, which would likely need to be more expensive renewable resources; otherwise the Commission needs to adjust the PRM. CLECA stated that this process should not lose sight of the cost of existing programs and reminded the workshop participants that the cost-effectiveness for the interruptible programs is over 1.0.

The CAISO noted that, before the workshop closed, the parties should refer back to the Ruling as to the purpose of the workshop, to ascertain whether that had been accomplished. The CAISO read from pages 8 and 9 of the Ruling:

> "To enable a productive Workshop 1, parties should submit their proposals as part of preliminary comments on issues in advance of Workshop 1. Such proposals should include analysis, discussion and methodology to support the recommendations made in the proposals. In addition, CAISO is requested to supplement its original recommendation with its estimate of megawatts (MW) reductions that currently could be assigned to each of the specific IOUs.
>
> If there are no alternatives submitted, then the Commission may assume that the recommendations made by CAISO are valid and proceed towards an emergency-triggered DR that resolves the issues raised by CAISO."

The CAISO noted that, rather than bringing analysis and methodology, other parties had brought discussion of alternatives to the current interruptible programs, which the Ruling had specified is the subject for Workshop 2. Karl Meeusen replied to the CAISO's point that the IOUs have responded to the Ruling by proposing that the interruptible programs should not be capped for the reasons articulated by the IOUs.

DRA closed the afternoon session by stating that it wants the process to consider program costs and whether the Commission is getting what it expected when it funded them. CAISO stated it is in favor of the caps on reliability-based DR because of how the programs are currently structured; however, it is willing to continue to pursue modifications to the programs to better integrate them into its processes.

V. **CONCLUSION**

Karl Meeusen closed the session by recognizing that parties had different perspectives on the optimal amount of interruptible DR, and that the Commission would like to know more about the local T&D value of the resources. The ALJ mentioned that in his view, the workshop was extremely valuable, and that parties are encouraged to develop a solution that addresses double procurement concerns and enables the programs to continue as RA resources.

Respectfully submitted,

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JANET S. COMBS

/s/ Janet S. Combs
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August 20, 2009

Appendix A

Workshop Presentations

R.07-01-041 Phase 3 Workshop 1

Karl Meeusen
CPUC Senior Regulatory Analyst

August 10, 2009

History

- 6/9/2008 – CPUC ruling requesting CAISO input about Emergency Triggered DR Programs
- 6/25/2008 – CAISO comments
- 7/9/2009 – Reply comments from other parties
- 7/18/2009 – Original Scoping memo
- 8/15/2008 – PHC statements filed
- 8/20/2008 – PHC held
- 1/29/2009 – Resolution E-4220 (Imminent Stage 1)
- 3/31/2009 – MRTU begins
- 7/8/2009 – Amended Scoping Memo and Schedule
- 7/27/2009 – Comments filed by parties

Objectives of Workshop 1

- Gather information to allow the Commission to make an informed decision regarding what is the appropriate MW level for emergency/imminent stage 1 DR programs*, for system reliability.
  - Gather empirical support for each party's position including historical performance and needs.
  - Determine the benefits and shortcomings of Resolution E-4220 (Imminent Stage 1).
  - Assess how well emergency/immanent stage 1 DR programs are or should be aligned with MRTU.

*For purposes of this workshop programs the will be considered will be BIP, AC Cycling, and AP-I.

Format for Workshop 1

- 2 sessions, 2 panels per session
  - Morning Session (Position Session): This session will allow parties to establish their position and will be limited to clarifying questions.
    - Panel 1: PG&E, SCE, SDG&E, CLECA
    - Panel 2: CAISO, DRA
  - Afternoon Session (Discussion Session): This session will be a question and answer session where parties can inquire deeper into the panelists positions as well as dispute the panelist positions.
    - Panel 3: PG&E, SCE, SDG&E, CLECA
    - Panel 4: CAISO, DRA

Next Steps

- 8/17/2009 – Workshop 1 report (SCE)
- 8/24/2009 – Comments on workshop report
- 9/18/2009 – Preliminary ruling issues by the ALJ
- 10/12/2009 – Statements for workshops 2 and 3
- 10/20/2009 – Workshop 2
- 10/30/2009 – Workshop 2 report (PG&E)
- 12/2/2009 – Workshop 3
- 12/14/2009 – Workshop 3 report (SDG&E)
- 1/8/2010 – Comments on workshops 2 and 3
- 2/2010 – ALJ ruling may seek comments and replies from parties
- 4/2010 – Proposed Decision
- 5/2010 – Commission consideration of Proposed Decision

	BIP	AC Cycling	AP-I	total	pro-rata load shed	current	cap at 1000MW	Cap at 500MW	Diff (current-cap 1000)	Diff (current-cap 500)
PGE	301.4	131.6	0	433	44.56%	22.32%	445.6	222.8	-12.6	210.2
SCE	785	579	118	1482	46.76%	76.40%	467.6	233.8	1014.4	1248.2
SDGE	5.9	19	0	24.9	8.68%	1.28%	86.8	43.4	-61.9	-18.5
Total	1092.3	729.6	118	1939.9	100.00%	100.00%	1000	500	939.9	1439.9

AC Cycling refers generically to the IOUs Emenrgency triggered AC cycling programs
MW are taken IOU monthly reports on interruptible programs showing Information current through May for SCE and PGE and June for SDGE
The pro-rata load shed proportions are taken from the the CAISO 6/27/2009 comments
Current represents the inrterruptible portfolio as it currently stands (total for each IOU divided by total of all IOUs)
Cap at 1000 and 500 show the allocations to each IOU if a cap was placed on the interruptible programs at 1000 MW and 500 MW Using the CAISO Pro-rata load shed proportions
Diff (current-cap x) represents the difference between the current portfolio and the proposed allocations using the CAISO numbers

How Should SCE's Demand Response Programs Be Integrated Into The CAISO's MRTU?

R.07-01-041, Phase 3
August 10, 2009 Workshop

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Key Messages

- The original CAISO concern regarding emergency-triggered (i.e., emergency only) demand response (DR) is moot
  - BIP/SDP/AP-I can now be called before an emergency (i.e., before a WECC criteria violation occurs)
  - SCE now calls these programs “event-triggered”; CAISO prefers the term “reliability-based”
- BIP/SDP/AP-I continue to be available for system emergency, transmission and distribution events
- SCE recognizes that there are remaining issues associated with how “reliability-based” DR is committed (planned to be used) by the CAISO under MRTU
  - Stakeholders need to work together to improve MRTU integration of “reliability-based” DR
  - Phasing out or capping these valuable programs is <u>not</u> the right answer

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SCE's BIP/SDP/AP-I programs now exist at the boundary between price-driven markets and emergency operations.

The Current Role of "Reliability-Based" DR

CAISO Actions:		
Emergency operating procedures	**Emergency**	◆ BIP/SDP/AP-I (Stage 2)
The "boundary" where non-market reliability actions occur →		◆ Exceptional Dispatch (ED) ◆ Out of Market (OOM) ◆ BIP/SDP/AP-I (Pre Stage 1)
IFM/RUC schedule energy and ancillary services (A/S) resources based on bid prices	**Price-Driven Markets**	◆ Price Responsive DR (e.g., Demand Bidding)

Key Objective: Integrate ED, OOM and BIP/SDP/AP-I to avoid double procurement and mitigate scarcity pricing

A stakeholder process is needed to address the order in which exceptional dispatch, out-of-market procurement and reliability-based DR are committed/planned.

Straw Proposal Principles For ED, OOM and DR Integration

For DR, the term "commit" means planning to call the program if an expected or contingent event occurs

- Commit DR only after scheduling/dispatching all supply-side resources that are available in the CAISO's energy markets
- Commit DR before procuring a new non-RA resource (i.e., incurring a capacity payment obligation) for a purpose that DR can address
- Commit DR before incurring out-of-market procurement costs above the bid cap for a purpose that DR can address (if the CAISO's practice is to do so)
- Commit DR before scarcity pricing is triggered, if applicable [scarcity pricing provisions have not been finalized]

DR use is subject to considering the available number of calls

- Do not use DR to address momentary real-time operational constraints

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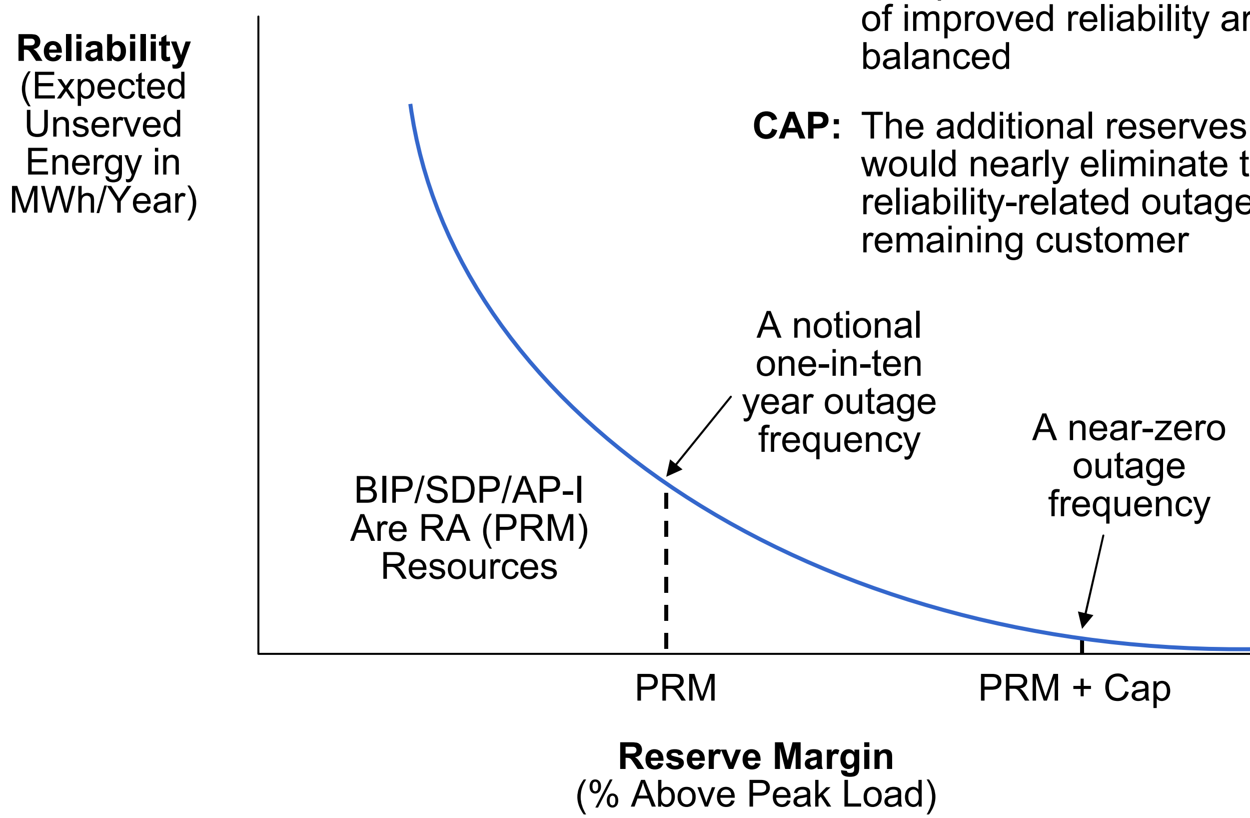
If there is a cap on emergency-triggered DR, it should be calculated based on the Planning Reserve Margin (PRM).

Emergency-Triggered DR Cap

PRM: The point at which cost and value of improved reliability are balanced

CAP: The additional reserves that would nearly eliminate the risk of reliability-related outages to remaining customer



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PG&E Presentation for Workshop 1 of R07-01-041 Phase 3

Ken Abreu
PG&E

August 10, 2009

Response to Basic Questions

- **Is there an optimal size for Emergency Triggered DR programs (ETDR)?**
  - No, there is no clear optimal size. This can best be determined by the economics of providing this emergency only service.
- **If so what is Optimal Size for emergency Triggered DR Programs?**
  - There is no clear optimal size, see response above.

What are the basic problems?

1. **Are RA Resources to be used to avoid a Stage 1 or a Stage 3?**
   - CAISO seems to see it as Stage 1. It has a legitimate concern that a large amount of new ETDR could leave the CAISO having to declare frequent emergencies to operate the system.
   - PG&E sees RA resources preventing a Stage 3. The 15-17% PRM brings the probability of Stage 3s to less than 1 day in 10 years
2. **Not being able to avoid RUC procurement with DR programs that are only called in the in real time and not able to bid in.**
   - Possible double payment for RA and RUC.

What are solutions that could be pursued for Problem 1 (Stage 1 vs. 3)?

- This is not a practical problem for the foreseeable future as all the resources are now available before a Stage 1. No reason to limit enrollment in BIP or AC cycling, which are callable before a Stage 1.
- Planning Reserve Margin (PRM) proceeding will provide the analytical framework to estimate the RA amount needed to keep Stage 2s or Stage 3s below a desired frequency, and the value of emergency-triggered resources to reduce the chances of Stage 3s.
- Customer interest in emergency only DR program can be useful to determine its cost.

What are solutions that could be pursued for Problem 2 (reduce RUC)?

- **Continue to move air conditioner program to a price trigger**
  - PG&E will be proposing this as part of the soon to be filed SmartAC application
  - It will be a high price trigger
- **Continue to move toward a price trigger for BIP**
  - This was a part of the agreement we negotiated last year
  - We are to begin discussions once the first summer of data is available
  - It will include a high price trigger
- **Have a 30 minute Ancillary Services product that has a contingency flag**
- **Have CAISO adjust their RUC procurement down by the amount of BIP and AC cycling that is available to be called each day.**

SDG&E's Schedule BIP
(Base Interruptible Program)

Qualifying Customer: Applicable to all non-residential time-of-use metered customers who can commit to curtail at least 15% of Monthly Average Peak Demand, with a minimum load reduction of 100 kW. (Tariff Special Condition 2).

Program Operation: Shall be the period of time during which the Utility has informed the customer to interrupt load by use of a communictions process utilizing equipment as described in Special Condition 14. (Tariff Special Condition 3a.)

Program Triggers: A BIP Event can occur by one or more of the following:

a. After the California Independent System Operator (CAISO has (i) forecasted a Stage 1 Emergency and publicly issued a Warning notice; (ii) has taken all necessary steps to prevent the further degredation of its operating reserves; and (iii) notified SDG&E that a Stage 1 Emergency is imminent; or
b. After the CAISO has declared a Stage 2 Emergency.
c. CAISO calls for Interruptible Load. The Utility may call for an Interruptible Period provided the Interruptible Period commences within 30 minutes (Option A) or 3 hours (Option B) after the Utility initiates communications to the customer.
d. Extreme temperature conditions impacting system demand.
e. SDG&E discretionary events for test purposes, program evaluation or system contingencies. (Tariff Special Condition 4).

Commission Resolution E-4220, dated January 29, 2009, approved the most recent revisions to the BIP trigger provisions, expanding the circumstances under which a BIP Event may be triggered.

California ISO
Your Link to Power
10 Year Anniversary 1998–2008

CPUC Phase 3 Workshop

Emergency-based DR Programs

August 10, 2009

John Goodin
Lead, Demand Response
Regulatory & Policy Development

Tim VanBlaricom
Manager, Real-time Operations
Real-time Operations

CAISO's June 25, 2008 & July 27, 2009 Filings

- June 9, 2008 Ruling: ALJ Posed Three questions to the CAISO
  1. How much emergency-triggered DR does the state need to have available to mitigate future declared emergencies?
  2. How was this amount determined?
  3. How does the estimated amount needed compare to the amount of emergency-triggered DR currently available?

- July 8, 2009 ACR: CAISO Asked to Supplement Original Filing
  - Provide estimate MW reductions that could be assigned to each IOU

Conclusions from June 25, 2008 Analysis

- **From system operations standpoint:** over-abundance of and an over-reliance on emergency-based programs

Summary of Utility Demand Response Programs for 2008*		
Program Type	**Enrolled MW**	**Expected MW**
Price-Responsive	1,113	331
Reliability-based	2,069	1,917

**Data taken from CAISO 2008 Annual Report to FERC, January 15, 2009*

- **CAISO analysis:** 1% to 2% of system peak (500 MW to 1000 MW) is a reasonable quantity of emergency DR capability to help prevent firm load shedding
- **Outcome:** There is 1,500 MW to 1,000 MW of excess supply of emergency-based DR programs in the system

CAISO Analysis for June 25, 2008 Filing

Three Analytical Approaches:

- Basis 1: Historic Load Shedding Events/Quantities
- Basis 2: Protect Spinning Reserves
- Basis 3: Comparison to Other ISO/RTO Programs

Basis 1: 500 MW to 1,000 MW
Historic Load Shedding Events and Quantities

- Excluding 2000-2001 energy crisis, since 1998 only 2 years saw firm load shedding, both due to Transmission Emergencies (vs. System Emergency) in So. Cal:

Event	Emergency-based Dispatched Qty* (MW)	Program Potential* (MW)	Firm Load Shedding (MW)	Event Duration
March 8, 2004	393	1,036	250	18:22 to 19:00
August 25, 2005	922	1,200	900	15:52 to 23:59

* From SCE IOU Monthly Reports to CPUC; March event includes 246 MW SDP program that was reported

Basis 2: 700 MW to 1,500 MW Protecting Spinning Reserves

- Must maintain Spinning Reserve capacity in order to stay in compliance with NERC/WECC reliability criteria
- Spinning Reserves are resources that are synchronized to the grid, can ramp to a specified level within 10 minutes, and can help maintain system frequency during unanticipated variations in load
- A Stage 3 Emergency is declared, and firm load shedding commences, when the CAISO cannot maintain its spinning reserve requirement

CAISO Spinning Reserve Requirement- Year 2007		
Average	**Max**	**Min**
756	**1,490**	**531**

Basis 3: 800 MW
Comparison of Similar Programs

- Difficult to find a similar program due to restricted use of California's Emergency-based programs; other ISOs use 'emergency' programs as day ahead/real time resources
- CAISO determined ERCOT's Emergency Interruptible Load Service (EILS) program was most similar to California's
  - Not a market-based program
  - It is not deployed ahead of other market resources
  - It is not a backstop to insufficient Planning Reserve Margin or a tool to meet long-term capacity needs (*not the same as California*)
- EILS is sized based on "averting historical firm load shedding events" (similar to our Basis 1 method)
- The size limit of ERCOT's EILS is 1,000 MW which is 1.6% of ERCOT's all time system peak of 62,337 MW (at time of this report). Equivalent to 800 MW in CAISO

July 27, 2009 Supplemental Filing- Allocation by IOU

- **ALJ Request for Supplemental Info:** Allocation of the suggested overall statewide-recommended level of emergency triggered DR by IOU territory
- **Basis for CAISO's Allocation Method:** Emergency Operating Procedure (EOP) 508A (UDC's coincident demand at system peak)
  - EOP-508A sets forth fixed pro-rata load-shedding shares by UDCs and MSSs.

UDC / MSS	FIXED PRO-RATA SHARE
Anaheim	1.12%
Azusa	0.12%
Banning	0.09%
Corona	0.03%
Lassen	0.04%
NCPA (Excluding Roseville, Including SVP)	1.99%
Pacific Gas & Electric	42.53%
Pasadena	0.63%
Riverside	1.14%
San Diego Gas & Electric	8.68%
Southern California Edison	43.25%
Vernon	0.38%

July 27, 2009 Supplemental Filing- Allocation by IOU

CPUC Allocation of Reliability-based Demand Response Quantities by UDC- 2009

UDC	% Allocation
Non-jurisdictional Entities in SCE footprint	3.51%
SCE	43.25%
Total SCE:	**46.76%**
Non-jurisdictional entities in PG&E footprint	2.03%
Pacific Gas & Electric	42.53%
Total PG&E:	**44.56%**
Total: SDGE:	**8.68%**

Electrical System Emergency – Day Ahead

Post Market

- **Reserves below or forecast to be below requirement**
  - Issue Alert
  - Implement Flex Alert program
  - Evaluate need for Restricted Maintenance Operations declaration
- **Potential for firm load shedding exists**
  - Issue *24-Hour Forecast of Potential Load Interruptions Notice*

Overview of ISO Emergency Operations Procedure

- **Alert**
  - After Day Ahead Market, Operating Reserve levels are, or are forecast to be, below requirements
- **Warning**
  - After Real Time Market (HASP) completes, Operating Reserve levels are, or are forecast to be, below requirements
  - Required declaration of WECC EEA1 (Energy Emergency Alert)
- **Warning With Stage 1 Imminent**
  - Post HASP to Real Time
  - Required declaration of WECC EEA2

Overview of ISO Emergency Operations Procedure

- **Stage 1 Emergency**
  - Operating Reserves are or anticipated to be below WECC requirements
- **Stage 2 Emergency**
  - Operating Reserves are or anticipated to be below 5%
- **Stage 3 Emergency**
  - Spinning Reserve portion of Operating Reserves are or anticipated to be below WECC requirements

Warning Highlights

- **Warning**
  - Exhaust all available market resources
  - Request Emergency Assistance from other Balancing Authorities
- **Warning with Stage 1 imminent**
  - Request available pump load shed
  - Call Interruptible Load (emergency-based) programs

Cumulative Totals of Reliability Events

TYPE	2004	2005	2006	2007	2008	2009 (YTD)
Transmission Emergency	6	5	0	4	0	3
Warning	2	2	5	3	1	0
Stage 1	1	1	3	1	0	0
Stage 2	0	2	1	0	0	0
Stage 3	0	0	0	0	0	0

TYPE	5 Year Summary
Transmission Emergency	18
Warning	13
Stage 1	6
Stage 2	3
Stage 3	0

Worst Case: Transmission Emergency
Loss of Pacific DC Intertie Converter- Aug 25, 2005

SCE Program	Dispatched Qty (MW)*	Program Potential (MW)	Not Used/Available (MW)
AP-1	57	56.8	0
BIP	60	84.6	24.6
I-6	606	697.7	91.7
OBMC	39	9.7	0
SDP	152	343	191
Smart Thermo	8.25	8.1	0
Total:	**922**	**1,200**	**307**

**Based on IOU Monthly Reports Submitted to CPUC;* PG&E emergency DR programs needed for this Event

- 900 MW of firm load shedding also occurred
- AMDRA Qty = 312.8 MW with only 30.7 MW Dispatched
- Unused/Unavailable DR of 589 MW (307 MW + 282 MW)

Worst Case: System Emergency
All Time System Peak- July 24, 2006

Utility	Program	Dispatched Qty (MW)*
PG&E	Non-Firm	197
	BIP	21
	Subtotal:	**218**
SCE	BIP	73
	I-6	570
	Subtotal:	**643**
	Total:	**861**

**Based on IOU Monthly Reports Submitted to CPUC; only emergency programs; SDP not used by SCE on this day*

For SCE and PG&E Combined: SCE PG&E

- Unused/Unavailable Economic: 598 MW (348 + 250)
- Unused/Unavailable Reliability: 613 MW (489 + 124)

Important Events Since Aug 2008 PHC
Resolution E-4220: Modification to the BIP Trigger

- Reconfigures BIP to be triggered immediately prior to the CAISO declaring a Stage 1 Emergency, i.e. CAISO doesn’t have to technically call an ‘emergency’ to request these programs
- Resolution was only one piece of a larger process
  - The negotiation encouraged the “parties continue to engage in meaningful discussions to promote the voluntary transition of large customers to a forward-bid paradigm…” (from *Statement of Intent*)
- Resolution E-4220 did not resolve fundamental concerns, namely:
  - Double procurement- the CAISO cannot plan around these resources any better than when triggered at Stage 2
  - Before exercising these resources, the CAISO must still take numerous, cost consequential steps to prevent a Stage 1 emergency, including, among other things, negotiating for energy out of market and relying on exceptional dispatches

In Conclusion:

- From a system operations standpoint there is an over-abundance of emergency-based programs
- CAISO notes that many CPUC desired DR functions are not part of an Emergency-based DR program structure:
  - Ability to prevent scarcity pricing
  - Provide ancillary services
  - Integrate greater amounts of intermittent resources
  - Add depth to the markets and help prevent market power
- Move toward greater use of dynamic pricing and market integrated demand response

CAISO Peak Load History

Year	Peak Load Megawatts	Date	Time
1998	45,811 MW	August12	14:30
1999	45,884 MW	July 12	16:52
2000	45,494 MW	August	16 15:17
2001	41,419 MW	August	16 17:10
2002	42,441 MW	July 10	15:01
2003	42,689 MW	July 17	15:22
2004	45,597 MW	September 8	16:00
2005	45,431 MW	July 20	15:22
2006	50,270 MW	July 24	14:44
2007	48,615 MW	August 31	15:27
2008	46,897 MW	June 20	16:20:31

Workshop 1 Handout (DRA)

2008

Program	Utility	Cost (incentives and operations)	Service accounts (highest)	MW enrolled (highest)	Events called
BIP	SCE (BIP & I-6)	$ 65,965,505	623	660.7	0
	PG&E (Non-Firm & BIP)	$ 22,715,923	149	354.9	1 (test)
	SDG&E	$ 331,000	20	4.8	0
AC cycling	SCE (Summer Discount Plan/ACCP)	$ 52,997,351	333,415	694.8	0
	PG&E (SmartAC)	N/A	113,172	139.2	1 (test)
	SDG&E (SummerSaver)	$ 3,844,700	30,016	33.7	2

2007

Program	Utility	Cost (incentives and operations)	Service accounts (highest)	MW enrolled (highest)	Events called
BIP	SCE (BIP & I-6)	$ 53,097,868	557	623.3	0
	PG&E (Non-Firm & BIP)	$ 22,611,482	127	303.3	1 (0 MWs delivered)
	SDG&E	$ 69,400	3	2.5	0
AC cycling	SCE (Summer Discount Plan - ACCP)	$ 44,142,767	291,768	593.8	6
	PG&E (SmartAC)	N/A	24,619	24.6	13 (12 for M&V)
	SDG&E (SummerSaver)	$ 3,333,600	26,127	44.5	11

CERTIFICATE OF SERVICE

I hereby certify that, pursuant to the Commission's Rules of Practice and Procedure, I have this day served a true copy of **REPORT OF SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E) ON WORKSHOP 1 OF PHASE 3** on all parties identified on the attached service list(s). Service was effected by one or more means indicated below:

Transmitting the copies via e-mail to all parties who have provided an e-mail address. First class mail will be used if electronic service cannot be effectuated.

Executed this **20th day of August, 2009**, at Rosemead, California.

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California Public Utilities Commission

CPUC Home

CALIFORNIA PUBLIC UTILITIES COMMISSION Service Lists

PROCEEDING: R0701041 - CPUC-PG&E, SDG&E, ED
FILER: CPUC-PG&E, SDG&E, EDISON
LIST NAME: LIST
LAST CHANGED: JULY 27, 2009

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