

Planned Remarks
on behalf of The Utility Reform Network
by Kevin Woodruff, Principal, Woodruff Expert Services

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Reliability in the California Wholesale Electric Market

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Good morning. First, I compliment FERC staff for organizing panels that represent a diverse set of key interests in California's power markets. I also thank FERC staff in particular for inviting me to be on one of those panels to speak on behalf of the state's smaller electricity consumers.

Next, I will note that there are a lot of people saying a lot of different things about what should and should not be done regarding capacity procurement in California. So I also thank the staffs of the California Public Utilities Commission (CPUC) and the California Independent System Operator (CAISO) for preparing their Joint Reliability Framework (Framework), which I believe will help focus today's discussion on tangible steps.

But there's much to say, and not much time, so it's on to my main points, which are:

- *Part 3 of the Framework is gold.* But we should not wait until next year to start. We should start this type of thorough fact-gathering project immediately and finish it quickly, say, by year-end.
- *Part 1 may be a good idea, but detailed review should wait until Part 3 is completed.* In fact, all actions on the topic of "capacity markets" in general can and should wait until we're done with Part 3.¹
- *Part 2 of the Framework is neither necessary nor desirable.* Several other speakers and participants will provide reasons for not pursuing Part 2.

I make these recommendations because, as I'll explain in detail, the discussion of what ails California's power markets² is plagued by "urban myths" and other mis-information. Before we make any big, irreversible decisions, we need to reboot the discussion to a factual basis.

¹ Except for tasks that are already scheduled for action this year, such as the implementation of the flexible capacity procurement requirement adopted in CPUC Decision 13-06-024 issued in Rulemaking 11-10-023.

² For convenience, I refer to the procurement policies and markets within the CAISO-managed grid as "California's" policies and markets, even though much state load is served affordably and reliably by entities that are not CAISO members.

Perhaps the most pernicious myth is the claim that the state has only a “two-part, one-year RA, ten-year LTPP” policy for procuring reliability resources and that there is a procurement hole in “years three to five”. Figure 1 shows how this view has been summarized by others. This figure purports to show that Resource Adequacy (RA) policy provides support for capacity in Year 1 and that the Long-Term Procurement Plan (LTPP) process addresses needs in Year 10, but that nothing’s happening in between.

But this model of California’s markets is based on only a subset of the key facts. There are many other features of state policy that must be considered when assessing the acquisition of resources for reliability. To lay the basis for a more complete view of state policy, Figure 2 expands the above “two-part” model to two dimensions. Years 1 through 10 are shown across the x-axis. The state’s RA requirement, running from zero to 115 percent, is shown on the y-axis. The blue rectangle at the left shows the procurement under the “year-ahead RA” program as equaling the full procurement target of 115 percent and the blue rectangle at the upper right shows procurement under the “ten-year LTPP” as adding the resources needed to bring system resources back up to 115 percent.

Figure 3 then provides a more complete picture of state policy by showing several other key policies. These additional features of procurement policy include:

- The fact that the “ten-year LTPP” process may result in authorizations to add resources before year ten. In fact, recent LTPPs have authorized new resources to begin operation as early as year seven. This correction is shown in the blue rectangle at the top right of the chart, which has been adjusted to start in year seven.
- The fact that the Investor-Owned Utilities (IOUs) have several procurement programs outside the RA and LTPP programs that have yielded – and will continue to yield –

substantial long-term forward acquisition of capacity.³ These programs are shown in the aggregate in the buff rectangle across the bottom of the chart.

- The fact that the IOUs routinely procure RA capacity from markets for years two through five when implementing their Bundled Procurement Plans (BPPs).⁴ These mid-term market purchases are shown in the green triangle running from years two to five.
- The fact that the IOUs will continue to procure RA capacity in future sets of “years two to five” so that their RA positions will approach 100 percent as each “Year 1” approaches. These future purchases are shown in the lighter green parallelograms.
- Finally, the fact that – even without the San Onofre Nuclear Generating Station (SONGS) – there is a large surplus of generating capacity in California is shown in the blue rectangle at the top of the chart.⁵ Though this surplus has lasted several years, the progressively-darker question marks in this rectangle are meant to show that this surplus may dissipate over time. This surplus is not a market rule *per se*, but is critical to understanding current market dynamics and much of the distress of the generation community.⁶

California thus has a “multi-part, multi-year” policy for procurement of capacity. There is no yawning gap in “years three to five” as some have claimed. Rather, the multi-part, multi-year model should keep yielding significant amounts of capacity purchases in those near- and mid-term years as time passes, as well as over the long-term.

³ These programs include Utility-Owned Generation (UOG), existing long-term contracts, primarily those authorized in prior LTPPs, Qualifying Facility (QF) and Combined Heat and Power (CHP) contracts, Renewable Portfolio Standard (RPS) procurements, Demand Response (DR) and Energy Efficiency (EE) programs, imports and storage.

⁴ These purchases are not driven by an explicit RA requirement, but tend to be driven by the goal of mitigating ratepayers’ financial risk.

⁵ See CAISO’s *2013 Summer Loads & Resources Assessment*, May 6, 2013. The Planning Reserve Margin (PRM) analysis summarized on Table 1 (p. 4) – which shows PRMs over more than 30 percent for this summer – was developed assuming SONGS was not available in 2013. The loss of SONGS has led to local reliability concerns regardless of the healthy statewide PRMs, as also discussed in the *Assessment*. The *Assessment* is available at http://www.aiso.com/Documents/2013SummerLoads_ResourcesAssessment.pdf.

⁶ Given this surplus, complaints that RA prices or generator revenues in general are “too low” are no indictment of current markets; rather, such complaints are evidence current markets may be functioning as they should.

Before I proceed, I need to clarify that this model is overly-simple and subject to several caveats (some of which are in a footnote).⁷ Of these, I want to explicitly state that the forward acquisition of RA shown in the triangular region of Figure 3 relies on the IOUs hedging their customers' financial exposure to RA prices; these purchases are not made due to an explicit requirement that they procure RA capacity. Part 1 of the Framework raises the policy question of whether the state should rely solely on such financial incentives – however powerful they may be – to ensure reliability, or instead make such forward reliability acquisitions mandatory.

Regardless of these caveats, it should be clear that any future discussion of the state's capacity procurement policy should be based on this multi-part, multi-year model. And if the validity of the multi-part, multi-year model is not clear yet, a review of actual procurement data will make it obvious. Figure 4 is a summary of the public portions of the IOUs' most recent Bundled Procurement Plans approved by the CPUC last year. The data are confidential through 2017; procurement shown for years 2012 and 2013 is thus based on a stylization of the CPUC's RA policy and procurement for years 2014 through 2016 is redacted.⁸ But starting in year 2017, we can see the IOUs have collectively procured large quantities of RA capacity through year 2020. Based on these out years' data, it is safe to presume that the IOUs also have large amounts of RA capacity procured for 2014 to 2016 as well.

Now there has been one big recent change to the state's long-term RA position: the retirement of SONGS Units 2 and 3. The impact of the SONGS retirement on the IOUs' capacity position is shown in Figure 4 for the years following 2016 by the red line and triangles. But there is another big change to the IOUs' mid-term RA positions that has also occurred since these plans were approved: SCE's extension and expansion of its contracts for the "AES 4000" capacity. These

⁷ In particular, procurement in response to CPUC policies doesn't yield rectangles, triangles and parallelograms that fit snugly together; these programs instead likely have some overlaps and some spaces among them. The model does not show any aspect of procurement by Publicly-Owned Utilities (POUs), Energy Service Providers (ESPs) or Community Choice Aggregators (CCAs). I am also not trying to defend all CPUC policies, individually or collectively, or say that could not be improved, or even that they are adequate to ensuring reliability in the future. (In fact, I am sure current policies could be improved in some regards.)

⁸ It is possible that additional data from the IOUs' BPPs could be made public at this time.

contracts expanded SCE's – and thus the IOUs' collective – contracting of RA capacity through May 2018 by over 3,800 MW. This effect, combined with the SONGS retirement, is shown by the big green dot on Figure 4.⁹ Even these large changes to the IOUs' collective mid- to long-term positions do not change the implication of Figure 4: the IOUs have procured – and the CPUC expects them to procure – large parts of their RA requirements for many years forward.¹⁰

Another important concern about forward capacity procurement – perhaps the one most responsible for bringing us together today – is the acquisition of the flexible capacity needed to integrate growing quantities of renewable resources. Figure 5 shows data comparing one estimate of flexibility needs to public data about the current forward procurement of the type of flexible capacity that can meet such needs. In this chart:

- Future flexible capacity needed to meet a “three-hour ramp”, as estimated by the CAISO using the methodology the CPUC recently adopted for this need, is shown in the black line toward the bottom of the chart for 2014 to 2016. These needs for 2017 and 2018 – estimated by escalating 2016 needs – are shown in the charcoal line.
- The total amount of flexible capacity that can meet such “three-hour ramps” that is expected to be available to the CAISO by month through the end of 2018 is shown in the purple line at the top of the chart. This figure includes presumed retirements of Once-Through Cooling (OTC) units at the end of 2015 and 2017, capacity that is being added this year and next and generation planned for 2016. These quantities greatly exceed estimated flexible capacity needs through late 2018.
- The current procurement status of this flexible capacity is shown in the colored bars, to the extent public data are available. The red bars show the flexible capacity that is IOU-owned,

⁹ The effects of these events are obviously significant for SDG&E and – especially – SCE and do not affect PG&E as directly. This chart does not consider the local reliability impacts of the SONGS retirement and AES 4000 contracts. But these issues do not affect the key point of Figure 4 that the IOUs engage in extensive mid- to long-term forward procurement of RA capacity.

¹⁰ Caveats about the data in Figure 4 are again in order. These data reflect the CPUC's adopted assumptions and are not necessarily endorsed by the IOUs themselves, and even with the two updates I described above, the adopted data are somewhat dated by now. And Figure 4 also doesn't show any procurement by POU's, ESPs or CCAs.

the orange bars shown the flexible capacity that is under long-term contract to an IOU, and the green bars show flexible capacity that is owned or contracted by POUs.¹¹ Flexible capacity that is not publicly known to be contracted is shown in the light blue bars.

I look at these data and I don't see any near-term flexible capacity acquisition crisis. I see instead that adequate, or nearly adequate, amounts of flexible capacity have already been procured through the end of 2018. Further, the flexible capacity shown on Figure 5 comes entirely from fossil, hydro and geothermal resources; it does not include any Demand Response, storage or other resources that could also meet flexibility needs. Any success these resources have in meeting system flexibility needs will further reduce the need to procure fossil or hydro flexibility capability. Yet these types of very basic analyses have been sadly absent in the discussion of procurement policy.

I will acknowledge that just because this capacity has been procured several years forward does not mean that such capacity will be offered to the CAISO market. But consider the following points about such already-procured capacity:

- Barring outages, the IOU-owned capacity *will* be available to the CAISO to meet system reliability needs. The IOUs may not submit the capacity to the CAISO market. But under the IOUs' business deal with the state, they will help the CAISO meet genuine reliability needs when necessary, and that includes making capacity available when it is needed. This is an aspect of traditional state utility regulation the CAISO and FERC should keep clearly in mind when evaluating the need for an additional market.
- I believe the POU-owned capacity will similarly be made available if it is needed to provide reliability.
- This capacity is receiving financial support that will enable it to remain operational through at least 2018.

¹¹ Though I believe my inventory of POU resources is incomplete.

The IOUs and POUs – and of course, consumer groups like my client – may argue that Figure 5 shows that utilities are paying most of the fixed costs associated with flexible capacity. That may be, and I acknowledge that cost allocation is an issue near-and-dear to my client’s heart. But addressing that issue first requires knowing the facts about forward procurement, which I am recommending the CPUC, CAISO and others develop over the next few months.

Finally, independent generators may complain that the mix of capacity shown in Figure 5 is too heavy on utility-ownership. I acknowledge this concern. I’m not trying to say that the market structure shown in Figure 5 is ideal. But to reiterate, addressing that issue first requires knowing the facts about forward procurement.

To return to my main points:

Part 3 of the Framework should be pursued expeditiously. The state faces big challenges and needs to continue reviewing and likely changing its procurement policies with a sense of urgency. But such a process must be based on facts about those policies, including the forward capacity positions they yield. Sad to say, much of what is said on these issues is “urban myth”. It is critical that these Chicken-Little-inspired myths be exorcised from the discussion. So I urge the CPUC, CAISO and others to initiate Part 3 of the Framework and present their results by the end of this year.¹² I also urge that as much of the results of Part 3 be made as public as is possible. Once we have established the facts about procurement policies and their results, we can then reboot our discussion and consider if and how we should change such policies.

Part 1 may be a good idea, but detailed review should wait until Part 3 is completed. I do not see any convincing evidence that there is a need to implement new forward capacity procurement

¹² The efforts the CAISO, Southern California Edison and likely other parties are making in the current LTPP docket (R.12-03-014) to quantify renewable integration needs should also enlighten such efforts.

requirements in the near future, including Part 1 of the Framework.¹³ I draw this conclusion based on my review of the data shown in Figures 4 and 5 and my knowledge of the CAISO's past and current studies regarding long-term flexibility needs.¹⁴ But the thorough analysis envisioned by Part 3 might provide such evidence.

Part 2 of the Framework is neither necessary nor desirable. I see no good reasons for pursuing Part 2 of the Framework.

There's a lot more to say on all of these and other points, and I will be happy to do so during today's conference or at a later date.

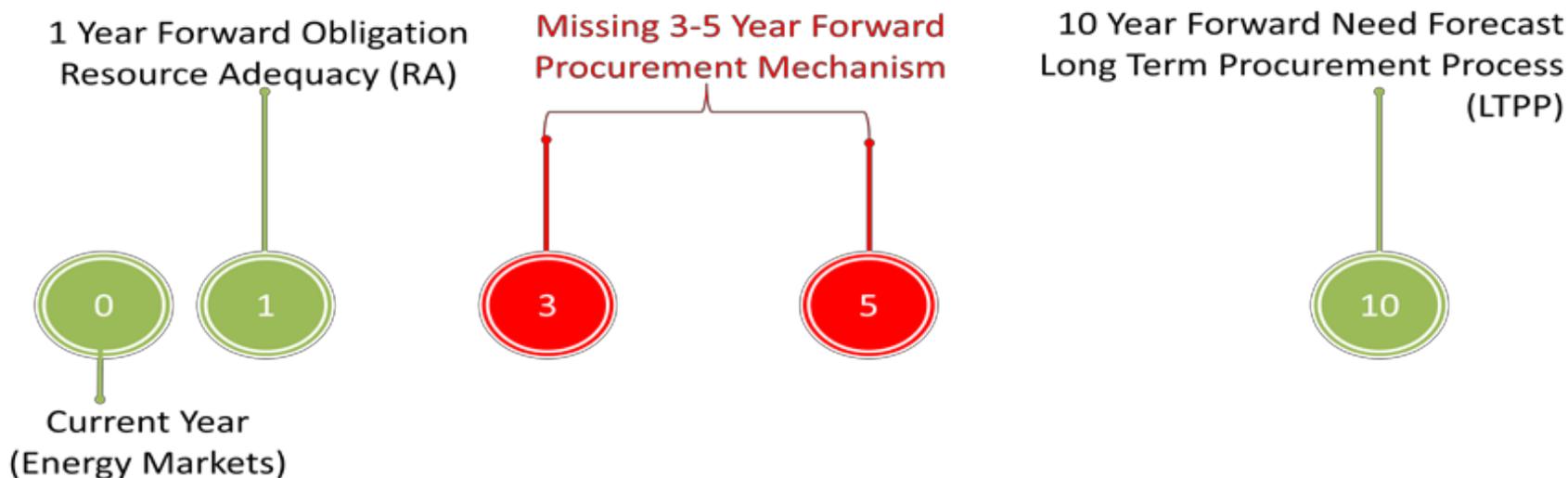
Thank you.

¹³ Except for tasks that are already scheduled for action this year, such as the implementation of the flexible capacity procurement requirement adopted in CPUC Decision 13-06-024 issued in Rulemaking 11-10-023.

¹⁴ I disagree strongly with the CAISO's belief, expressed in the December 12, 2012, cover letter of its Flexible Capacity and Local Reliability Resource Retention Proposal (FERC Docket No. 13-550-000), that there could be a "capacity gap" of 4,600 MW by 2020. Those results were not just based on a doubtful study methodology, but an incomplete application of that methodology as it was originally scoped. This "need" estimate was based only on the "high load" scenario; the same studies forecast a "need" of zero MW using the CPUC-specified base assumptions. Further, the methodology and results have never been litigated or accepted by the CPUC; instead, when the study was filed with the CPUC in 2011, all major parties to the case – including the CAISO – signed a settlement agreeing to defer authorization of new resources and to study the CAISO's methodology and possible need further. (See Decision 12-04-046 in Rulemaking 10-05-006.)

Figure 1

An Incomplete and Misleading Model



Missing Intermediate-Term Procurement Mechanism addresses new issues:

- 1) Providing needed revenues to existing flexible resources to assure that they remain online
- 2) Addressing additional need for flexible resources caused by high amount of intermittent renewables

Source: California Independent System Operator, *Comprehensive Forward Capacity Procurement Framework*, February 26, 2013, page 2.

Figure 2

An Incomplete and Misleading Model, in Two Dimensions

NOTE: FIGURE HIGHLY-STYLIZED AND NOT TO SCALE

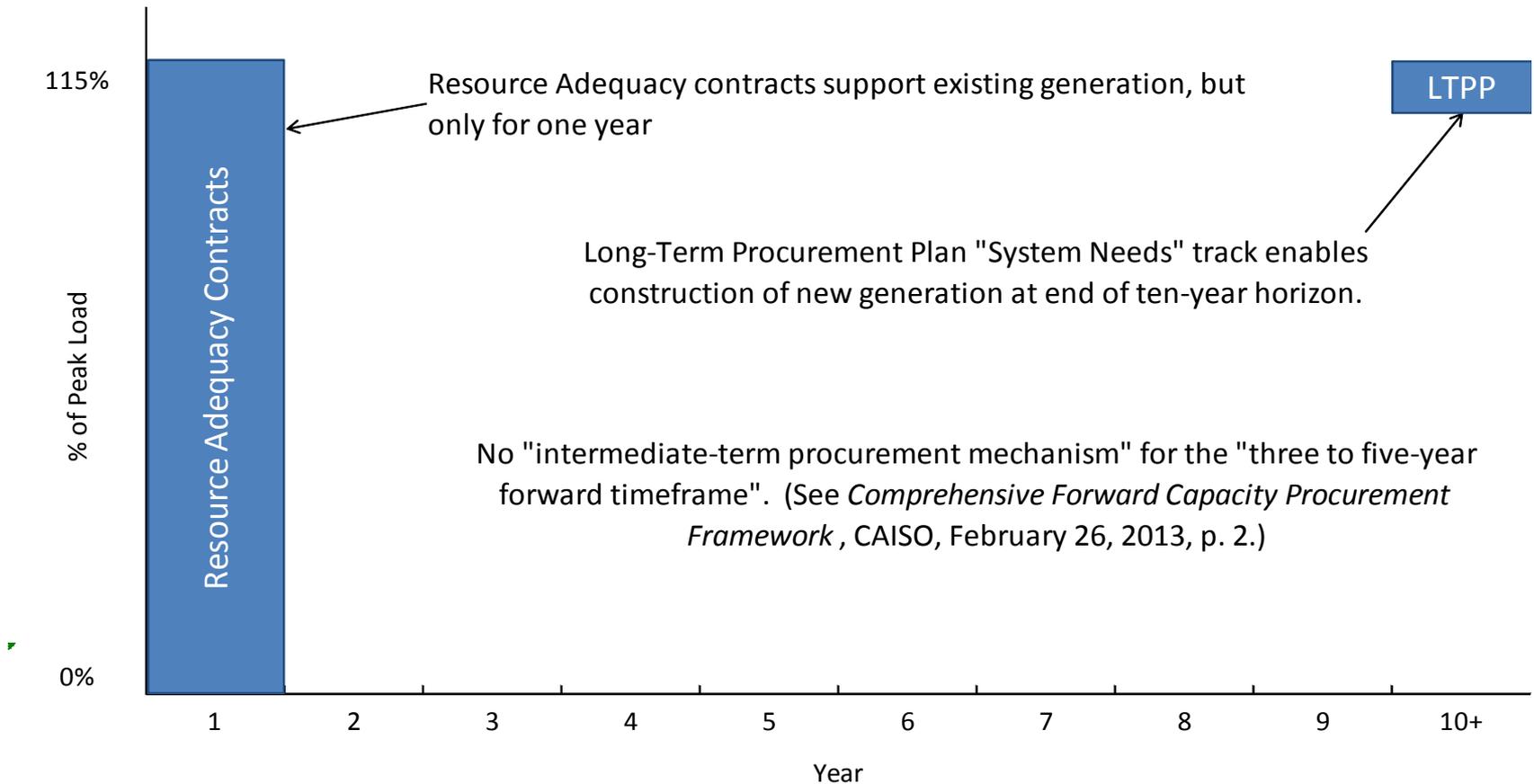


Figure 3 The More Complete “Multi-Part, Multi-Year” Model

NOTE: FIGURE HIGHLY-STYLIZED AND NOT TO SCALE

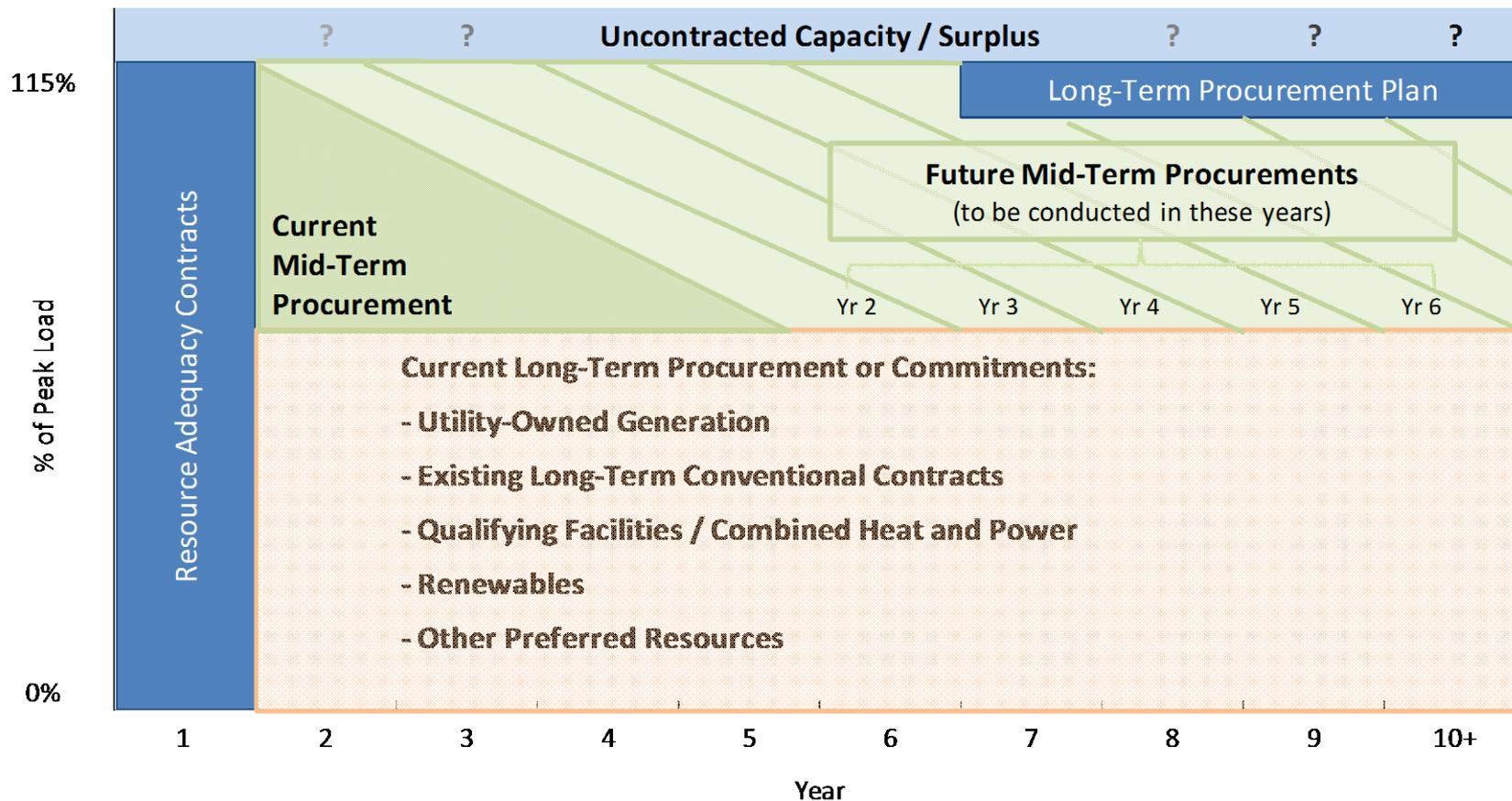
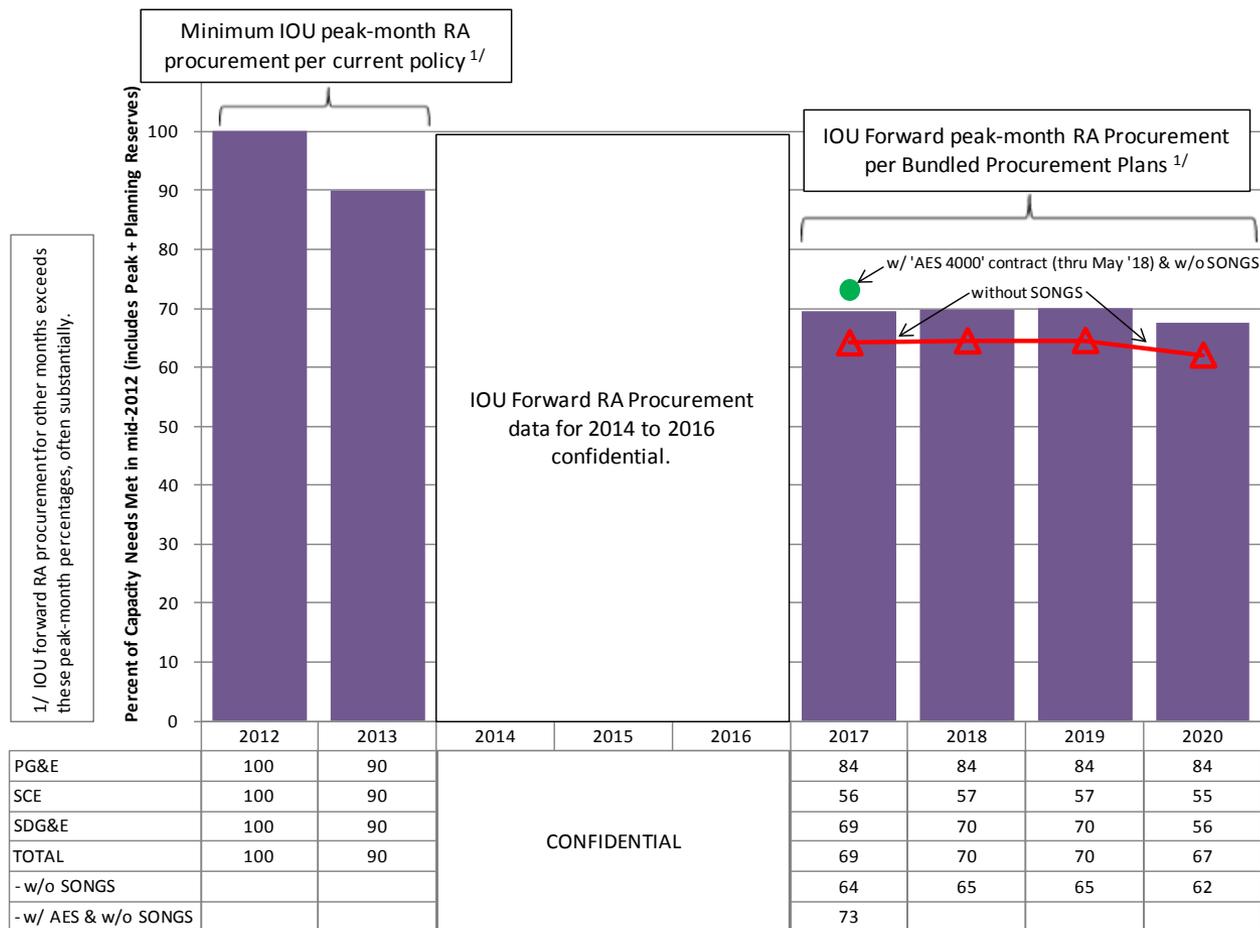


Figure 4

IOUs' Peak-Month RA Procurement through 2020, as of 2012



Sources:

- 2012-2013: CPUC Resource Adequacy policy.
- 2017-2020: IOUs' final Bundled Procurement Plan filings.
- SONGS Capacity (2,246 MW): CAISO 2013 Net Qualifying Capacity List.
- AES Contract Capacity (3,818 MW): SCE Advice Letter 2853-E.

Notes:

- Expected Demand Response, Energy Efficiency and some customer generation deducted from load.
- Capacity of PG&E Qualifying Facility contracts not included due to confidentiality limits.

Figure 5 Forward Procurement of Capacity Capable of Meeting “Three-Hour Ramp”

