**Resource Adequacy Forum Steering Committee
Conference Call Discussion Material
August 30, 2012**

**Changes since the 2015 Assessment**

**Resources**

* About 100 MW of new generating resources
* Wind increased from 3,100 to 4,400 MW
* Mainstem hydro is the same but hydro independents increased by 20 MWa and small hydro (in the resource data file increased by about 250 MWa)
* Using temperature-correlated wind data
* SW on-peak winter market dropped from 3,000 MW to 1,700 MW (summer on-peak market remains at zero and off-peak market winter and summer remains at 3,000 MW)

**Loads**

* New loads (from 2015 to 2017)
* Revised short-term load model using more historical data shows about a 300 MWa load increase or about 0.7% annual growth rate, net of conservation from 2015 to 2017
* However, the difference between the new 2017 loads and the original 2015 forecast is about 850 MWa (this is important for explaining how the LOLP calculated last year changed)
* Revised maintenance schedules, CGS on maintenance in May and June
* Removed double counted conservation (about 170 MWa)
* Removed double counted DSI load (about 300 MWa)
* Removed double counted Coulee pumping loads (about 130 MWa)
* Revised contract data (2015 contract data had a Utah import that should not have been included because we do not count Utah load, net change 530 MWa increase in load)

**Net load and resource changes:**

* Load
	+ Base load increased by about 850 MWa (from original 2015 forecast)
	+ Adjustment for DSI double counting 850 – 300 = 550
	+ Adjustment for double counting conservation 550 + 170 = 720
	+ Adjustment for double counting pumping load 720 – 130 = 590
	+ Net load increase 590 MWa
* Resources
	+ New resources -530 MWa (Utah fix + contract changes)
	+ Adjustment for new hydro -530 + 270 = -260
	+ Adjustment for new thermal -260 + 100 = -160
	+ Net resource increase -160 MWa
* **Net overall change is an effective 750 MWa increase in load**

**Variable and Market Resources**

* On-peak winter SW market decreased by 1,300 MW
* Wind generation increased by 1,300 MW
* Using temperature-correlated wind data instead of historic (2008-10)

**Modeling Changes**

* Fine tuned the hourly hydro dispatch logic (still have some issues with daily shaping combined with purchase ahead logic, which could cause false positive curtailments but they can be screened out post analysis)
* Added ability to do TSR studies (does not affect the adequacy assessment)
* Added ability to do sub-year studies and use synthetic stream flow data (ESP model, also does not affect assessment)

**Preliminary Assessment for 2017
(Still under review, not for general distribution)**

* Reference case LOLP for 2017 is 6.9% ± 2.9% (95% confidence level)
	+ Reference case uses Council’s medium load forecast
	+ Expected, sited and licensed resources
	+ 6th plan conservation target for 2017
	+ 1,700 MW winter on-peak SW market, 0 MW summer on-peak market
	+ 3,000 MW off-peak SW market both winter and summer
	+ 4,400 MW wind and temperature-correlated wind capacity factors
	+ 95% confidence interval is based on load uncertainty from Council’s low to high forecast and winter on-peak SW market range from 0 to 3,200 MW)
* Uncertainty in mean due to different sets of temp-correlated wind data is ± 1.0%
* Using non temp-correlated wind data lowers LOLP by an insignificant amount and could indicate that most curtailments do not occur during peak load hours)
* Using historic 2018-10 wind data lowers LOLP mean by a little less than 1% (too little data, not recommended for analysis)
* Taking CGS off maintenance in June could reduce LOLP by up to 2% (estimate based on 210 game study)

**How did we get from last year’s 1% LOLP for 2015 to 6.9% for 2017?**

The following incremental changes to LOLP are mostly illustrative to indicate the relative size of the impact of each parameter. It should be noted that these parameters are not independent of each other. It should also be noted that last year’s 1% LOLP for 2015 had errors, which if corrected would have yielded a higher (but still under 5%) LOLP.

* 3.4% increase in LOLP due to a net load increase of 750 MWa (see section above “net load and resource changes” and remember that peak load changes are larger than average changes) – LOLP goes from 1% to 4.4%
* 1% increase in LOLP going from 3,200 MW to 1,700 MW of winter on-peak SW market – LOLP goes from 4.4% to 5.4%
* 1% increase in LOLP due to using temp-correlated wind data instead of historic 2008-10 data – LOLP goes from 5.4% to 6.4%
* 0.5% increase in LOLP due to refined hourly hydro dispatch that more accurately captures capacity issues – LOLP goes from 6.4% to 6.9%

**Next Steps**

* Send 2017 load and resource data to technical committee for review
* Explain how conservation is incorporated into the load and at what level
* Obtain California Energy Commission assessment of loads and resources for 2017 to update the SW on-peak and off-peak market availability
* Review south-to-north intertie capacities (monthly) to ensure that SW market is not being limited by underestimated transfer capabilities
* Review curtailment records for potential false positives – eliminate false curtailments caused by the hydro shaping logic

**What is the message and what should we be doing?**

* Caveat: Forum’s methodology is just one of many tools used to assess the adequacy of the power supply. It has strengths and weaknesses. We are continuing to make improvements to the modeling.
* A single LOLP value can be misleading because of the uncertainties not modeled in GENESYS. But the range of potential values gives us a good sense of how adequate the power supply is.
* We are still scrubbing the data but it appears that there is at least some likelihood that the 2017 LOLP will be greater than 5%.
* This does not mean that the “sky is falling” or that we will have a recurrence of the energy crisis of 2001.
* If the LOLP ends up greater than 5%, it simply means that relying only on existing resources and 6th plan conservation will lead us to a power supply whose likelihood of curtailment is above our self-defined tolerance level.
* It is then up to the Council and utilities to determine the most cost effective and appropriate means to “fill the gap.” That might include generating resources, demand response or perhaps even more conservation. But that is a separate process from an adequacy assessment.

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