

**15-HYDRO-01****Alameda Municipal Power**

Question 1: Please provide your publicly owned utility's (POUs) current estimate of total electric firm energy requirements in gigawatt hours (GWh) for calendar year 2015. **379.7 GWh**

Question 2: Please provide your POU's average annual hydroelectric energy procurement in GWh since 1970, including 2014. Please differentiate between generated and purchased hydro energy supplies, and specify the timeframe over which these averages were determined if fewer years than from 1970 were used. **The table below details AMP's hydro purchases since the year 2003, which was the earliest generation data that was available.**

Year	Calaveras	WAPA	Total MWh	Change
2003	51.34	171.23	<b>222.6</b>	
2004	32.76	179.39	<b>212.2</b>	<b>-5%</b>
2005	89.77	37.72	<b>127.5</b>	<b>-40%</b>
2006	87.98	67.48	<b>155.5</b>	<b>22%</b>
2007	42.75	36.77	<b>79.5</b>	<b>-49%</b>
2008	33.06	29.12	<b>62.2</b>	<b>-22%</b>
2009	40.59	24.08	<b>64.7</b>	<b>4%</b>
2010	62.66	28.39	<b>91.1</b>	<b>41%</b>
2011	87.73	43.12	<b>130.9</b>	<b>44%</b>
2012	31.49	32.17	<b>63.7</b>	<b>-51%</b>
2013	22.47	33.22	<b>55.7</b>	<b>-13%</b>
2014	18.98	20.70	<b>39.7</b>	<b>-29%</b>

Question 3: Please provide your PUR's lowest hydroelectric energy procurement in GWh during the same time period used in Question 2, and identify the year in which this occurred. Please provide figures for both POU-owned/controlled hydroelectric generation and hydroelectric energy supply contracts.

**The lowest hydro procurement was 2014 at 39.7 GWh.**

Question 4: Please provide your POU's hydroelectric energy procurement in GWh during 2014, if different from that shown in Question 2. **They are the same at 39.7 GWh.**

Question 5: Please provide your POU's most recent estimate of 2015 hydroelectric energy procurement (generation and purchases), both in GWh and as a percentage of this year's firm energy requirement. **38.2 GWh or 10% of annual energy requirement. This was determined using conservative assumptions for a dry hydro year in 2015.**

Question 6: Does your POU expect that low hydro conditions (or the drought more generally) will raise any system or local reliability concerns? Please explain: **Alameda Municipal Power (AMP) pays a largely fixed cost for its hydro resources, mostly in debt service, regardless of the resource electricity generation. If dry hydro conditions resulted in the total loss of AMP's hydro electricity generation, the**

result would be an increased purchase of needed market power at an estimated cost of \$1.7 million, or approximately 5% of AMP's annual purchased power budget. The utility has reserves in place to for this and will revisit the need to fund operations from reserves closer to the beginning of calendar year 2016 if hydro conditions do not improve.

Question 7: Under what circumstances would the adverse effects of the drought create severe or critical operational concerns for your system's electric generation or for electricity deliveries in your service area? **Again, the utility has reserves in place to fund additional electricity purchases if dry hydro conditions do not improve. But continued dry hydro years could begin to quickly deplete these reserves. AMP will reevaluate its reserve policy at the end of the year and plan a reserve withdrawal or rate adjustment as necessary at that time.**

Question 8: At what value of annual hydro generation this year (in GWh) would the effects of drought result in significant or substantial financial concerns? Please estimate additional costs your POU may incur because of low hydro conditions. Please provide the assumptions used. (Please highlight in yellow any information about specific costs, projected or potential, that are considered confidential or commercially sensitive. This could include potential impacts on rates that have not yet been considered for adoption by your local governing board. Such information, if provided and marked as confidential, will be protected from public disclosure through December 31, 2016.) **AMP expects 38.2 GWh will be generated from hydro resources in 2015, 79% of which if assumed to be high load hour (HLH) power and the remaining low load hour (LLH). If this power were not generated, AMP would be forced to purchase it from the market, at an assumed HLH/LLH weighted average cost of \$43.93/MWh, or \$1.7M in costs. AMP realizes these are relatively low market prices, especially since prices during the last drought were in the \$80-90/MWh range, so this cost could increase substantially. AMP's Public Utilities Board (Board) has a policy in place that individual annual rate adjustments cannot be greater than 5% in a given year. If, as mentioned above, AMP's hydro resources were to become dramatically reduced for 2015, the rate increase needed to recoup this additional cost would be greater than the eligible rate increase set by the Board. This would also not take into consideration the increased purchased power costs the utility needs to fund from rates due to increasing power contract costs, labor, or capital projects. AMP can weather this shortfall for a few years, but management is planning to take a closer look at the reserve policy and funding requirements from reduced hydro generation at the end of 2015.**

Question 9: Please estimate any additional procurement of greenhouse gas allowances, in metric tons, that your POU has already incurred or that your POU expects will be necessary because of low hydro conditions in 2015. Please provide the assumptions used. **If the full amount of AMP's expected 38.2 GWh of hydro electricity production were to be replaced with market power, the utility would be responsible for an approximate additional 16.6 metric tons of CO2 allowances. AMP assumed each MWh of "market" or "brown" power used to replace lost hydro production has a carbon content of 0.434 kg per MWh.**

Question 10: Does your POU expect that low hydro conditions (or the drought more generally) will have any other local impacts beyond local reliability? If so, are efforts underway to address these impacts? **No**

Question 11: Will water curtailments this year, such as by the State Water Resources Control Board, affect your POU's hydroelectric energy procurement or dispatch (either utility-controlled hydro generation or purchases)? If so, to what extent will these supply resources be affected in terms of GWh, and over what timeframe(s)? **No**

Question 12: Did water curtailments in 2014 affect your POU's hydroelectric energy procurement or dispatch? If so, to what extent were supply resources affected and over what timeframes(S)? Did curtailments derate the capability to generate in megawatts (MW), and if so during what timeframes? **2014 hydro purchases were initially estimated to be 74.4 GWh. AMP received 39.7 GWh of electric hydro generation. This left 34.7 GWh to be purchased from the California ISO.**

Question 13: Energy Commission staff would like to know about any potential drought related issues that will or could affect electric systems and/or local reliability. For example, are there known or potential issues with water allocations or supplies to thermal plants (for example, power plant cooling)? This is an open-ended question and we hope that your POU can, to the extent possible, provide us with information regarding your POU's overall assessment regarding how drought conditions may affect reliability in your local communities.