

**BEFORE THE STATE OF CALIFORNIA ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION**

**Comments of the Northern California Power Agency
In Response to Questions Related to
Potential Hydroelectric Generation Supply Issues in 2014
(CEC Docket 14-HYDRO-01)
March 19, 2014**

The Northern California Power Agency (NCPA) appreciates the opportunity to comment in response to a letter dated March 10, 2014 from California Energy Commission (CEC) Executive Director Robert Oglesby to NCPA Chairman Pat Kolstad, as part of your request to get a better understanding about the impact the current drought might have on statewide hydroelectric generation supply and California's resource needs this year.

Hydroelectric power serves a significant portion of NCPA-member load. Included in the portfolio is power from NCPA's 260-megawatt hydroelectric facility located in Calaveras County, nearly 40 percent of the Western Area Power Administration's base resource allocation through the Central Valley Project, as well as other non-NCPA projects directly serving NCPA members. NCPA members include the cities of Alameda, Biggs, Gridley, Healdsburg, Lodi, Lompoc, Palo Alto, Redding, Roseville, Santa Clara, and Ukiah, as well as the Bay Area Rapid Transit District, Port of Oakland, and the Truckee Donner Public Utility District. NCPA's one Associate Member is the Plumas-Sierra Rural Electric Cooperative.

Please direct any questions or additional information you might need in response to this information to Scott Tomashefsky at (916) 781-4291 or scott.tomashefsky@ncpa.com.

Drought Hydropower Questions

Question 1: Please provide your POU's current estimate of total electric firm energy requirements in GWh for 2014.

Answer: 2,445.1 GWh (NCPA Pool CY2014 Projected Load). In this particular instance, NCPA is limiting this response to those served by the NCPA pool. NCPA pool members include the following NCPA members: Alameda, Biggs, Gridley, Healdsburg, Lompoc, Lodi, Palo Alto, Port of Oakland, Plumas-Sierra, and Ukiah.

Question 2: Please provide your POU's average annual hydroelectric energy procurement in GWh since 1970. 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.

Answer:

Generated Hydroelectric

- Calaveras Project – Project total 526.7 GWh, based on an average from the first full year of commercial operation in 1990 to 2013. The NCPA Pool share is 268.5 GWh. Roseville and Santa Clara own the remaining 258.2 GWh.
- Mendocino Hydro – 12.1 GWh. Project serves the City of Ukiah. Estimate is based on expected operations under normal conditions, not actual conditions.)

Purchased hydroelectric

- Graeagle – 2.0 GWh (Based on expected deliveries under an existing Power Purchase Agreement)
- Western Base Resource (NCPA Pool share) – 579.0 GWh, calculated using Western’s CVP Power Resources Report, otherwise referred to as the “Green Book.” The Green Book is Western’s long-term planning document, published in 2004, which includes monthly generation estimates based on average, normal, and dry conditions. For additional information, click on the following link found on the Western website:
<https://www.wapa.gov/sn/marketing/docs/Scheduling/FinalGreenbook2004.pdf>
- Western Base Resource (BART share) – 13.6 GWh, calculated based on Western’s Green Book.
- Lake Nacimiento (BART) – 11.9 MWh (Average from 1998 to 2012)

Question 3: Please provide your POU’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.

Answer:

Generated hydroelectric

- Calaveras Project – Project total – 170.6 GWh. The NCPA Pool share is 87.0 GWh (1992)

Purchased hydroelectric

- Mendocino Hydro – unknown
- Graeagle – unknown
- Western Base Resource (NCPA Pool) – 408 GWh (Figure doesn’t apply to a specific historical reference point due to changes in the Western agreement that occurred in 2004. The estimate is based on Western’s current estimate of generation available during a critically dry year, adjusted to the NCPA base resource allocation for the NCPA Pool, as reported in the Western “Green Book”).

- Western Base Resource (BART) – 9.6 GWh, calculated based on critical dry year, per Western’s Green Book.
- Lake Nacimiento (BART) – 6.58 Gwh (2004)

Question 4: Please provide your POU’s most recent estimate of 2014 hydroelectric energy procurement (generation and purchases), both in GWh and as a percentage of this year’s firm energy requirement.

Answer:

- Calaveras Project (NCPA Pool share) – 96.4 GWh / 3.9%
- Mendocino Hydro (Ukiah) – 6.0 GWh / 5.0%
- Graeagle (Alameda) – 1.6 GWh / 0.4%
- Western Base Resource (NCPA Pool) – 354.8 GWh / 14.5%
- Western Base Resource (BART) – 8.3 GWh / 2.2%
- Lake Nacimiento (BART) – 5.8 MWh / 1.5%

Question 5: Does your POU expect that low hydro conditions (or the drought more generally) will raise any system or local reliability concerns? Please explain.

Answer: Not sure. We rely on the California Independent System Operator (CAISO) to ensure reliability needs of the Balancing Area are met. While we can comment on our specific load/resource balance, we do not have any information on the balances of the remaining participants in the CAISO markets and/or how those surpluses or deficits of other CAISO market participants will affect reliability.

Question 6: Under what circumstances would the effects of the drought create severe or critical operational concerns?

Answer: We are already operating NCPA hydroelectric facilities utilizing only minimum water releases, per the conditions of our license. If the drought continues into next year, some of our reservoirs may have inadequate quantities of water to be able to maintain our mandatory downstream releases at the levels prescribed by the resource agencies.

Question 7: 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.

Answer: Because any reduction in hydro generation directly increases the energy procurement costs of NCPA’s member utilities, low hydro conditions at any level are a significant concern. At

currently projected hydro generation levels for 2014, the combined direct energy replacement cost for the 400 GWH hydro energy shortfall for the ten NCPA Pool utilities and BART will equal \$22.5 million, assuming a moderate average replacement cost of \$55/MWH.

In addition to increased generation costs, reduced hydroelectric generation will result in substantially increased costs associated with compliance to California's Renewable Portfolio Standard and carbon programs.

Question 8: Please estimate any additional procurement of GHG allowances, in metric tons, that your POU expects will be necessary because of low hydro conditions. Please provide the assumptions used.

Answer: We estimate that the GHG allowances needed by the NCPA Pool and BART in 2014 will increase by approximately 72,000 and 2,000 metric tons, respectively. This estimate is based on the assumption that 50% of the projected 2014 hydroelectric generation shortfall will be made up with NCPA owned combustion turbine generation at an average heat rate of 8 mmBtu/MWH. The remaining shortfall is expected to be made up with in-state power purchases which already include GHG allowance procurement.

Question 9: 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?

Answer: There may be potential for a water supply shortage amongst consumptive water users.

Question 10: Will water curtailments this year, such as by SWRCB, 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)?

Answer: We do not anticipate impacts related to NCPA's projects. It is unknown to what extent such water curtailments might impact the Western Base Resource and the other hydroelectric projects we do not operate.

Question 11: Energy Commission staff would like to know about any potential drought related issues that will or could affect system and/or local reliability. For example, are there known or potential issues with water allocations or supplies to thermal plants (e.g., 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.

Answer:

No issues are anticipated for NCPA thermal plants located at Lodi and Alameda.

We are presently evaluating the potential impact of the drought on NCPA's geothermal generation at the Geysers. The Geysers geothermal project injects treated effluent into the Geothermal reservoir from both Sonoma County and Lake County (NCPA only participates in the Lake County treated effluent project). The Lake County effluent is supplemented with water from Clear Lake when the lake is above a specific level. Because of continuing drought conditions, it now appears that that Clear Lake will be below the specified level, and NCPA will lose this supplemental water for next year. It is anticipated that the impacts will have little impact on near-term output, while we await the results of the ongoing evaluation of longer-term impacts.

The Lake County effluent project supplies injection water to six generating units at the Geysers, some owned by NCPA and other owned by Calpine.