

**Drought Hydropower Questions
Publicly Owned Utilities
Responses from the San Francisco Public Utilities Commission
2015**

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.

The SFPUC generates hydroelectric energy from the Hetch Hetchy system to serve its municipal, retail and wholesale customers. The SFPUC's forecast of its calendar year 2015 retail and Class 1 wholesale sales to Modesto and Turlock Irrigation Districts¹ is 1,100 gigawatt-hours (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 SFPUC's principal source of hydroelectric supply is generated from the Hetch Hetchy system. Hydroelectric generation from the Hetch Hetchy system has averaged 1,574 GWh over the 1970-2014 period. Since 2005, the SFPUC has made a small amount of annual purchases of hydroelectric supply, approximately 10 GWh, from the Western Area Power Administration for service to Treasure Island.

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.

As noted in response to Question 2 above, aside from the approximately 10 GWh per year from WAPA, the SFPUC does not make additional specified purchases of hydroelectric generation. The SFPUC generates its hydroelectric supply from the Hetch Hetchy system.

The six lowest generating years for the Hetch Hetchy system over the 1970-2014 timeframe are listed in the table below. The year with the lowest hydroelectric generation was 1977, when the Hetch Hetchy system generated 826.6 GWh.

¹ While SFPUC's wholesale sales to MID and TID are not firm energy requirements, the SFPUC has certain obligations under the Raker Act to make some of its Hetch Hetchy hydroelectric generation available to MID and TID prior to other sales.

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2014 was the third lowest generation year over this period while 2012 was the sixth lowest.

Year	Generation (MWh)	Generation (GWh)
1977	826,597	826.6
1992	912,948	912.9
2014	1,028,351	1,028.4
1976	1,028,774	1,028.8
1988	1,087,724	1,087.8
2012	1,123,328	1,123.3

Question 4: Please provide your POU's hydroelectric energy procurement in GWh during 2014, if different from that shown in Question 2. If the same, please state so explicitly.

As noted in response to Question 2 above, aside from the approximately 10 GWh per year from WAPA, the SFPUC does not make additional specified purchases of hydroelectric generation. The SFPUC generates its hydroelectric supply from the Hetch Hetchy system.

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.

As of June 2015, the SFPUC was forecasting hydroelectric generation from the Hetch Hetchy system to be approximately 1,100 **GWh** for calendar year 2015. This generation is sufficient to meet about 89% of the SFPUC's forecasted 2015 municipal, retail and Class 1 wholesale sales to the MID and TID of 1,236 GW.

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:

At this time we do not expect that low hydro conditions in 2015 will have a negative effect on system or local electric reliability. To the extent the SFPUC cannot generate sufficient energy to meet its firm energy obligations from the Hetch Hetchy system it will purchase power from the market.

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?

The SFPUC's estimate of 1,100 GWh of production from the Hetch Hetchy system for calendar year 2015 assumes a dry-year forecast.

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.)

The SFPUC Power Enterprise's financial outlook is tied to the amount of Hetch Hetchy hydroelectric generation that is available as it the main source of electric energy supply for the City and County of San Francisco. A prolonged drought can have significant financial effects on the SFPUC by reducing energy sales and requiring the SFPUC to make additional purchases to serve its municipal and retail loads.

The SFPUC sets its power budget based on its forecast of average year Hetch Hetchy generation, retail and wholesale sales, and wholesale purchases. The budgeted value for Hetch Hetchy generation is approximately 1,600 GWh per year. As generation is reduced due to the drought, SFPUC incurs additional financial impacts.

As the drought reduces Hetch Hetchy generation, the SFPUC will sell less power and may be required to make more purchases, i.e. reducing revenues and increases expenses. If reduced sales and increased purchases result in the depletion of the SFPUC's risk management fund, the SFPUC will be required to draw from its reserves, which will require budget cuts.

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.

The SFPUC does not own any fossil-fueled generation that might need to run more often (and hence use GHG allowances) as a result of the drought. If needed, the SFPUC purchases in-state energy on the WSPP market, the price of which includes any applicable allowance costs incurred by the seller.

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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?

Low hydro conditions as described herein will have local financial impacts on San Francisco. To the extent the SFPUC's cost of electric service increases, it may have to raise electric rates to entities providing essential municipal services (e.g., hospitals, public schools, libraries, etc.), which will reduce funding available from those entities to provide local programs and services.

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)?

The SFPUC is still in the process of evaluating the effects of any potential SWRCB curtailments on the SFPUC's pre-1914 water rights on the Tuolumne River.

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 timeframe(s)? Did curtailments derate the capability to generate in megawatts (MW), and if so during what timeframes?

No

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.

The SFPUC continues to monitor and evaluate the effects of the drought on its water and energy operations.