



## Operations

The UARP is the only hydroelectric project owned by SMUD. Its importance as a power generating resource is most evident when considered within the context of the other forms of SMUD power generation and power purchases that comprise the SMUD electric generation portfolio. Prudent operational management of the electric generation portfolio allows SMUD to deliver a steady and uninterrupted supply of electricity to its customer-owners. The UARP plays a significant role in energy management, contributing value in three primary areas: (1) operation flexibility, (2) economical power generation, and (3) overall system reliability.

Slab Creek Reservoir is currently operated as a re-regulating afterbay/forebay. The reservoir serves as an afterbay to the 150 MW Camino Powerhouse and a forebay for the 224 MW White Rock Powerhouse. The reservoir currently receives water emanating from Camino Powerhouse and inflow from the SFAR. Because of this re-regulating mode of operation, water level in the may fluctuate daily with changing volumes of inflow and powerhouse flow. Typical weekly fluctuation is no more than 30 feet, ranging between the operation pool levels of 1,820 feet and 1,850 feet. Operation of the Slab Creek/White Rock Development is also subject to the July 15, 1982 agreement between SMUD and the California Department of Boating and Waterways. This agreement addresses how SMUD typically operates the development during the summer of non-dry water years in a manner that is consistent with the primary purpose of generating electricity with economic efficiency, but also enables PG&E to operate the Chili Bar Project to enhance whitewater rafting downstream of the Chili Bar Dam (see Section E8.2.4 of the UARP IIP for the primary provisions of the agreement).

In the pumping mode for a 400 MW plant, the estimated discharge capacity of the tunnels would range between 3,600 and 4,200 cfs and in the generating mode the discharge capacity of the tunnel would range between 4,800 and 5,200 cfs. The “rated” condition is based on the need to be capable of delivering 400 MW in the generating mode under adverse conditions (i.e., when the upper reservoir is nearly empty and the lower reservoir is near its normal maximum elevation of 1,850 feet). Derivation of pumping flow is based on an assumption that variable speed units would be installed, with a generator-motor sized to match the maximum turbine output (about 450 MW total). Maximum pump power input and the resulting discharge would be limited by the generator motor capacity, assumed for this estimation to be 450 MW.

Early evaluations of the Iowa Hill Development indicated small changes to the current levels of fluctuation of Slab Creek Reservoir. Thus, with minimal change in the pattern of reservoir elevation, there should be no increased incidence of spill at the dam, no effect on the ability to release minimum flows into the Slab Dam bypass reach, and no change in the volume of water released through the White Rock Powerhouse. Nevertheless, SMUD will demonstrate the effects of Iowa Hill operations on the above parameters.



## Iowa Hill Initial Information Package

The CHEOPS™ water balance model developed for the UARP relicensing will be expanded to include the Iowa Hill Development. The CHEOPS™ water balance model will allow for evaluations of Iowa Hill operations on water levels in Slab Creek Reservoir, including any changes in the volume and frequency of spill events at the reservoir dam. The model will also provide information relative to the effects of Iowa Hill operations on the timing and volume of water that is delivered to Chili Bar Reservoir, as well as effects on the UARP storage reservoirs.

SMUD and the relicensing participants will consider the results from the CHEOPS™ water balance model analyses. Ultimately, SMUD's application for new license will include a description of the proposed operation of the Iowa Hill Development, along with potential effects, positive or negative, that it could have on other resources, and proposed measures to minimize or mitigate any adverse effects.