

## Colorado River Shortage Impacts to CAGR D

As part of the work supporting the 2015 Plan of Operation, Staff analyzed the potential impacts of Colorado River shortage on the CAGR D. Although such an assessment is outside the scope of statutory requirements for the Plan, concerns about shortage were expressed in public comments, particularly a "double-hit" scenario in which the elimination of the NIA-priority CAP supply simultaneously increases obligation and reduces the supply for replenishment.

Based on current supply utilization trends and the 2007 Guidelines,<sup>1</sup> the maximum shortage to CAP (Tier 3; 480,000 AF) would eliminate the Excess CAP supply, but only partially reduce the CAP NIA-priority pool. In fact, if customers ordered similar contract volumes as in recent years, it would take a shortage of approximately 700,000 acre-feet to completely eliminate the NIA priority supply, and higher-priority users would still be earning some 300,000 acre-feet of long-term storage credits with the remaining CAP supply. Such a deep shortage is unlikely, particularly over an extended period of time. This scenario also assumes no drought-related reductions in municipal demand, no Assured Water Supply exemptions, no change in M&I and Indian priority CAP orders, and no changes in CAGR D growth or enrollment. However, to evaluate this scenario, Staff used the CAP Service Area Model (CAP:SAM) to quantify the impact of a complete elimination of the NIA-priority pool for a 20-year period (2015-2034).

Simulating the elimination of the NIA-priority pool for *all customers* allowed Staff to assess the impact to CAGR D in two ways. First, there would be a supply-side impact to the CAGR D with a loss of CAP Excess water and NIA-priority water for replenishment. The 18,185 acre-feet of NIA-priority water that ADWR recommended for reallocation to CAGR D would be unavailable as a replenishment supply, as would the 2,500 acre-feet of NIA-priority water CAGR D plans to lease from the White Mountain Apache tribe. Second, there would be a demand-side impact from an increase in reported Excess Groundwater as CAGR D water providers with NIA-priority supplies had fewer options to offset their groundwater use. There may also be trickle-down effects from non-CAGR D providers during shortage as they more fully utilize their renewable supplies, affecting the volume remaining to CAGR D and all other CAP customers.

Figure 1 shows the projected annual replenishment obligation from the 2015 Plan of Operation, along with the additional obligation generated when there is no CAP NIA-priority supply available. The Plan assumes the NIA reallocation is finalized in 2016 and deliveries begin in 2017, resulting in a dip in obligation as the water providers with reallocated NIA water use that supply before pumping Excess Groundwater. Without the NIA supply, the obligation in 2017 is 11,100 AF greater than the Plan projection, and it remains an average of 11,700 AF higher per year for the remainder of the projection

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<sup>1</sup> *Colorado River Interim Guidelines for the Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead*, December 13, 2007

period. Though it is a relatively consistent increase in obligation across the period, it represents a 33% increase in 2017, but only a 13% increase in 2034.

If this scenario came to pass, CAGR D would face an increase in annual obligation of approximately 11,000 AF, and a decrease in supply of roughly 20,600 AF. Depending on the duration and other factors, satisfying CAGR D's replenishment obligation under those circumstances would likely require combination of strategies, including use of the Replenishment Reserve, use of other credits held by CAGR D, and additional acquisition activities.

**Figure 1: Comparison of Projected Excess Groundwater, 2015 Plan of Operation and No NIA-Priority CAP Water Available**

