

Colorado River Water Due at Phoenix in '85

Photograph: The Central Arizona Project canal, under construction, snakes through a residential area and beneath Shea Boulevard north of Phoenix on its way from the Colorado River to Tucson. (Photo by Joe Madrigal Jr., U.S. Bureau of Reclamation.)

Many farmers who will get water from the Central Arizona Project will be irrigating with higher-priced, saltier water than the groundwater they use now.

Still, the option of breaking a dependence on increasingly expensive and regulated groundwater is alluring enough that non-Indian agricultural users have sought contracts for a total of 3 million acre-feet per year of CAP water. Other types of water users have sought contracts for another 3.5 million.

However, the canal from the Colorado River can carry a maximum of about 2.2 million acre-feet per year, and the available supply of water from the river could dip to about half a million acre-feet in some years.

The U.S. Bureau of Reclamation estimates that CAP deliveries in average supply years will be about 1.6 million acre-feet in the first few years the canal carries water. The estimate declines to about 1.2 million by year 2035, as states upstream of Arizona increase their use of water from the Colorado River and its tributaries. The bureau bases its projections on records of the river's flow for the past 75 years and on the need to keep upstream lakes full enough to generate electricity at the Hoover and Glen Canyon dams.

The U.S. Department of the Interior has already agreed to give Indian tribes 309,000 acre-feet per year of CAP water. Recommended allocations for other groups have been sent from the Arizona Department of Water Resources to Interior Secretary James Watt. Proposed shares for municipal and industrial users total about 640,000 acre-feet. Non-Indian agricultural applicants' allocations are written as percentages of the water supply left after the higher-priority users get their shares. Allocations are proposed for 23 such applicants, with the Maricopa-Stanfield Irrigation District and the Central Arizona Irrigation District each getting about a fifth of the total.

For every gallon of CAP water received, non-Indian users must agree not to pump a gallon of groundwater they would otherwise have pumped.

The Central Arizona Water Conservation District, created by the state Legislature in 1971, will hold the master contract with the Bureau of Reclamation for all non-Indian CAP deliveries. The district will operate the CAP after its completion. Through tax-levying authority and through subcontracts with the groups receiving CAP water, the district will be repaying the federal government for costs of building the CAP. An elected board of directors runs the district.

Cost formulas for CAP water differ for different types of users. Non-Indian farmers will pay a component for operation, maintenance and repair, recently estimated at \$50 to \$55 per acre-foot, plus a component for repayment of construction costs. The latter will be based on ability to pay, as a class. The Bureau of Reclamation's decade-old estimate is \$2 per acre-foot, and might be raised substantially.

Distribution systems for getting water from the main CAP canal to users' fields will add to actual costs of CAP water. Still unsettled is how much these systems will be financed federally. The original CAP legislation, in 1968, authorized \$100 million for this purpose, but did not index the figure to inflation.

Salt content of the Colorado River at Parker Dam, where the CAP will pump from the river, fluctuates from about 600 to 850 parts-per-million of total dissolved salts. Water that flows through the full 310 miles of aqueducts to Tucson will become about 20 ppm saltier than that due to evaporation from the open canals.

CAP construction reached about one-fourth of completion in early 1982. Routing of the last leg from Marana to Tucson is still uncertain. By current schedules, water will reach the Phoenix area in 1985 and the Tucson area in 1990.

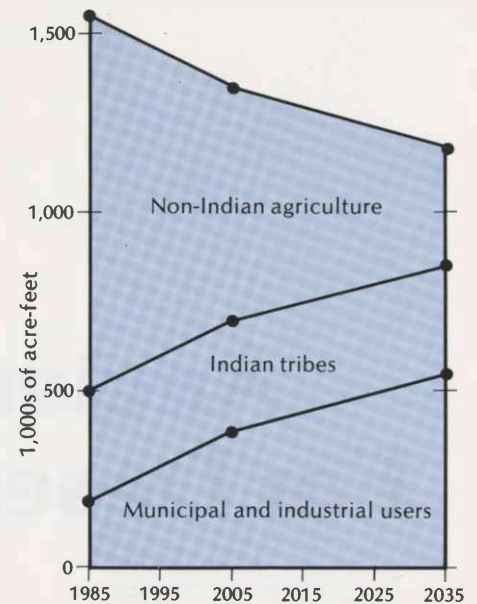


Figure 4: Expected CAP Deliveries, by Type of User. The volumes indicated are based on estimates of average annual water supply conditions. Source: Arizona Department of Water Resources. Year-to-year deliveries could differ substantially from that average. When supplies fall short, "miscellaneous" users and non-Indian agriculture will take the first reductions. Municipal and industrial users may increase their CAP deliveries by up to 100,000 acre-feet per year by 2035 by swapping treated sewage effluent for equal volumes of Indian CAP water after 2005.

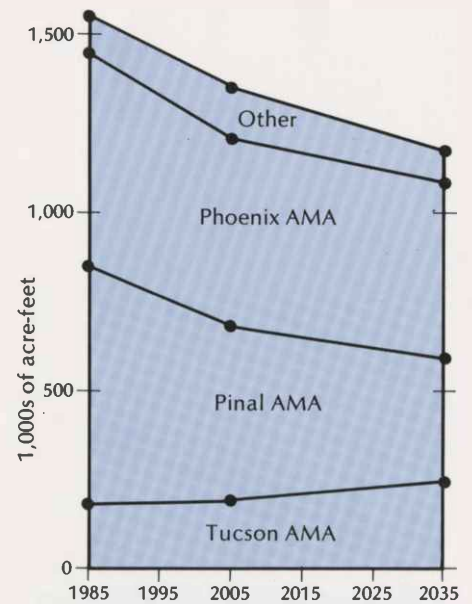


Figure 5: Expected CAP Deliveries, by Location. The volumes shown are based on estimates of average annual supply conditions for the CAP and on allocations recommended to the U.S. Department of the Interior by the Arizona Department of Water Resources.