



Colorado River Upper Division State Representatives of Colorado, New Mexico, Utah, and Wyoming

March 11, 2024

Additional Information Regarding the Upper Division States Alternative

As part of the ongoing National Environmental Policy Act (NEPA) process to develop new operating guidelines for Lakes Powell and Mead, the Upper Division States of Colorado, New Mexico, Utah, and Wyoming (collectively, UDS) submitted an alternative (UDS Alternative) to the Commissioner of the Bureau of Reclamation on March 5th, 2024. The UDS requested that Reclamation advance the UDS Alternative through the Post-2026 NEPA process for modeling and evaluation as an effective plan to operate Lake Powell and Lake Mead in the coming years that will both protect those reservoirs and provide benefits to the entire Colorado River Basin.

Developing new operating guidelines for Lake Powell and Lake Mead presents an opportunity to use the lessons learned from past operations. The current operating guidelines have proven to be insufficient to address current and future risks to the system caused by climate change and current water uses from Lake Powell and Lake Mead.

Since 2000, there has been a growing imbalance with water use significantly exceeding supply. As a result, water stored in Lake Powell and Lake Mead has been significantly depleted. Climate science indicates the Colorado River Basin should expect continued long-term and sustained drought, increasing temperatures, low soil moisture and low runoff conditions. Post-2026 Operations must sustain Lake Powell and Lake Mead into the future through a wide range of water supply conditions.

The UDS Alternative proposes operations at Lake Powell and Lake Mead that are based on actual annual water supply conditions and focus on rebuilding reservoir storage. Those operations will help to sustain a reliable water supply in the face of the uncertainty created by drought, increased temperatures, low runoff conditions, low soil moisture and depleted reservoirs. Further, the UDS Alternative identifies activities that are separate from, but parallel to, the UDS Alternative. Parallel

activities include flexible operations first at Lake Powell, and then in Flaming Gorge, Aspinall, and Navajo Reservoirs (Colorado River Storage Project Act Initial Units) as well as voluntary water conservation programs in the Upper Basin. Even though these parallel activities are not a part of the UDS Alternative, they are designed to help protect the ability of Lake Powell to make water releases.

We provide this letter as additional explanation of the considerations that helped shape the UDS Alternative, the separate but parallel activities mentioned above, and considerations of the Upper Basin Tribes' settled but undeveloped water rights. This letter also explains some of the limiting conditions faced by Upper Basin water users, which in turn limits the UDS options.

Key Considerations for the UDS Alternative

Generally, the UDS Alternative establishes the coordinated operation of Lake Powell and Lake Mead in a manner that: (1) Ties releases of water from Lake Powell to its observed storage contents at the beginning of each water year (October 1). This is a more reliable indicator of available water supply than the current forecasting method; (2) Uses a rule curve to establish Lake Powell releases. This rule curve specifies how much water will be released from Lake Powell each year as a function of the amount of water available in storage at the start of that water year. This promotes building storage in Lake Powell and avoids large variations in release volumes from year to year, providing greater certainty; and (3) Determines Lower Basin water use reductions based on the combined storage volumes of Lake Powell and Lake Mead. Using combined storage of Lake Powell and Lake Mead more reliably indicates available water supply than the current method of unreliable forecasts. This also avoids the potential to influence shortage triggers.

In developing the UDS Alternative, we considered, among other things, the following:

A. Water Supply Uncertainty in the Upper Basin

The Upper Basin does not have large reservoirs to provide a reliable water supply. Instead, it is dependent on snowmelt runoff and precipitation. As a result, the Upper Basin has been and will continue to be on the front lines of climate change. This means that water users in the Upper Basin often do not know how much water they will receive year-to-year. Therefore, consumptive uses vary widely. Largely because of this supply uncertainty and variability, the Upper Basin has substantial annual swings in available water supply. As a result, for the last twenty years, on average, the Upper Basin consistently uses 3 to 4 million acre-feet (MAF) less than its Compact apportionment of 7.5 MAF per year.

The UDS mitigate these challenges through their respective water management frameworks and water rights administration that adapt to changing water supplies. When supplies are low, water uses are involuntarily reduced. These shortages occur to varying degrees each year and increase

as water supplies diminish. They are referred to as “hydrologic shortages”. These shortages result from natural hydrologic variability and are quantified as the difference between the amount of water the Upper Basin has demonstrated it would use if a plentiful water supply were available and the actual use. Though shortage quantification is complex and unique to each sub-basin each year, using the best available science and modeling yields shortage estimates that vary between 0.6 and 2.3 MAF per year and average 1.2 MAF per year. These shortages must be considered.

In the Upper Basin, use is balanced with available supply every year independently of the conditions at Lake Powell and Lake Mead. That practice will continue. The UDS Alternative acknowledges the fact that the Upper Basin routinely suffers hydrologic shortages.

B. Addressing Unsustainable Operations and Depleted Storage

Lake Mead has a storage capacity of about 25 MAF, which has provided significant water supply certainty to Lower Basin water users for decades. Current operations have relied on this storage to avoid shorting uses in the Lower Basin during drought periods. The existing operating rules tie Lake Powell releases to the conditions at Lake Mead. When Lake Mead releases exceed available supply, Lake Powell releases are increased and storage decreases. As a result, storage in both reservoirs has been largely exhausted over the last 20 years. Lower Basin shortage and water use reductions under current operations are not sufficient to avoid the risk of both Lake Mead and Lake Powell falling below critical elevations.

Lake Powell releases can no longer sustain current levels of Lower Basin use. The cumulative flow at Lee Ferry over the last ten years is approximately 86 million acre-feet. Despite this large inflow to Lake Mead, Lake Mead has dropped to historically low elevations. This is because, as explained above, the existing operating rules allow releases from Lake Mead to regularly exceed supply. Depletion of reservoir storage, prolonged drought since 2000, and the expectation of drought and low runoff conditions in the future due to climate change create unacceptable risk for the entire Basin. To address this risk, the UDS Alternative focuses on rebuilding storage to help maintain a sustainable water supply into the future.

C. Addressing Imbalances Between Supply and Demand

Matching consumptive uses and depletions with available supply must be the foundation for sustainable management under Post-2026 Operations. As mentioned above, in the Upper Basin, when supplies are low, water uses are necessarily reduced. Lower Basin consumptive uses and depletions from evaporation and losses must likewise be balanced with actual supply.

The Post-2026 Operations must address the Lower Basin’s supply-demand imbalance. The Lower Division States have acknowledged the need and responsibility to address the Lower Basin imbalance in various circumstances. Additional details about how this will be accomplished have not yet been provided. However, addressing this imbalance will likely not be enough to rebuild

storage and system resiliency in the face of a changing climate, and more reductions will probably be necessary.

D. Avoiding Uncertainty from Unreliable Forecasts

The current operating rules for Lake Powell and Lake Mead depend on unreliable forecasts which have contributed to depleted water storage conditions. Existing operations rely on forecasts performed six months in advance. This forecasting consistently overestimates Lake Powell elevations and underestimates Lake Mead elevations, resulting in greater releases from Lake Powell. Reclamation has explained that even small discrepancies between forecasts and actual conditions can have large impacts on operations. Lake Powell is heavily impacted by these inaccurate forecasts. Further, current operating rules lack any mechanism to make corrections or mitigate impacts when a forecast error results in excessive Lake Powell releases.

Under the UDS Alternative, Lake Powell releases rely on actual water supply conditions in Lake Powell at the start of the water year and avoid the negative impact of inaccurate forecasts on the system.

E. Lower Basin Conservation

The UDS continue to support water conservation across the Basin. However, balancing releases from Lake Powell under existing operations has negatively impacted Lake Powell. Lower Basin water uses and conservation programs must not adversely affect releases from Lake Powell to the detriment of Lake Powell. The UDS Alternative does not preclude flexibility for Lower Basin water conservation but ensures that Lower Basin conservation does not adversely affect Lake Powell releases.

Parallel Activities

Parallel activities refer to activities in the Upper Basin to complement Post-2026 Operations but are beyond the scope of the Post-2026 Operations NEPA process and will be subject to separate criteria. We are committed to pursuing these parallel activities upon adoption of the UDS Alternative. Presently foreseeable parallel but separate activities to help protect the ability of Lake Powell to make water releases include:

- A. Flexibility in the Operations in Lake Powell, Flaming Gorge, Aspinall, and Navajo (Colorado River Storage Project Act Initial Units)

If the UDS Alternative is adopted, the UDS will pursue additional activities to help preserve the ability to release water from Lake Powell. These could include flexible operations of Lake Powell and supplemental releases from upstream Initial Units if needed. While outside of this NEPA process, those supplemental releases must occur within existing authorities for those Initial Units without impairing existing obligations. The UDS Alternative contemplates that this supplemental

water would be available to help protect the ability of Lake Powell to make water releases subject to certain conditions, including accounting for this water separately and recovery of the water at the upstream Initial Units as appropriate.

Water stored in the upstream Initial Units is limited and should only be released if agreed to between the UDS and Reclamation. In addition to consumptive uses, storage and releases from the upstream Initial Units serve environmental purposes which must be considered when planning releases to Lake Powell. Releases of water from the upstream Initial Units pursuant to their respective authorities are critical to meet, among other things, endangered fish recovery goals under the Endangered Species Act. All releases from the upstream Initial Units must continue to comply with those authorities. Additional benefits to having more water stored at Lake Powell include greater flexibility for preserving the natural systems in the Grand Canyon, endangered species management, and hydropower generation.

B. Voluntary Water Conservation Programs

If the UDS Alternative is adopted, the UDS will pursue voluntary, temporary, and compensated reductions of consumptive use. Volumes will vary based on multiple factors, including hydrologic conditions. Such conservation would occur without impairing the right to exercise existing water rights. Conserved water would be credited to the UDS, and available to help maintain Lake Powell releases under certain conditions. Any conservation program must be a state-based effort implemented under state law.

Other Considerations

A. Tribes

The Upper Division States acknowledge settled but undeveloped Tribal water rights in the Upper Basin. Post-2026 Operations should preserve the ability for Upper Basin Tribes to develop their decreed or settled water rights. The UDS also support opportunities for the Upper Basin Tribes to participate in the Parallel Activities described above.

B. Collaboration

Since June of 2023, the seven Basin States have consulted among themselves and with Reclamation to explore potential Post-2026 Operations for Lake Powell and Lake Mead, together with potential parallel activities. The UDS have also engaged with Upper Basin Tribes, water users, and non-governmental organizations on these topics. While we submitted the UDS Alternative as four states, we recognize the value of Basin-wide collaboration to achieve the flexibility and innovation needed in the face of an uncertain future. Accordingly, we welcome opportunities to explore a seven-state consensus alternative.