

## **The Way Forward: A Plan for Lake Powell and Lake Mead**

*By John Rickenbach*

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In June 2022, the Bureau of Reclamation (BOR) called for an immediate 2-4 million acre-foot (maf) reduction in water use among the seven states served by the Colorado River watershed in order to avert catastrophic consequences to water and power supply within the system. Based on the recent average annual water use among the states, this call to action represents a 16-32% reduction in use from this fragile water supply.<sup>1</sup> If that sounds like a dramatic call to action, it is.

In an era of unprecedented drought, old assumptions and protocols for managing water supply in the Colorado River watershed no longer work. Creative, collaborative solutions are needed to ensure that the major reservoirs in the system can store sufficient water, generate power, and provide economically important recreational opportunities into the future. As recognized by the BOR, the current rate of water consumption within the system is unsustainable, at least as long as water supplies and snowpack remain generally below historic averages, a trend likely to continue into the future.

The following describes a way forward to meet this historic challenge. It involves a combination of equitably reducing water use among the affected states and Mexico, reimagining the volume and timing of water releases through the major dams, and having enough flexibility built in so that if the reservoirs begin to fill sufficiently, restrictions on water use can ease.

The key principles of this plan are these:

1. Power supply, water supply, and recreational opportunities associated with the major reservoirs in the system must be maintained in a sustainable manner, since those resources are crucial to the health, safety and economy of the West.
2. Given the current drought and extremely low levels of Lake Powell and Lake Mead, any action under this plan needs to occur immediately for the plan to be most effective.
3. Any needed water use reductions to implement this plan must be shared fairly and equitably among the states that use the water, as well as Mexico.
4. Because the entire Colorado River water supply and power system does not work unless both Lake Powell and Lake Mead are viable—actions to increase storage in both reservoirs need to be addressed simultaneously. One reservoir should not be prioritized over the other.
5. The plan must be flexible, and recognize changing conditions over time. The magnitude and duration of water use reductions are linked to the volume of water in Lake Powell and Lake Mead. If water volume in the reservoirs rises, water use reductions can ease.

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<sup>1</sup> The average annual collective water use among the seven states from the Colorado River from 2016-20 was 12.55 million acre feet (maf), which includes the required delivery of 1.5 maf to Mexico.

## **Key Assumptions Under the Plan**

### Inflow to Lake Powell

BOR reports that the average annual inflow to Lake Powell from 1991-2020 is 9.6 million acre feet (maf). Over time, that number has been generally decreasing, but with considerable variation up and down from year to year. In 2021, unregulated inflow to Lake Powell was only 3.5 maf, the lowest amount since the reservoir came into existence.

For modelling purposes underlying this plan, the 5-year period that includes water years 2016-20 (WY 2016-20) was used to calculate a more recent realistic “average” to form the baseline for future projections. This period captured Lake Powell inflows ranging from 5.4 to 11.7 maf, encompassing relatively “good” and “bad” years. The average annual inflow during that time was 8.99 maf, slightly less than the 1991-2020 average, and thus a reasonable and conservative basis for future projections.

### Inflow to Lake Mead

Inflow to Lake Mead is a function of three factors: releases through Glen Canyon Dam, inflow from the tributaries that feed the Colorado River below the dam (notably the Little Colorado and Virgin rivers), minus any evaporation between Glen Canyon Dam and Hoover Dam.

Releases through Glen Canyon Dam are highly variable, and vary based on protocols established by the BOR, depending on the surface elevation of Lake Powell and Lake Mead. This typically varies from 7.0 to 9.0 maf/year. For modeling purposes, this plan creates modified delivery protocols, depending on the surface elevation of the two reservoirs at the end of a given water year.

The average annual input from tributaries below Glen Canyon Dam from WY 2016-20 was 0.89 maf. This is also factored into calculating volume and surface elevation of Lake Mead.

### Water Use

For the purpose of this plan, the baseline for calculating water use is the collective average of the seven states use in the 5-year period that encompasses Water Years (WY) 2016-20.

Upper Basin Water Use is reported in the February 2022 report entitled *Upper Colorado River Basin Consumptive Uses and Losses 2016-2020*. Upper Basin use as reported by BOR not only includes consumptive use, but evaporation from smaller reservoirs other than the large mainstem reservoirs such as Lake Powell or Flaming Gorge, which are accounted for separately. The average annual water use in the Upper Basin from WY2016-20 was 4.15 maf.

Lower Basin Water Use is reported in the annual reports issued by BOR entitled *Colorado River Accounting and Water Use Report: Arizona, California and Nevada*. The reports also include data about deliveries to Mexico, as well as releases through the smaller dams downstream of Hoover Dam. The average annual water use in the Lower Basin from 2016-20 was 6.90 maf.

Each year annual deliveries to Mexico have been consistently at or very slightly above 1.5 maf in accordance with treaty requirements between that country and the USA.

#### Upper Basin Reservoir Additional Storage

There are several mainstem storage reservoirs above Lake Powell, the largest of which is Flaming Gorge Reservoir. Other significant reservoirs include Lake Navajo and Blue Mesa Reservoir. These essentially function as a “bank” for water in the Upper Basin that can be later used downstream, should the need arise. Collectively, these reservoirs have a potential capacity of about 6.4 maf, nearly 60% of which is within Flaming Gorge. The reservoir levels fluctuate as downstream need or flood control dictates, but in general, these reservoirs hold about 65-90% of their collective capacity at any given time. The 5-year average from 2016-20 is 81.4%. In May 2022, these reservoirs held only about 65% of their capacity.

#### Upper Basin Reservoir Evaporation

“Upper Basin Reservoir Evaporation” includes reported evaporation in the mainstem reservoirs in the Upper Basin along the Colorado or Green Rivers, most notably Lake Powell itself. Of the average annual 0.47 maf evaporative loss in those reservoirs (based on WY2016-20), about 80% comes from Lake Powell, and 17% from Flaming Gorge. The remaining 3% comes from all other smaller reservoirs such as Blue Mesa and Morrow Point. Lake Navajo evaporation is not included in this dataset in the February 2022 USBR report (see Table UC-1 of that report). Although evaporated water is not technically “available” for later use, it is an important component in calculating the total water supply before any is either used or released downstream.

#### Lower Basin Reservoir Evaporation

“Lower Basin Reservoir Evaporation” includes reported evaporation below Glen Canyon Dam, primarily in Lake Mead, but also in the stretch of the river between the dam and Lake Mead. The figures are reported in each of USBR’s 24-Month Studies, which include summarized historic data for the previous year. Evaporative loss is one of the reported numbers in that dataset. The average annual evaporative loss during the period inclusive of WY2016-20 was 0.54 maf.

#### Total Water Availability

In order to project future lake levels, it is first necessary to calculate the total water available in the Upper Basin watershed prior to considering any diversions, use, or evaporation. Based on existing BOR documentation, it is possible to calculate water availability in any past year using this equation:

$$\textit{Total Water Availability in the Upper Basin} = \textit{Inflow to Lake Powell} + \textit{Upper Basin Water Use} + \textit{Upper Basin Additional Storage} + \textit{Upper Basin Reservoir Evaporation}$$

Based on the assumptions described above, the Total Water Availability in the Upper Basin on average in the period WY2016-20 was 13.59 maf annually. This forms the “baseline” for calculations for future years, and allows for modeling hypothetical reductions or increases in precipitation for future years, if “total water availability” is used as a proxy for “total precipitation”.

### Baseline Surface Elevations

In June 2022 the BOR issued its latest 24-Month Study, which forecasts inflows and outflows for all reservoirs affecting the entire Colorado River watershed. The forecast is based in part on projected long-range precipitation forecasts, historic trends, and projected releases from each reservoir. The forecast extends through June 2024, or roughly midway through Water Year 2024 (WY 2024). BOR also forecasts the projected surface elevation for Lake Powell and Lake Mead during this period. For the purpose of this plan, BOR’s assumption for surface elevations at the end of WY2022 (September 30) are used as the baseline for projecting future lake levels modeled under the plan. For Lake Powell, the projected elevation is 3525.79, while Lake Mead is 1037.23.

Table 1 summarizes key baseline assumptions related to the two reservoirs, water availability, and water use in the Upper Basin, Lower Basin, and Mexico.

<b>Table 1. Key Baseline Assumptions Related to Water Availability and Use</b>	
	<b>WY2016-20 Annual Average</b>
Upper Basin Water Availability (prior to diversion or use)	13.59 maf
Inflow from rivers between Glen Canyon and Hoover Dam	0.89 maf
Upper Basin Water Use <sup>1</sup>	4.15 maf
Lower Basin Water Use	6.90 maf
Water Delivered to Mexico	1.50 maf
Upper Basin Mainstem Evaporation	0.47 maf
Lower Basin Mainstem Evaporation	0.54 maf
<i>Sources: USBR 24-Month Studies (2010-2022); Colorado River Accounting and Water Use Report: Arizona, California and Nevada (various years); Upper Colorado River Basin Consumptive Uses and Losses 2016-2020; <a href="http://lakepowell.water-data.com">http://lakepowell.water-data.com</a>; <a href="http://lakemead.water-data.com">http://lakemead.water-data.com</a>.</i>	
<i>1. Upper Basin Water Use also includes 0.24 maf of evaporation on non-mainstem reservoirs</i>	

### **Action Plan**

The following tables summarize the key aspects of the action plan for water use reductions and releases through Glen Canyon Dam to implement the key principles described at the outset of the plan, based on the previously-described assumptions. In general, required actions are based on surface elevations of Lake Powell and Lake Mead at the end of a particular water year (September 30) as reported by BOR, with water use reductions and dam releases applied to the following water year. These actions supersede any potentially conflicting protocols previously established under the 1922 Colorado River Compact and subsequent related laws, collectively known as the “Law of the River”.

Table 2 shows key elevations within Lake Powell and Lake Mead that provide guidance in developing this plan, particularly regarding water use and the magnitude of releases from Glen Canyon Dam in a given year.

<b>Elevation Condition</b>	<b>Lake Powell</b>	<b>Lake Mead</b>
Full Pool	3700	1225
Minimum elevation for all recreational facilities to be operational <sup>1</sup>	3588	-
Buffer elevation (35 feet above minimum power pool) <sup>2</sup>	3525	985
Minimum Power Pool	3490	950
Dead Pool	3370	895

1. Includes all marinas, launch ramps, access points, campgrounds, and the Castle Rock Cut  
2. Provides a sufficient buffer to ensure continued power production, allowing for water levels to drop over the winter season.

Required water use reductions from the baseline 2016-20 average could range up to 30%, depending on the surface elevations of Lake Mead and Lake Powell at the end of the previous water year. Notably, water use reductions would be proportional, with an equal percentage applied to all seven states and deliveries to Mexico. Tables 3 and 4 show the required reductions by basin and by state for a water year, based on criteria related to the surface elevation of Lake Powell and/or Lake Mead at the end of the previous water year (September 30).

<b>Annual Water Use Reduction</b>					<b>When Applicable <sup>2,3</sup></b>	
<b>Percentage Reduction from Baseline <sup>1</sup></b>	<b>Total Volume that may be used annually <sup>4</sup> (million acre feet)</b>				<b>Lake Powell</b>	<b>Lake Mead</b>
	<i>Upper Basin</i>	<i>Lower Basin</i>	<i>Mexico</i>	<i>Total</i>		
<b>30%</b>	2.904	4.831	1.050	<b>8.784</b>	< 3540, <b>OR</b>	< 1025
<b>25%</b>	3.111	5.176	1.125	<b>9.412</b>	> 3540 and < 3575, <b>OR</b>	> 1025 and < 1050
<b>20%</b>	3.318	5.521	1.200	<b>10.039</b>	> 3575 and < 3600, <b>OR</b>	> 1050 and < 1075
<b>10%</b>	3.733	6.211	1.350	<b>11.294</b>	> 3600 and < 3625, <b>OR</b>	> 1075 and < 1100
<b>0%</b>	4.148	6.901	1.500	<b>12.549</b>	> 3625, <b>AND</b>	> 1100

1. Based on average annual water use from WY2016-20, as reported by BOR.  
2. Surface elevation at the end of a given Water Year (September 30). If no reduction is required, then pre-2022 usage protocols apply.  
3. If the condition of one reservoir is more restrictive than the other, the higher percentage reduction of the two is required to be applied to all users in the system.  
4. Reductions within each basin are allocated by State as shown in Table 4.

Table 4 shows the baseline water use for each state (average annual usage from WY2016-20), and the maximum allocation for each state depending on the percentage reduction in use required in a given year as shown in Table 3. Note that if no reduction is required in a particular year, pre-2022 water use protocols under the Law of the River would apply for that year.

**Table 4. Colorado River Annual Water Use Reductions by State**  
*(based on WY2016-20 Average, in million acre feet)*

Location	Average Usage (WY2016-20)	Percentage Reduction			
		10%	20%	25%	30%
<b>Lower Basin</b>					
California	4.115	3.703	3.292	3.086	2.880
Arizona	2.543	2.289	2.035	1.907	1.780
Nevada	0.243	0.219	0.194	0.182	0.170
<b>Subtotal</b>	<b>6.901</b>	<b>6.211</b>	<b>5.521</b>	<b>5.176</b>	<b>4.831</b>
<b>Upper Basin</b>					
Arizona *	0.026	0.023	0.021	0.019	0.018
Colorado	2.275	2.047	1.820	1.706	1.592
Utah	1.006	0.905	0.805	0.754	0.704
New Mexico	0.420	0.378	0.336	0.315	0.294
Wyoming	0.421	0.379	0.337	0.316	0.295
<b>Subtotal</b>	<b>4.148</b>	<b>3.733</b>	<b>3.318</b>	<b>3.111</b>	<b>2.904</b>
Mexico	1.500	1.350	1.200	1.125	1.050
<b>Total</b>	<b>12.549</b>	<b>11.294</b>	<b>10.039</b>	<b>9.412</b>	<b>8.784</b>
<i>Reduction from Baseline (maf)</i>	<i>0</i>	<i>1.255</i>	<i>2.510</i>	<i>3.137</i>	<i>3.765</i>
<p><i>Sources: Colorado River Accounting and Water Use Report: Arizona, California and Nevada (various reports); Upper Colorado River Basin Consumptive Uses and Losses 2016-2020. Both publications by BOR.</i></p> <p><i>* A small portion of Arizona is included in the Upper Basin for the purpose of calculating water consumption under the Law of the River.</i></p> <p>If no reduction is required, then pre-2022 usage protocols apply.</p>					

Table 5 shows the protocol for releases from Glen Canyon Dam in a given year, based on the surface elevations of both Lake Mead and Lake Powell at the end of the previous water year.

<b>Table 5. Protocol for Releases Through Glen Canyon Dam</b>		
<b>Required Release Through Glen Canyon Dam (million acre feet)</b>	<b>Applicable Condition <sup>1</sup></b>	
	<b>Lake Powell</b>	<b>Lake Mead</b>
5.0	< 3540 AND	> 1000
5.5	< 3540 AND	< 1000
6.0	3540-3575 AND	> 1025
6.5	3540-3575 AND	< 1025
7.0	3575-3600 AND	> 1050
7.5	3575-3600 AND	< 1050
8.0	3600-3625 AND	> 1075
8.23 minimum, or more as needed to balance the reservoirs	3600-3625 AND	< 1075
8.23 minimum, or more as needed to balance the reservoirs	> 3625	-
1. Surface elevation at the end of a given Water Year (September 30).		

## Possible Outcomes

### Outcomes if Action is Taken Starting in WY2023

Table 6 illustrates possible 5-year outcomes of applying this plan, depending on the water availability in a given year. These tables show a range of possibilities, from 40% less than baseline average precipitation, to 20% greater than baseline average. In all cases, power generation through each dam would continue uninterrupted through this period under this plan. With the exception of an extended drought period similar in magnitude to what was experienced from 2000-04, or perhaps an extension of the historically dry year that occurred in 2021, both reservoirs would steadily recover (Lake Powell to over 3600, Lake Mead to over 1100), and in average conditions, water use reductions could be removed by 2027. However, continued water use reductions in the range 10-30% would still be required if water availability remains below average.

Crucially, this plan assumes that the seven states (and Mexico) are able to implement a 30% reduction from their current average use starting in WY 2023, and that BOR is willing to reduce flows through Glen Canyon Dam to 5.0 maf during that year. Once the reservoirs recover above critically low levels, these restrictions could be potentially eased back consistent with proposed protocols. These are challenging but necessary steps to protect the viability of the entire system, particularly if extreme drought continues, or even if WY 2023 is similarly dry as WY 2021.

<b>Table 6. Possible Outcomes of Plan Implementation</b>					
<b>Water Availability scenarios (WY 2023-27) <sup>1</sup></b>	<b>Water Year</b>	<b>Water Use Reduction<sup>2</sup></b>	<b>Release through Glen Canyon Dam<sup>2</sup> (maf)</b>	<b>Lake Powell level (Sept 30)</b>	<b>Lake Mead level (Sept 30)</b>
	2022	0%	7.0	3529	1044
40% less than average (8.1 maf/yr) <sup>3</sup> (similar to 2000-04)	2023	30%	5.0	3533	1031
	2024	30%	5.0	3537	1018
	2025	30%	5.0	3534	1003
	2026	30%	5.0	3521	997
	2027	30%	5.0	3527	990
20% less than average (10.9 maf/yr) (similar to 1988-92)	2023	30%	5.0	3567	1034
	2024	30%	6.0	3586	1038
	2025	25%	7.0	3590	1050
	2026	25%	7.0	3593	1062
	2027	20%	7.0	3594	1068
10% less than average (12.2 maf/yr) (similar to 2003-07)	2023	30%	5.0	3588	1035
	2024	25%	7.0	3607	1049
	2025	25%	8.0	3614	1076
	2026	20%	8.23	3616	1099
	2027	10%	8.0	3616	1106
Average (13.6 maf/yr) (average defined as 2016-20)	2023	30%	5.0	3609	1036
	2024	25%	8.23	3627	1070
	2025	10%	8.75	3633	1090
	2026	10%	8.75	3639	1108
	2027	0%	8.23	3645	1110
10% above average (14.9 maf/yr) (similar to 2005-09)	2023	30%	5.0	3630	1037
	2024	25%	9.0	3652	1081
	2025	10%	9.0	3666	1103
	2026	0%	8.23	3682	1106
	2027	0%	9.5	3688	1123
20% above average (16.3 maf/yr) (similar to 1996-2000)	2023	30%	5.0	3651	1039
	2024	25%	9.0	3682	1084
	2025	10%	12.0	3683	1144
	2026	0%	11.0	3687	1173
	2027	0%	11.0	3692	1197
<p>1. Assumes a consistent level of water availability from year to year, and does not account for likely variations. Total water availability shown in parentheses is water available in the upper basin prior to its use, diversion, evaporation. The amount available for inflow to Lake Powell is considerably less, and is the remainder after Upper Basin water use, diversions, or evaporation is considered.</p> <p>2. Follows protocols established in this plan.</p> <p>3. Assumes that 500,000 AF is released to Lake Powell from upper basin reservoirs beyond typical release patterns in 4 of the 5 years.</p>					



### What if The States and BOR Don't Take Meaningful Steps in 2023?

In June 2022, the BOR called on the seven states to find a way to reduce their collective water use by 2-4 maf, and gave them 60 days to come up with a plan. This was a sensible and necessary step to take. But even if they come to an agreement, it may be difficult to fully implement those steps in 2023. Table 7 shows what would happen if the states and BOR are not able to implement the necessary water use measures in WY 2023, and instead defer these actions until 2024. That table assumes only a modest 10% reduction in water use in 2023, and that releases through Glen Canyon Dam would be 7.048 maf as currently planned (based on the June 2022 24-Month Study published by BOR). Table 8 assumes a true worst case scenario—that none of the states reduce water use through 2027, and that the BOR maintains releases through Glen Canyon Dam at a minimum of 7 maf each year, unless dead pool is reached, in which case releases would only match inflows to Lake Powell.

In general, the recovery of the reservoirs would be substantially slower than if stronger conservation measures were implemented in 2023. More importantly, power generation at Glen Canyon Dam would end in WY2023 if water availability via precipitation is 40% below normal, or a condition similar to what occurred in either 2002 or 2021. This could be avoided if releases through the dam were slowed considerably, but this would have a substantial adverse effect on Lake Mead.

In the worst case scenario (Table 8), where none of the states reduced water use from WY2023-27, the results are potentially catastrophic. Under a scenario where drought continues at 40% less than average inflow, Lake Powell reaches a dead pool elevation of 3370 in WY2025, and Lake Mead reaches its dead pool elevation of 895 in WY2026. With anything less than average snowpack, Hoover Dam would drop to the point where it would no longer be able to generate electricity by WY2027. Glen Canyon Dam would stop producing electricity by WY2025 if snowpack remained 20% less than average.

On the other hand, if snowpack conditions improve in the coming years, some of the most severe outcomes could be avoided, but neither lake sees any potential recovery without at least average snowpack sustained through the next 5 years.

Deferring immediate and decisive action is a huge gamble. It's a bet that the drought will break in 2023, or that it will at least not be as severe as it has been in years past, even as recently as 2021. Absent a significant break in the ongoing drought, and without immediate action to address its consequences, the power produced, water supplied and recreational opportunities offered by both Lake Mead and Lake Powell will eventually cease.

<b>Table 7. Possible Outcomes of Plan Implementation (if “business as usual” in WY 2023)</b>					
<b>Water Availability scenarios (WY 2023-27) <sup>1</sup></b>	<b>Water Year</b>	<b>Water Use Reduction<sup>2</sup></b>	<b>Release through Glen Canyon Dam<sup>3</sup> (maf)</b>	<b>Lake Powell level (Sept 30)</b>	<b>Lake Mead level (Sept 30)</b>
	2022	0%	7.0	3529	1044
40% less than average (8.1 maf/yr) <sup>4</sup> (similar to 2000-04)	2023	10%	7.048	3489	1037
	2024	30%	5.0	3494	1023
	2025	30%	5.0	3490	1010
	2026	30%	5.0	3496	995
	2027	30%	5.0	3491	988
20% less than average (10.9 maf/yr) (similar to 1988-92)	2023	10%	7.048	3523	1039
	2024	30%	5.0	3563	1029
	2025	30%	6.5	3576	1040
	2026	25%	7.0	3580	1053
	2027	25%	7.0	3583	1065
10% less than average (12.2 maf/yr) (similar to 2003-07)	2023	10%	7.048	3544	1040
	2024	25%	6.0	3583	1040
	2025	25%	7.0	3602	1053
	2026	20%	8.23	3607	1083
	2027	10%	8.0	3607	1091
Average (13.6 maf/yr) (average defined as 2016-20)	2023	10%	7.048	3565	1041
	2024	25%	6.0	3618	1042
	2025	25%	8.75	3630	1081
	2026	10%	8.75	3636	1099
	2027	0%	8.23	3642	1101
10% above average (14.9 maf/yr) (similar to 2005-09)	2023	10%	7.048	3585	1043
	2024	25%	7.5	3630	1065
	2025	10%	9.0	3646	1091
	2026	10%	9.0	3661	1113
	2027	0%	9.5	3667	1129
20% above average (16.3 maf/yr) (similar to 1996-2000)	2023	10%	7.048	3606	1044
	2024	25%	9.0	3645	1089
	2025	10%	9.0	3671	1112
	2026	0%	11.0	3676	1146
	2027	0%	11.0	3681	1175
<p>1. Assumes a consistent level of water availability from year to year, and does not account for likely variations. Total water availability shown in parentheses is water available in the upper basin prior to its use, diversion, evaporation. The amount available for inflow to Lake Powell is considerably less, and is the remainder after Upper Basin water use, diversions, or evaporation is considered.</p> <p>2. Follows protocols established in this plan, except for WY 2023, where only a 10% reduction in water use is implemented (instead of 30%).</p> <p>3. Follows protocols established in this plan, except for WY 2023, where BOR releases 7.0 maf through Glen Canyon Dam as previously planned (instead of 5.0 maf per updated protocol).</p> <p>4. Assumes that 500,000 AF is released to Lake Powell from upper basin reservoirs beyond typical release patterns in 4 of the 5 years.</p>					

**Table 8. Worst Case Outcome of Plan Implementation (if “business as usual” for WY 23-27—no reduction in water use or reduced releases from Glen Canyon Dam)**

Water Availability scenarios (WY 2023-27) <sup>1</sup>	Water Year	Water Use Reduction <sup>2</sup>	Release through Glen Canyon Dam <sup>3</sup> (maf)	Lake Powell level (Sept 30)	Lake Mead level (Sept 30)
	2022	0%	7.0	3529	1044
40% less than average (8.1 maf/yr) (similar to 2000-04)	2023	0%	7.0	3476	1024
	2024	0%	7.0	3389	1003
	2025	0%	3.5	3370	920
	2026	0%	3.5	3370	895
	2027	0%	3.5	3370	895
20% less than average (10.9 maf/yr) (similar to 1988-92)	2023	0%	7.0	3517	1026
	2024	0%	7.0	3502	1008
	2025	0%	7.0	3487	988
	2026	0%	7.0	3473	965
	2027	0%	7.0	3454	937
10% less than average (12.2 maf/yr) (similar to 2003-07)	2023	0%	7.0	3538	1027
	2024	0%	7.0	3547	1010
	2025	0%	7.0	3556	992
	2026	0%	7.0	3565	970
	2027	0%	7.0	3573	946
Average (13.6 maf/yr) (average defined as 2016-20)	2023	0%	7.0	3559	1029
	2024	0%	7.0	3584	1013
	2025	0%	7.5	3601	1004
	2026	0%	8.23	3609	1007
	2027	0%	8.23	3617	1010
10% above average (14.9 maf/yr) (similar to 2005-09)	2023	0%	7.0	3580	1030
	2024	0%	7.5	3614	1023
	2025	0%	8.23	3634	1027
	2026	0%	9.0	3646	1042
	2027	0%	9.5	3653	1064
20% above average (16.3 maf/yr) (similar to 1996-2000)	2023	0%	7.0	3601	1031
	2024	0%	9.0	3630	1048
	2025	0%	9.0	3654	1064
	2026	0%	11.0	3659	1106
	2027	0%	11.0	3665	1140

1. Assumes a consistent level of water availability from year to year, and does not account for likely variations. Total water availability shown in parentheses is water available in the upper basin prior to its use, diversion, evaporation. The amount available for inflow to Lake Powell is considerably less, and is the remainder after Upper Basin water use, diversions, or evaporation is considered.
2. Follows protocols established in this plan, except for WY 2023, where only a 10% reduction in water use is implemented (instead of 30%).
3. Follows protocols established in this plan, except for WY 2023, where BOR releases 7.0 maf through Glen Canyon Dam as previously planned (instead of 5.0 maf per updated protocol).