

POST-2026 DRAFT EIS



AGENDA

Alternatives
Infrastructure
Hydropower
Comments



5 ALTERNATIVES



DRAFT EIS ALTERNATIVES

- 1.No Action
- 2.Basic Coordination (Default)
- 3.Enhanced Coordination
- 4.Max Flexibility
- 5.Supply Driven

**Table ES-1
Summary Comparison of Alternatives**

<p>No Action Alternative</p>	<p>The No Action Alternative is included as a requirement of NEPA. Operations would revert to annual determinations announced through the Annual Operating Plan. Pursuant to the LROC, the objective is to maintain a minimum release of water from Lake Powell of 8.23 maf, therefore Lake Powell releases are assumed to be 8.23 maf¹ unless a higher release is required for equalization or a lower release occurs due to Glen Canyon Dam infrastructure limitations.² Shortages to the Lower Basin would be based on priority and reach a maximum of 600 thousand acre-feet (kaf). This would not represent a continuation of current operations but is generally based on the operating guidance that was in place before the adoption of the 2007 Interim Guidelines. While the authority to use CRSP Upper Initial Units to respond to exigent and emergency conditions was recognized at that time, no specific framework for such activities had been developed, so no defined activities are included in this alternative. Existing Intentionally Created Surplus (ICS) would be delivered in accordance with existing agreements, but there would be no new storage and delivery mechanisms.</p>				
	<p>Shortage Guidelines to Reduce Deliveries from Lake Mead³</p>	<p>Coordinated Reservoir Operations (Lake Powell and Lake Mead)</p>	<p>Storage and Delivery of Conserved System and Non-system Water³</p>	<p>Surplus Guidelines to Increase Deliveries/ Releases from Lake Mead³</p>	<p>Additional Activities Above Lake Powell</p>
	<ul style="list-style-type: none"> • Shortages determined based on Lake Mead elevation • Shortage volume of 400, 500, and 600 kaf at elevations 1,075, 1,050, and 1,025 feet, respectively • Shortages distributed based on priority 	<ul style="list-style-type: none"> • Lake Powell release of 8.23 maf unless more is required for equalization releases • Releases less than 8.23 maf below elevation 3,490 feet due to Glen Canyon Dam infrastructure limitations 	<ul style="list-style-type: none"> • No new storage and delivery mechanism to replace ICS • Delivery of existing ICS in accordance with existing agreements 	<ul style="list-style-type: none"> • Surplus determinations limited to 70R (spill avoidance strategy) and Flood Control conditions 	<ul style="list-style-type: none"> • No specific additional activities above Lake Powell defined

Basic Coordination Alternative	<p>This alternative is designed to be implementable absent new agreements among Basin water users. Lake Powell releases would primarily be 8.23 maf, with some releases above and below 8.23 maf, and minimum releases of 7.0 maf. Lake Powell elevations could be increased by releases from CRSP Upper Initial Units within their respective RODs to protect infrastructure at Glen Canyon Dam. Reclamation would identify triggers for when additional Upper Basin actions are needed to protect critical infrastructure. Lower Basin shortages up to 1.48 maf would be triggered based on Lake Mead elevation and distributed consistent with priority system. Existing ICS would be delivered in accordance with existing agreements, but there would be no new delivery and storage mechanisms.</p>				
	Shortage Guidelines to Reduce Deliveries from Lake Mead³	Coordinated Reservoir Operations (Lake Powell and Lake Mead)	Storage and Delivery of Conserved System and Non-system Water³	Surplus Guidelines to Increase Deliveries/Releases from Lake Mead³	Additional Activities Above Lake Powell
	<ul style="list-style-type: none"> • Shortages based on Lake Mead elevation up to 1.48 maf • Shortages distributed based on priority • Identify conditions when additional reductions may be needed to avoid reaching critically low elevations 	<ul style="list-style-type: none"> • Lake Powell releases are determined based on Lake Powell elevation unless equalization releases are required • Releases range from 9.5 to 7.0 maf, unless more is required for equalization releases • Identify conditions when additional action may be needed for infrastructure protection 	<ul style="list-style-type: none"> • No new storage and delivery mechanism to replace ICS • Delivery of existing ICS in accordance with existing agreements 	<ul style="list-style-type: none"> • Surplus determinations limited to 70R (spill avoidance strategy) and Flood Control conditions 	<ul style="list-style-type: none"> • Releases from CRSP Upper Initial Units within their respective RODs and contingent on hydrologic conditions to protect infrastructure at Glen Canyon Dam • Identify conditions when additional Upper Basin actions may be needed for infrastructure protection

<p>Enhanced Coordination Alternative</p>	<p>This alternative is based on concepts from Basin Tribes, federal agencies, and other stakeholders to achieve protection of critical infrastructure while benefitting key resources (e.g., natural, hydropower and recreation) through an approach to distributing storage between Lake Powell and Lake Mead. Lake Powell releases would be determined based on a combination of Lake Powell and Lake Mead elevations, 10-year running-average hydrology, and Lower Basin deliveries. This alternative would include storage and delivery mechanisms for Lake Powell and Lake Mead and extensive flexibilities for all users. The operations incorporate Basin-wide shared contributions to the system, including Upper Basin conservation that would be stored in Lake Powell and Lower Basin shortages starting at 1.3 maf, approximately the average annual evaporative and system losses at and below Lake Mead, and reaching a maximum of 3.0 maf. Shortages would be triggered based on combined storage in Lake Powell and Lake Mead and distributed pro rata.</p>				
	<p>Shortage Guidelines to Reduce Deliveries from Lake Mead³</p>	<p>Coordinated Reservoir Operations (Lake Powell and Lake Mead)</p>	<p>Storage and Delivery of Conserved System and Non-system Water³</p>	<p>Surplus Guidelines to Increase Deliveries/Releases from Lake Mead³</p>	<p>Additional Activities Above Lake Powell</p>
	<ul style="list-style-type: none"> • Shortages determined based on combined storage in Lake Powell and Lake Mead • Shortages begin at 60% full at a volume of 1.3 maf, then increase linearly, reaching a maximum of 3.0 maf at 30% full and below • Shortages distributed pro rata 	<ul style="list-style-type: none"> • Lake Powell releases determined based on a combination of Lake Powell and Lake Mead elevations, 10-year running-average hydrology, and Lower Basin deliveries • Releases range from 10.8 to 4.7 maf 	<ul style="list-style-type: none"> • Storage up to 5.0 maf in Lake Mead with additional 2.0 maf Protection Pool; included for purposes of determining Lake Powell releases and shortages • Storage up to 2.0 maf in Lake Powell; included for purposes of determining Lake Powell releases but excluded from shortage determinations • Existing ICS converted to new mechanism immediately • Extensive flexibilities for all users: intra- and interstate transactions within each basin • Tribal water (both conserved consumptive use and unused) including in Lake Powell conservation pool and Lake Mead Protection Pool 	<ul style="list-style-type: none"> • Surplus determinations limited to 70R (spill avoidance strategy) and Flood Control conditions 	<ul style="list-style-type: none"> • Upper Basin conservation contributed to the Lake Powell conservation pool based on hydrologic conditions: up to 200 kaf per year for first 5 years, up to 275 kaf per year for second 5 years, up to 350 kaf starting in year 11

Maximum Operational Flexibility Alternative	<p>This alternative is informed by a proposal submitted by a consortium of conservation organizations and incorporates proactive responses, targeted reservoir management strategies, and innovative and flexible tools to address an increasingly variable set of future hydrologic conditions. Lake Powell releases would range from 11.0 maf to 5.0 maf and would be determined by total CRSP system storage and recent hydrology. Releases would switch to “run-of-river” when Lake Powell is at 3,510 feet or lower. The operations incorporate Basin-wide shared contributions, including up to 4.0 maf of shortages in the Lower Basin triggered by combined seven-reservoir storage (CRSP Units, Lake Mead, Lake Mohave, and Lake Havasu) and recent hydrology and voluntary water contributions from both basins.</p>			
Shortage Guidelines to Reduce Deliveries from Lake Mead³	Coordinated Reservoir Operations (Lake Powell and Lake Mead)³	Storage and Delivery of Conserved System and Non-system Water	Surplus Guidelines to Increase Deliveries/Releases from Lake Mead³	Additional Activities Above Lake Powell
<ul style="list-style-type: none"> • Shortages determined based on combined seven-reservoir storage and recent hydrology • Shortages start at 80% full and increase linearly, subject to upward adjustment based on hydrology, reaching a maximum of 4.0 maf • Shortages distributed based on priority, as described in Approach 1 of the Supply Driven Alternative 	<ul style="list-style-type: none"> • Lake Powell releases determined based on total Upper Basin system storage and recent hydrology • Releases subject to downward adjustment based on hydrology and range from 11.0 to 5.0 maf • Releases switch to “run-of-river” when Lake Powell is at elevation 3,510 feet or lower 	<ul style="list-style-type: none"> • Storage up to 8.0 maf in either Lake Powell or Lake Mead; excluded for purposes of determining Lake Powell releases and shortages • Existing ICS converted to new mechanism over 5 years • Extensive flexibilities for all users: transactions within and across basins, including interstate and inter-basin 	<ul style="list-style-type: none"> • Surplus determinations limited to Flood Control conditions 	<ul style="list-style-type: none"> • Average of 200 kaf of Upper Basin annual conservation based on hydrologic conditions contributed to the Lake Powell conservation pool

<p>Supply Driven Alternative</p>	<p>Annual Lake Powell releases are determined based on a 65 percent of 3-year-average natural flow at Lees Ferry. Lake Powell elevations could be increased by releases from CRSP Upper Initial Units within their respective RODs to protect infrastructure at Glen Canyon Dam. This alternative would include new delivery and storage mechanisms for Lake Powell and Lake Mead. Lower Basin shortages up to 2.1 maf would be triggered based on Lake Mead elevation. This alternative analyzes two approaches to shortage distribution: state-based combined with Lower Basin-wide priority and state-based combined with Lower Basin-wide pro rata.</p>				
	<p>Shortage Guidelines to Reduce Deliveries from Lake Mead³</p>	<p>Coordinated Reservoir Operations (Lake Powell and Lake Mead)</p>	<p>Storage and Delivery of Conserved System and Non-system Water³</p>	<p>Surplus Guidelines to Increase Deliveries/Releases from Lake Mead³</p>	<p>Additional Activities Above Lake Powell</p>
	<ul style="list-style-type: none"> • Shortages determined based on Lake Mead elevation • Shortages start at 1,145 feet and reach a maximum of 2.1 maf at 1,000 feet and below 	<ul style="list-style-type: none"> • Lake Powell releases determined primarily based on 65% of 3-year natural flows at Lees Ferry • Releases range from 12.0 to 4.7 maf 	<ul style="list-style-type: none"> • Storage up to 8.0 maf in Lake Mead; excluded for purposes of determining shortages • Storage up to 3.0 maf at Lake Powell; included for purposes of determining Lake Powell releases • Existing ICS converted to new mechanism over 10 years • Expanded flexibilities: interstate exchanges within each basin 	<ul style="list-style-type: none"> • Surplus determinations based on Lake Mead elevation at or above 1,165 feet, 70R (spill avoidance strategy) or Flood Control conditions 	<ul style="list-style-type: none"> • Increased releases from CRSP Upper Initial Units by up to 500 kaf per year within their respective RODs and contingent on hydrologic conditions to protect infrastructure at Glen Canyon Dam • Up to 200 kaf of Upper Basin annual conservation based on hydrologic conditions contributed to the Lake Powell conservation pool • In years when Lake Powell cannot meet its required water year release because of low elevation, additional "gap water" is introduced into the system and tracked to be released in subsequent years

Figure ES-1 Lower Basin Shortage Guidelines

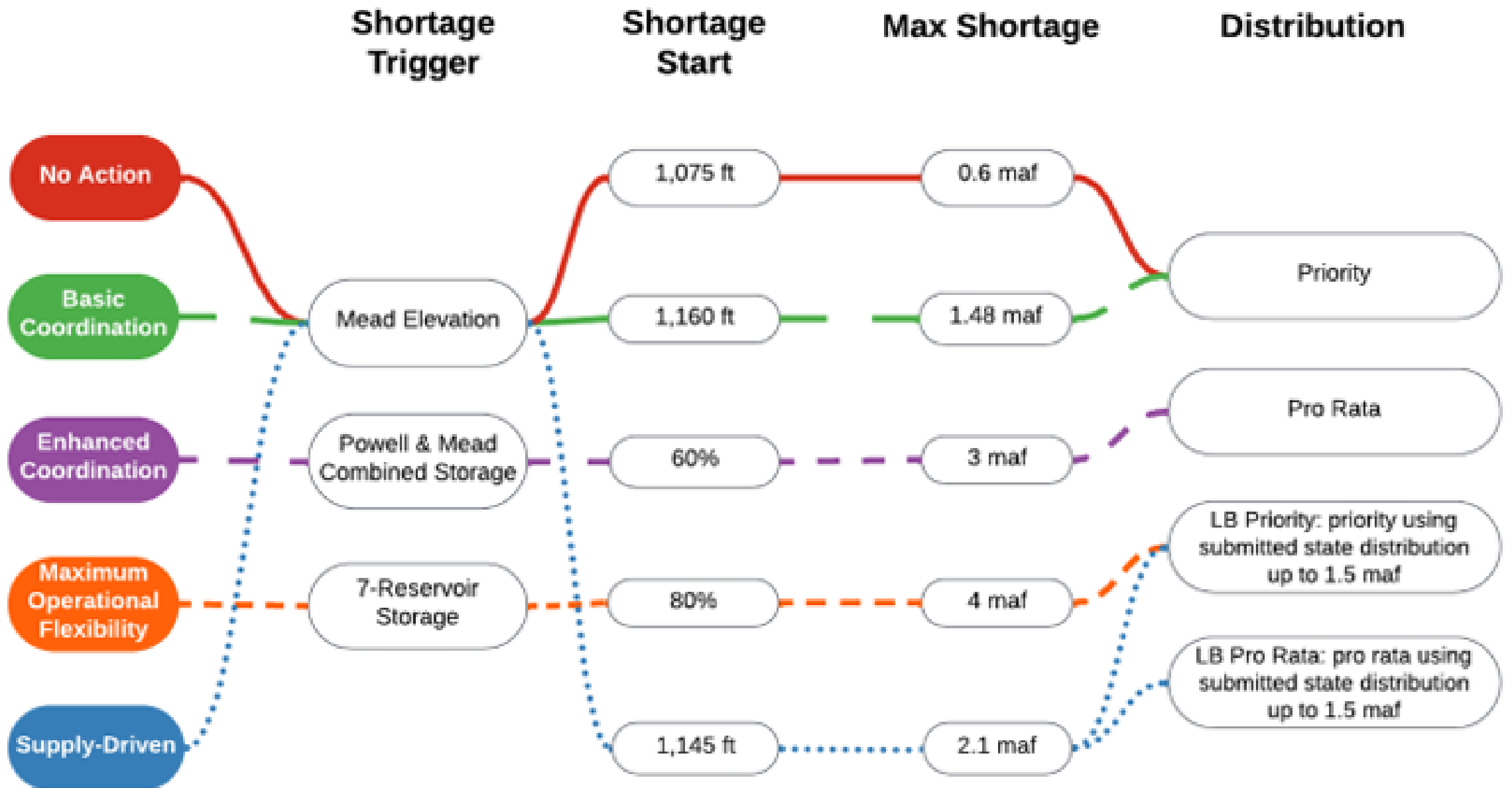


Figure ES-2 Coordinated Reservoir Operations

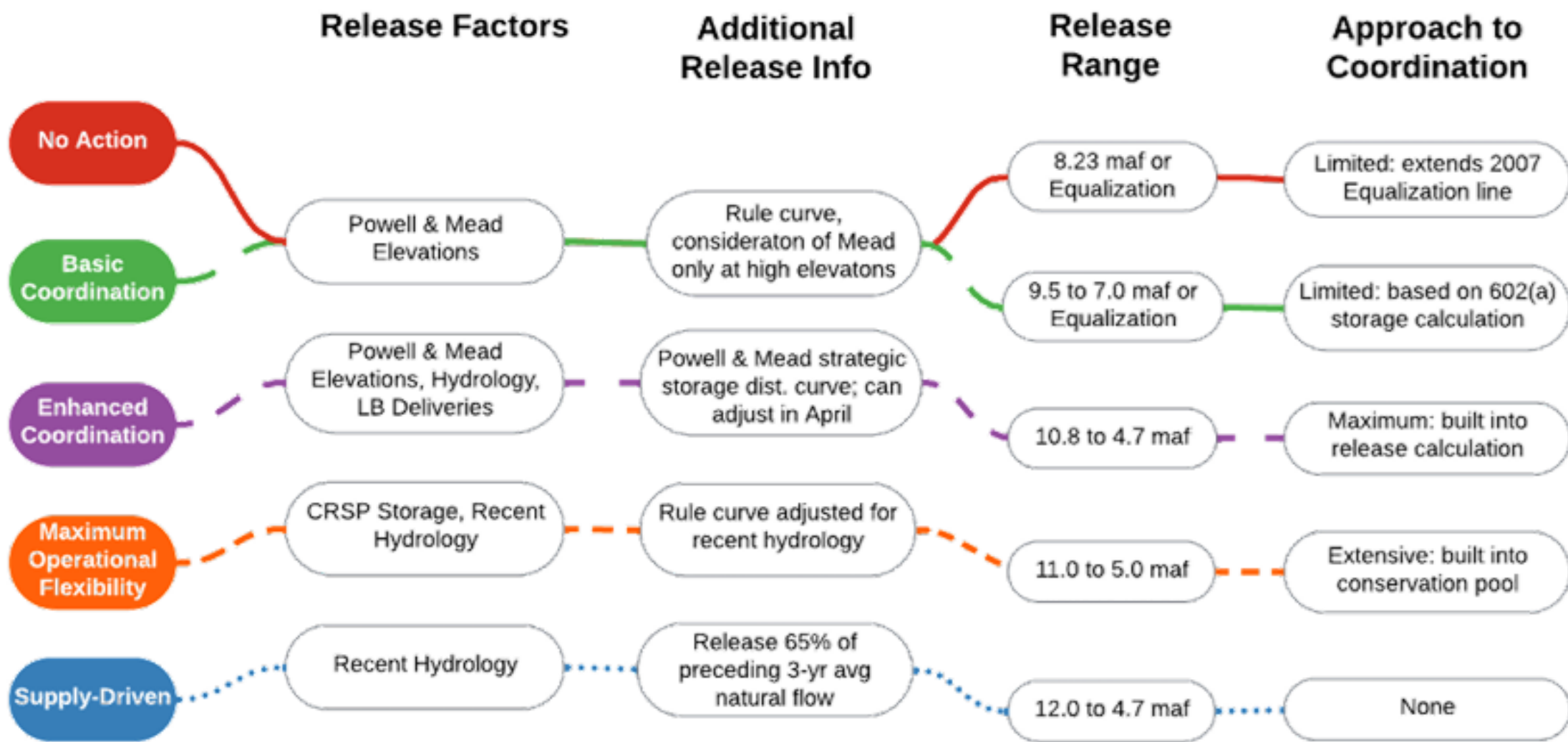
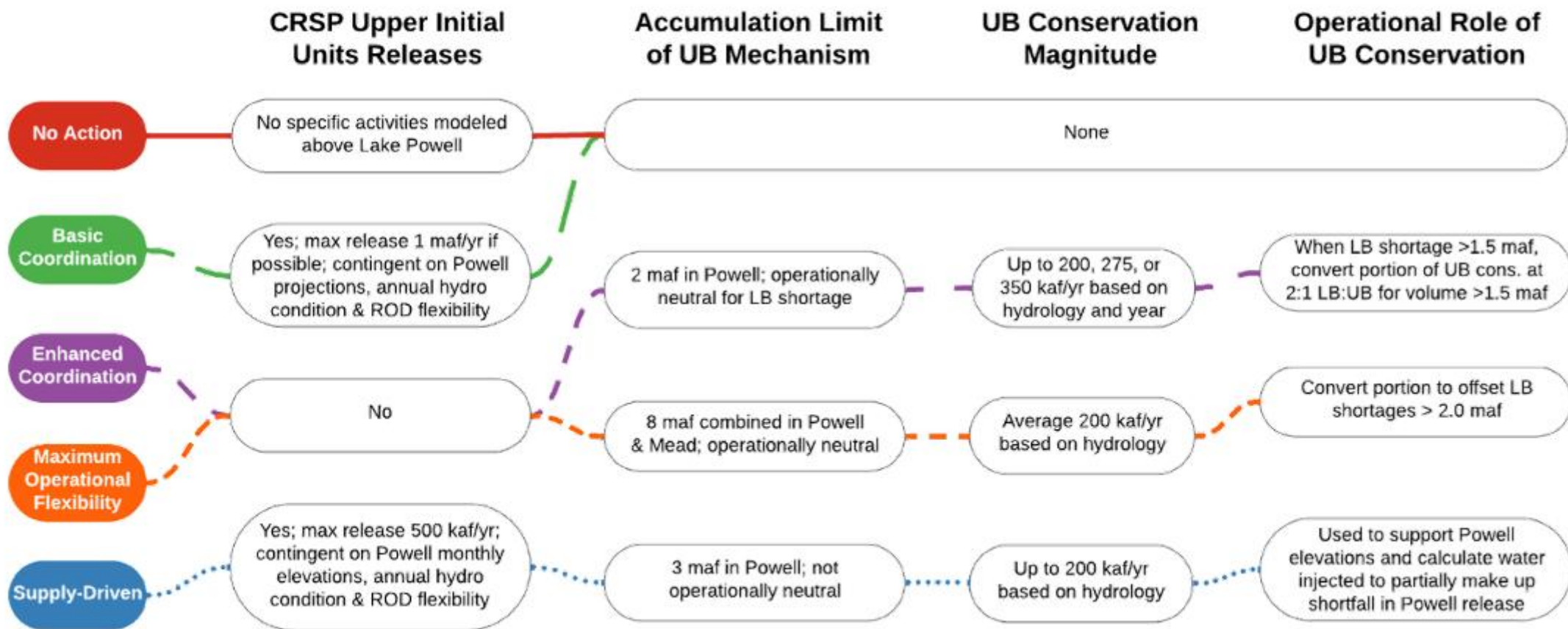


Figure ES-4 Activities Above Lake Powell



INFRASTRUCTURE CONCERNS

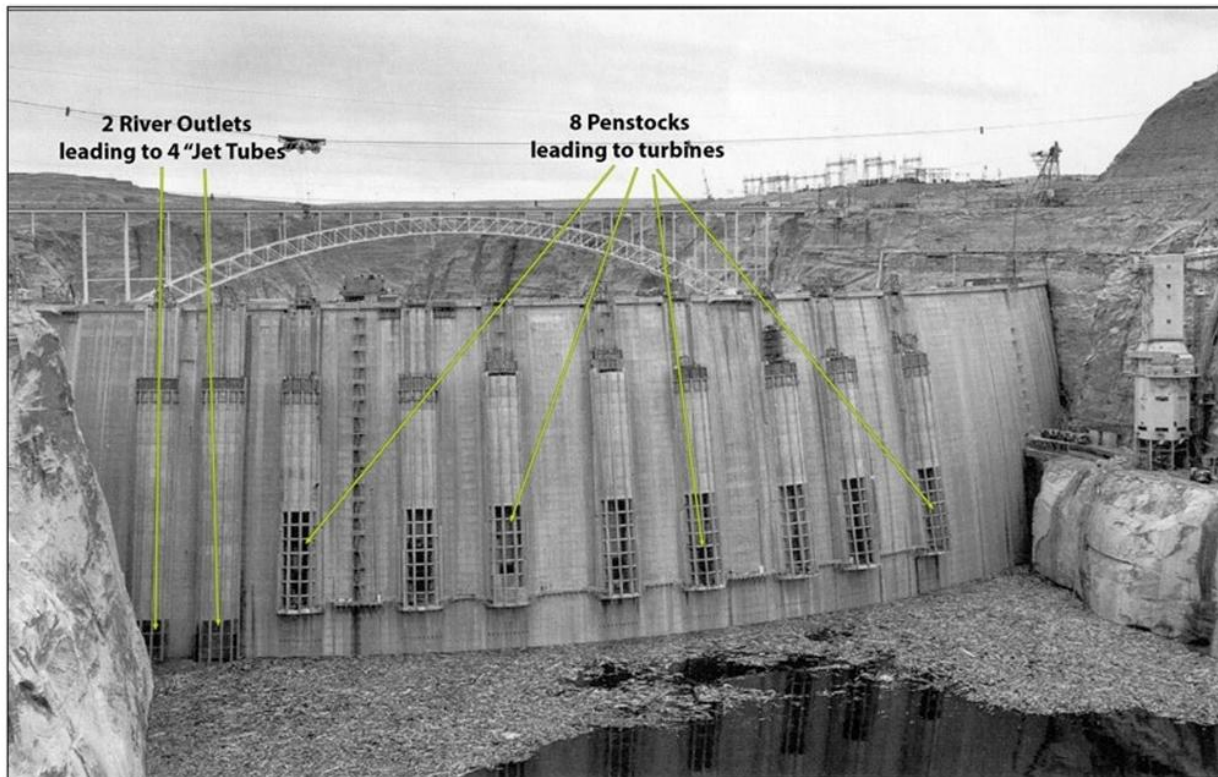
Glen Canyon & Hoover Dams



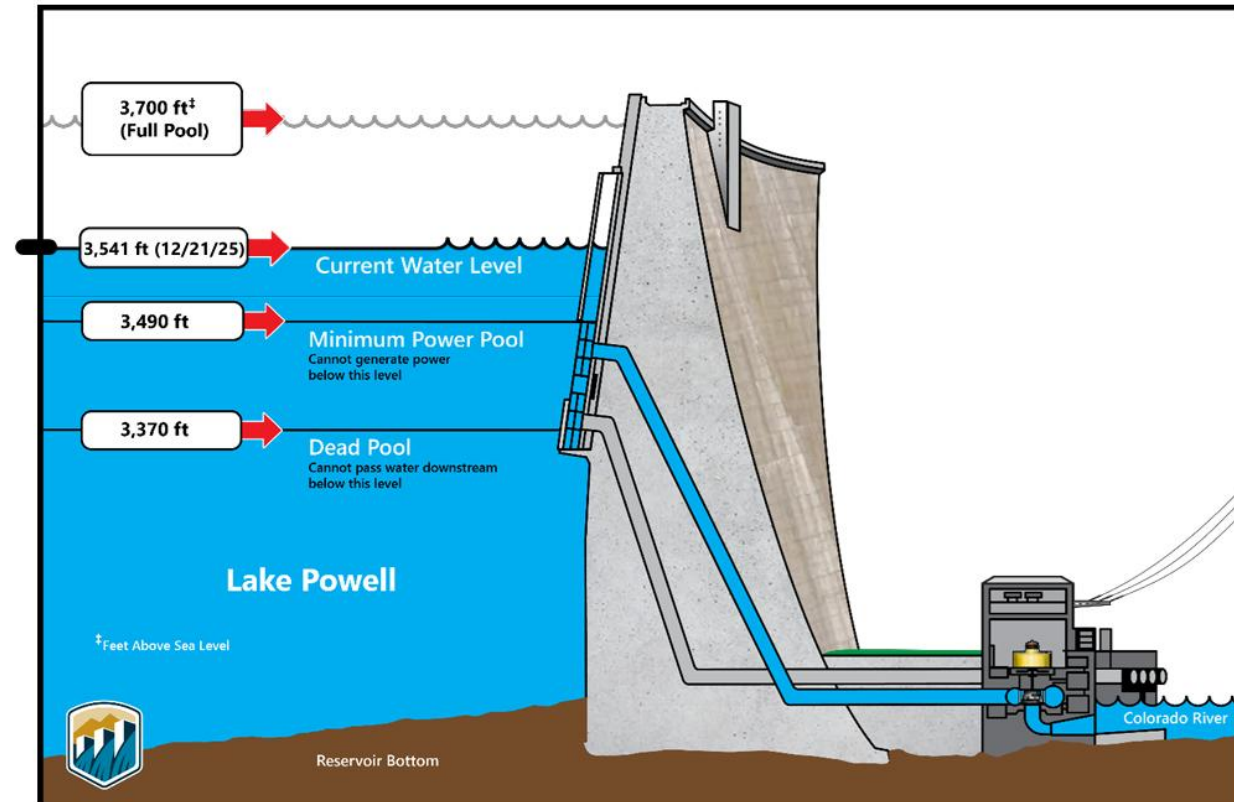
GLEN CANYON DAM

Protect Elevation 3525' Due to Cavitation

Glen Canyon Dam in 1963 (Before Filling)



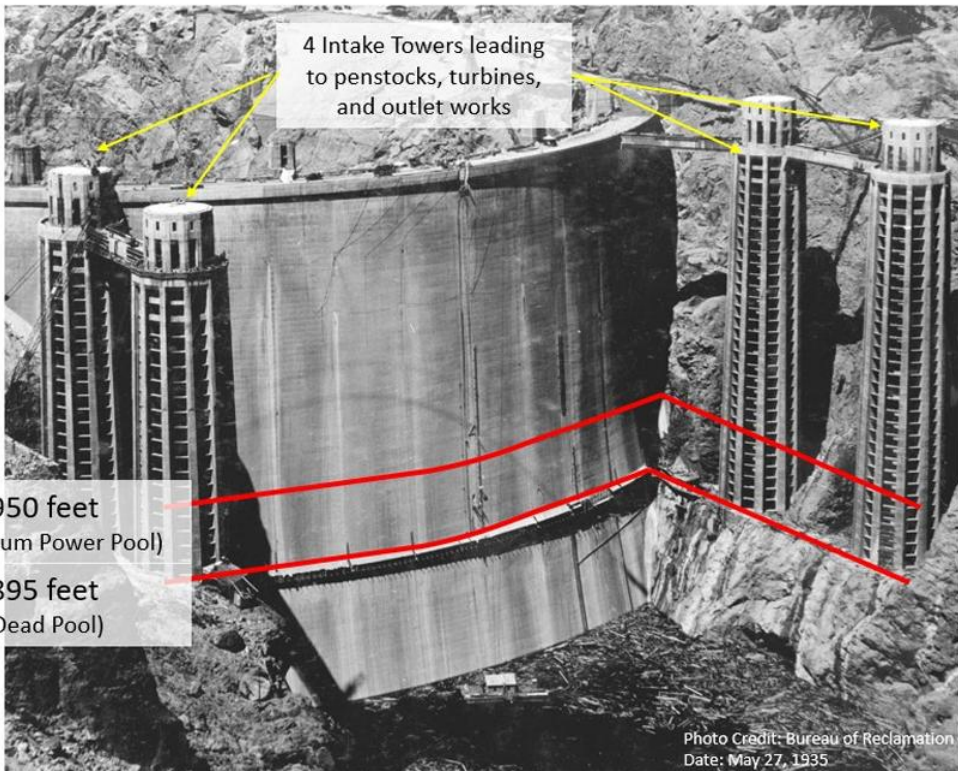
Glen Canyon Dam Key Elevations



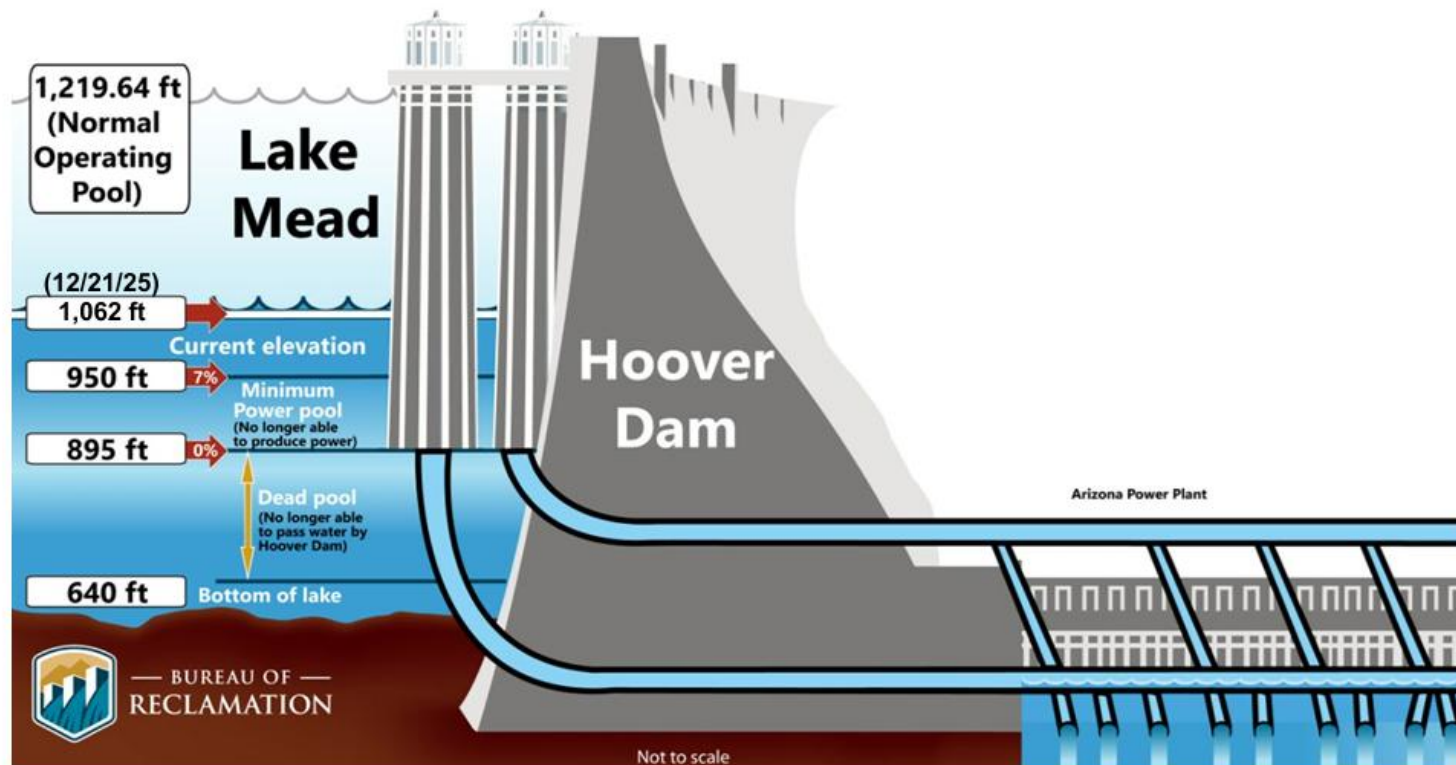
HOOVER DAM

Cavitation Occurs @ 1035' For 12 of 17 Turbines

Hoover Dam in 1935 (before filling)










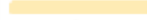




Hoover Dam Key Elevations





HYDROPOWER IMPACTS

Dams and Electrical Power Resources

Impact Category	Performance Indicator	Impacts Summary					
		No Action Alternative	Basic Coordination Alternative	Enhanced Coordination Alternative	Maximum Operational Flexibility Alternative	Supply Driven Alternative (LB Priority)	Supply Driven Alternative (LB Pro Rata)
Reservoir Elevations and Power Pool Robustness	Percent of modeled futures in which <i>Lake Powell</i> elevation is always above minimum power pool (3,490 feet).	 24% of modeled futures meet the preferred minimum performance.	 33% of modeled futures meet the preferred minimum performance.	 86% of modeled futures meet the preferred minimum performance.	 95% of modeled futures meet the preferred minimum performance.	 28% of modeled futures meet the preferred minimum performance.	 28% of modeled futures meet the preferred minimum performance.
	Percent of modeled futures in which <i>Lake Mead</i> elevation is always above minimum power pool (950 feet).	 30% of modeled futures meet the preferred minimum performance.	 61% of modeled futures meet the preferred minimum performance.	 81% of modeled futures meet the preferred minimum performance.	 87% of modeled futures meet the preferred minimum performance.	 76% of modeled futures meet the preferred minimum performance.	 84% of modeled futures meet the preferred minimum performance.
Energy Capacity of the Glen Canyon Dam and Hoover Dam Powerplants	August power capacity (megawatt [MW]) under average hydrology conditions	Glen Canyon Dam: 500-635 MW Hoover Dam: 125-1,240 MW	Glen Canyon Dam: 635-750 MW Hoover Dam: 400-1,550 MW	Glen Canyon Dam: 625-790 MW Hoover Dam: 1,300-1,600 MW	Glen Canyon Dam: 600-650 MW Hoover Dam: 1,200-1,700 MW	Glen Canyon Dam: 620 - 740 MW Hoover Dam: 1,380-1,700 MW	Glen Canyon Dam: 620 - 740 MW Hoover Dam: 1,490 - 1,725 MW
	August power capacity (MW) under critically dry hydrology conditions	Glen Canyon Dam: 0-520 MW Hoover Dam: 0-250 MW	Glen Canyon Dam: 0-525 MW Hoover Dam: 0-1,260 MW	Glen Canyon Dam: 250-625 MW Hoover Dam: 200 -1,270 MW	Glen Canyon Dam: 225-380 MW Hoover Dam: 249 – 1,425 MW	Glen Canyon Dam: 0-390 MW Hoover Dam: 0-1,500 MW	Glen Canyon Dam: 0-390 MW Hoover Dam: 240-1,550 MW
Energy Generation of the Glen Canyon Dam and Hoover Dam Powerplants	Water year generation (Megawatt Hours [MWh]) under average hydrology conditions	Glen Canyon Dam: 3-4 MWh Hoover Dam: 1.3-3.3 MWh	Glen Canyon Dam: 3.1-3.7 MWh Hoover Dam: 2.8-3.6 MWh	Glen Canyon Dam: 3-4.1 MWh Hoover Dam: 2.7-3.8 MWh	Glen Canyon Dam: 3.3-4 MWh Hoover Dam: 2.9-3.8 MWh	Glen Canyon Dam: 3.1-3.6 MWh Hoover Dam: 2.9-3.9 MWh	Glen Canyon Dam: 3.1-3.6 MWh Hoover Dam: 2.9-4 MWh
Energy Generation of the Glen Canyon Dam and Hoover Dam Powerplants (continued)	Water year generation (MWh) under critically dry hydrology conditions	Glen Canyon Dam: 0-2 MWh Hoover Dam: 0-2.2 MWh	Glen Canyon Dam: 0-2.3 MWh Hoover Dam: 0-3 MWh	Glen Canyon Dam: 1.8-2.7 MWh Hoover Dam: 1.7-2.7 MWh	Glen Canyon Dam: 1.9-2.4 MWh Hoover Dam: 1.9-3 MWh	Glen Canyon Dam: 0-2 MWh Hoover Dam: 0.4-3.2 MWh	Glen Canyon Dam: 0-2 MWh Hoover Dam: 2-3.1 MWh

ENERGY IMPACTS (ESTIMATED)

Energy (MKWH)	GCD	CRSP	Hoover	
24 Month 2026	2,660	3,530	2,845	
24 Month 2027	2,440	3,516	3,089	
1 MAF Reduction	2,033	3,109	2,484	
1.5 MAF Reduction	1,423	2,906	2,304	
2 MAF Reduction	1,219	2,702	2,123	
3 MAF Reduction			1,762	
4 MAF Reduction			1,401	
Maximum % Reduction		54.2%	23.5%	50.8%

GCD Loss of 407 MKWH/MAF @ 3530'

Hoover Loss of 361 MKWH/MAF @ 1050'

Release of 7.48 MAF at GCD in 2026 / 7 MAF in 2027

Release of 7.77 MAF at Hoover in 2026 / 8.54 in 2027

Cool Mix By-Pass Not Included

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Comments Due by March 2nd

GROUP COMMENTS

COMMENT TOPICS

- Compact Compliance
- Some Alternatives LB Reductions Would Put Usage Lower than Upper Basin
- Arizona Takes Lion's Share of Cuts (No LB Agreement Alt)
- Priority vs. Pro-Rata
- Basic Coordination Alternative – Default
- Hydro Analysis Uses Varying Lees Ferry Annual Flows
- Draft-EIS Puts No Pressure on Upper Basin