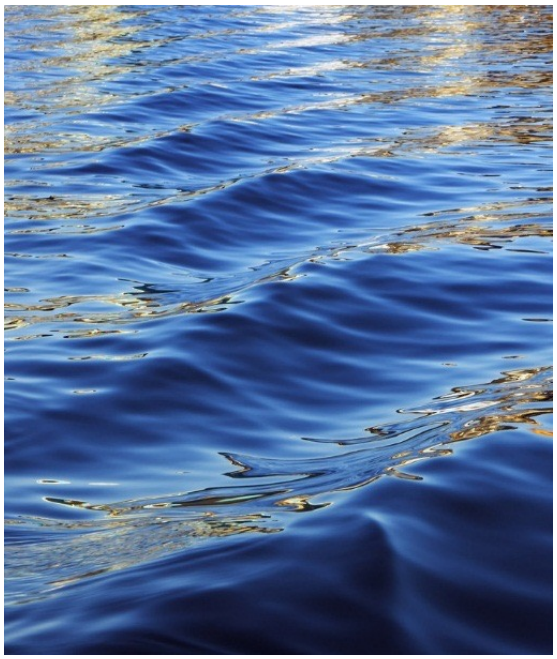
D – idn't
C – onsider
P – Power

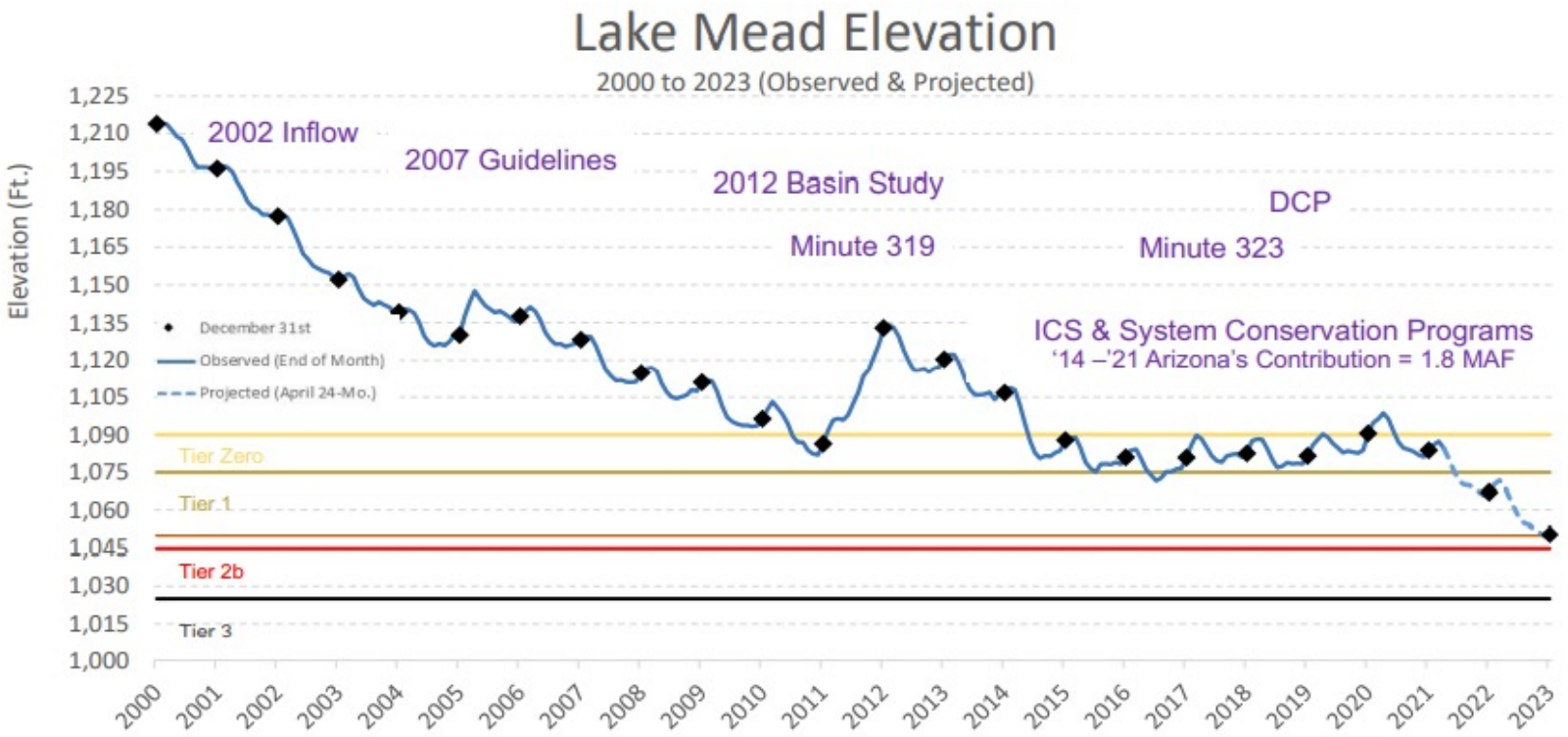
The Sequel

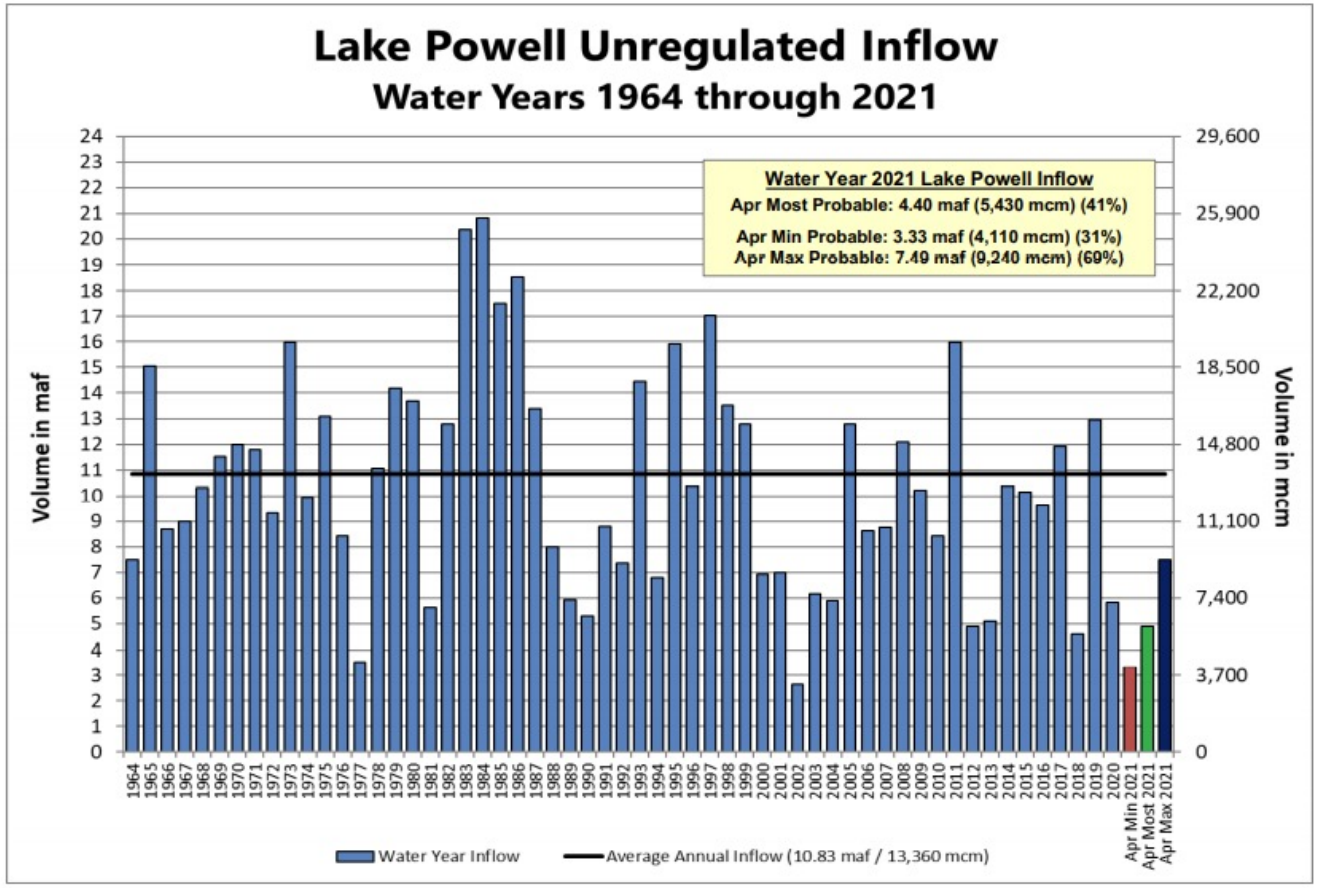
Ed Gerak
Arizona Power Authority
May 18, 2021




SORRY YOUR ELECTRIC IS OUT
LOL

20 Years of Shortage Preparation




Lake Powell Unregulated Inflow
Water Years 1964 through 2021
Water Year 2021 Lake Powell Inflow
Apr Most Probable: 4.40 maf (5,430 mcm) (41%)
Apr Min Probable: 3.33 maf (4,110 mcm) (31%)
Apr Max Probable: 7.49 maf (9,240 mcm) (69%)
Volume in maf
Volume in mcm
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
0
3,700
7,400
11,100
14,800
18,500
22,200
25,900
29,600
1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 Apr Min 2021 Apr Most 2021 Apr Max 2021
Water Year Inflow
Average Annual Inflow (10.83 maf / 13,360 mcm)

10

Colorado River Basin Storage

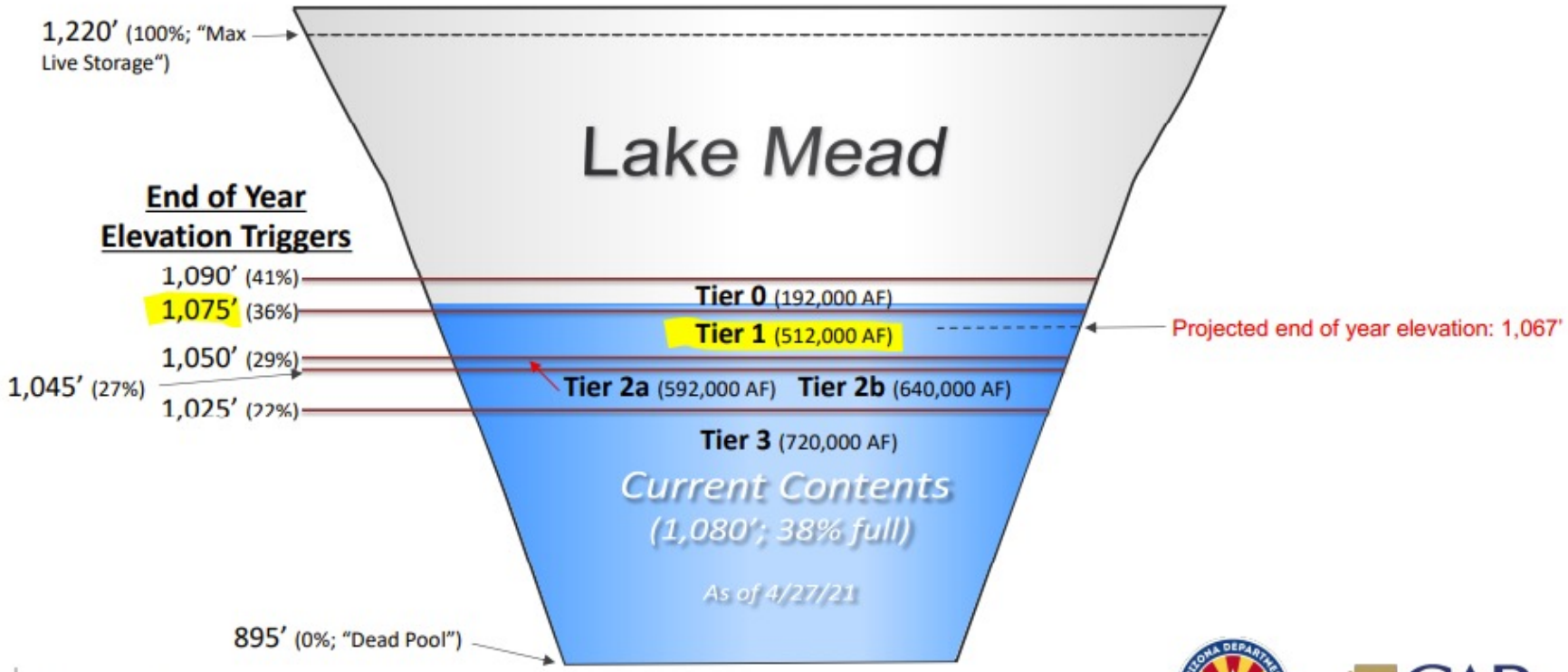
as of April 26, 2021

Reservoir	Percent Full	Storage (maf)	Elevation (feet)
Lake Powell	35%	8.56	3,563
Lake Mead	38%	10.1	1,080
Total System Storage	43%	25.7	NA

Total system storage was 52% of capacity, with 30.7 maf in storage, this time last year

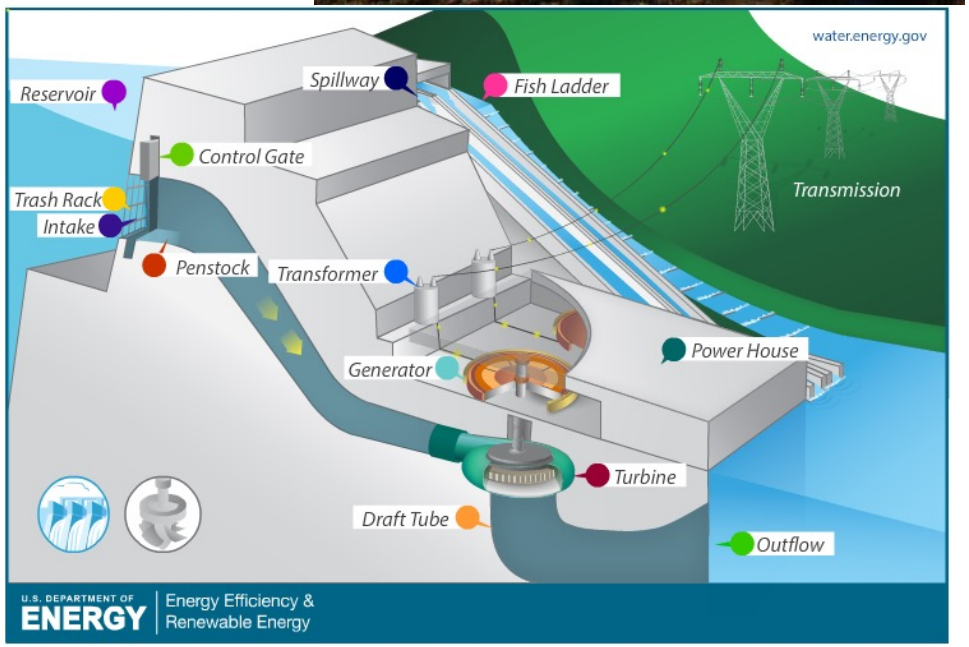
8

Lake Mead Status and Shortage Triggers

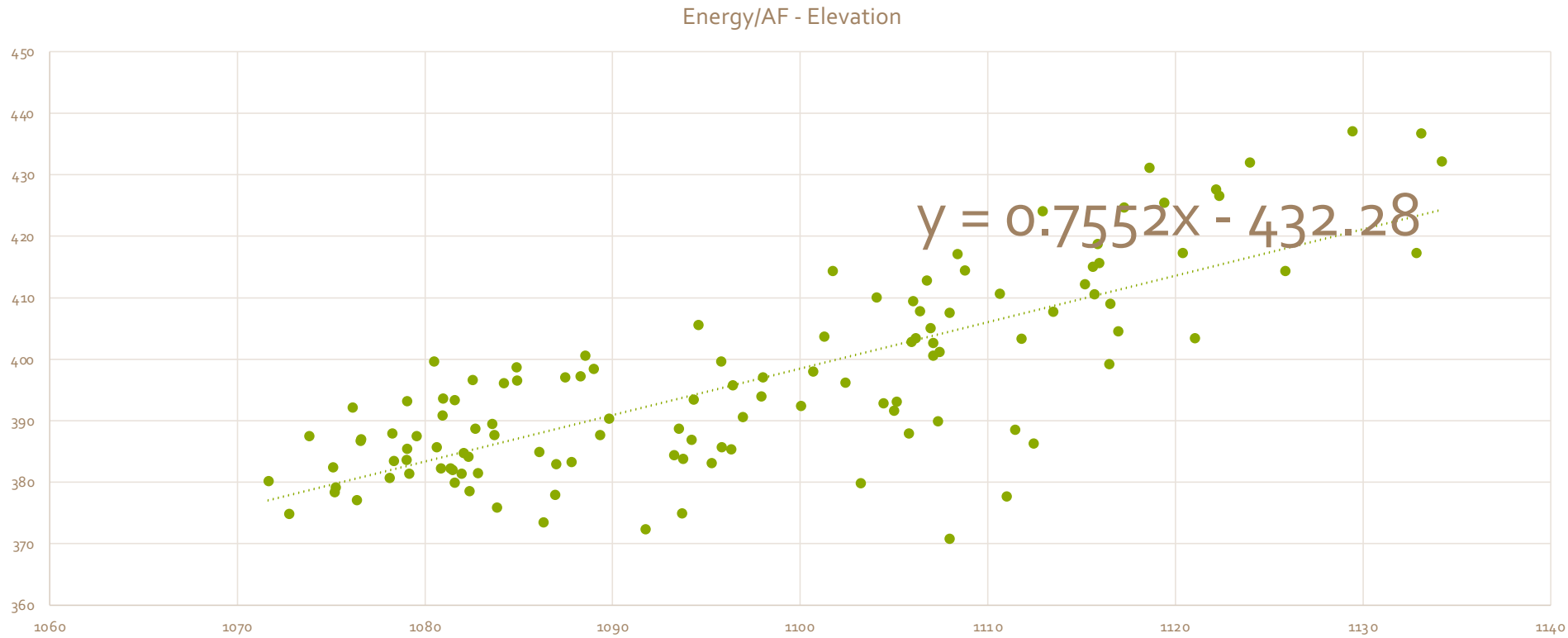


How it Works

- **kW = H x Q x 62.4 x 0.746 ÷ 550 x e**
- where
- H = head, in ft.
- Q = flow, in cubic ft. per second
- 62.4 lbs. = weight of 1 cubic ft. of water
- 0.746 kW = 1 hp
- 550 foot-lbs./sec. = 1 hp



Average Energy Production Based on Elevation



Shortage Reductions and Water Savings Contributions
Under the 2007 Interim Guidelines, Minute 323, Lower Basin Drought Contingency Plan (DCP)*, and Binational Water Scarcity Contingency Plan
(Volumes in thousand acre-feet)

Lake Mead

Projected Operation for 2022

Based on the April 2021 24-Month Study

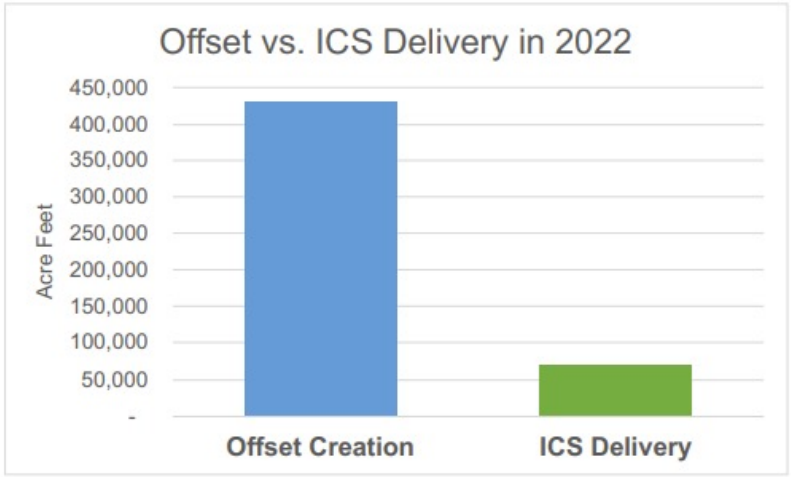
The operational determination for 2022 will be made in August

Lake Mead Elevations (in feet)	2007 Interim Guidelines Shortage Reductions (U.S.)		Minute 323 Delivery Reductions (Mexico)	Total Combined Shortage Reductions (U.S. and Mexico)	DCP Water Savings Contributions (U.S.)			Binational Water Scarcity Contingency Plan Water Savings (Mexico)	Combined Volumes of Shortage Reductions and Water Savings Contributions by Lower Basin State and by Country (U.S. and Mexico)					Total Combined Volumes (U.S. and Mexico)
	AZ	NV	Mexico	***Lower Basin States + Mexico***	AZ	NV	CA	Mexico	*AZ Total*	*NV Total*	*CA Total*	*Lower Basin States Total*	*Mexico Total*	***Lower Basin States + Mexico***
1,090 - >1,075	0	0	0	***0***	192	8	0	41	192	8	0	*200*	*41*	***241***
1,075 - >1050	320	13	50	***383***	192	8	0	30	512	21	0	*533*	*80*	***613***
1,050 - >1,045	400	17	70	***487***	192	8	0	34	592	25	0	*617*	*104*	***721***
1,045 - >1,040	400	17	70	***487***	240	10	200	76	640	27	200	*867*	*146*	***1,013***
1,040 - >1,035	400	17	70	***487***	240	10	250	84	640	27	250	*917*	*154*	***1,071***
1,035 - >1,030	400	17	70	***487***	240	10	300	92	640	27	300	*967*	*162*	***1,129***
1,030 – 1,025	400	17	70	***487***	240	10	350	101	640	27	350	*1,017*	*171*	***1,188***
<1,025	480	20	125	***625***	240	10	350	150	720	30	350	*1,100*	*275*	***1,375***

*Under the Lower Basin DCP, the United States will take affirmative actions to create or conserve 100,000 acre-feet or more of Colorado River system water on an annual basis to contribute to conservation of water supplies in Lake Mead and other Colorado River reservoirs in the Lower Basin. All actions taken by the United States shall be subject to applicable federal law, including availability of appropriations.

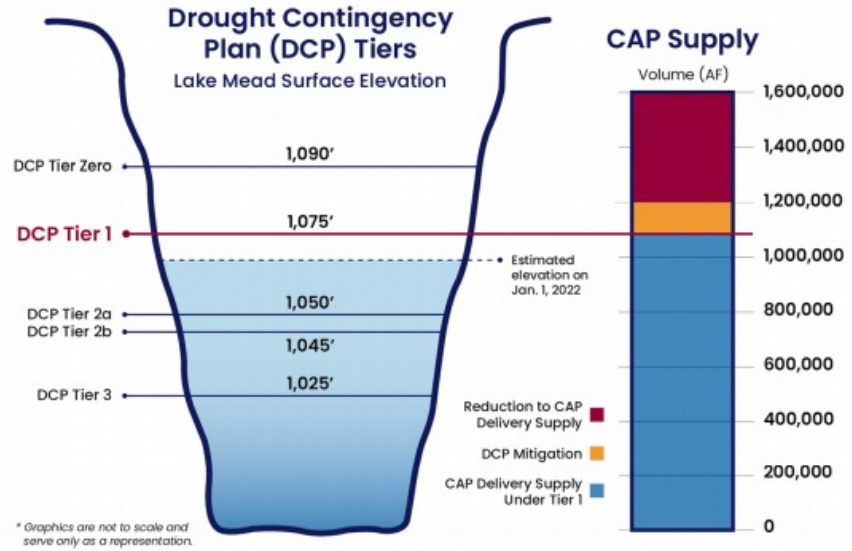
Offset Status & CAWCD ICS Utilization

- The Offset target of 400 KAF will be exceeded by the end of 2022
- An estimated 69,100 AF of CAWCD ICS may be required for Mitigation in 2022
- Remaining CAWCD ICS (est. 400 KAF) is sufficient to meet Mitigation requirements estimated for 2023 through 2025



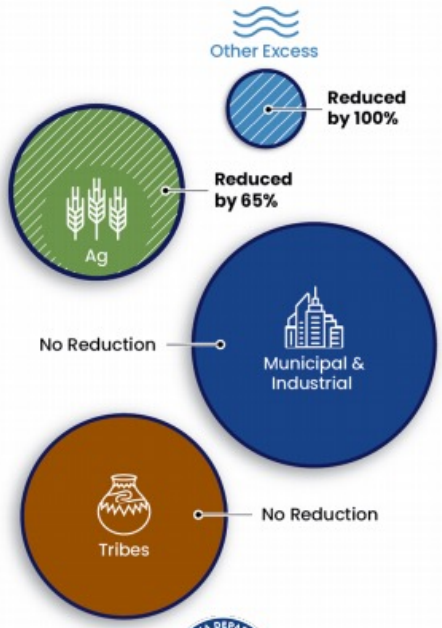
2022 – Tier 1 Shortage

CAP Reductions



To learn more, please visit: www.cap-az.com/colorado-river-shortage

2022 Reduction to CAP Users After DCP Mitigation



APA Rate Forecast at 10th percentile, 50th percentile, 90th percentile

Elevation	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
10%			1043	1030	1028	1026	1022	1025	1026	1026
50%			1074	1072	1071	1070	1066	1066	1068	1067
90%			1118	1149	1176	1182	1191	1194	1200	1206

APA Rate			2023	2024	2025	2026	2027	2028	2029	2030
10%	$ 28.47	$ 32.29	$ 34.39	$ 36.90	$ 38.73	$ 40.53	$ 41.65	$ 41.62	$ 40.77	$ 41.88
50%	$ 27.75	$ 31.73	$ 31.64	$ 32.98	$ 33.82	$ 34.56	$ 35.50	$ 35.77	$ 35.18	$ 35.53
90%			$ 29.68	$ 28.56	$ 28.36	$ 27.65	$ 27.86	$ 27.29	$ 26.33	$ 26.41
Change		13%	0%	4%	3%	2%	3%	1%	-2%	1%

APA Energy			2023	2024	2025	2026	2027	2028	2029	2030
10%	680,461	626,887	599,743	569,361	551,128	541,000	530,352	530,250	530,223	527,353
50%	701,506	639,681	660,458	647,778	643,369	648,504	635,664	629,479	626,937	635,286
90%			712,086	766,624	790,706	842,124	843,607	863,733	880,900	899,679
Change		-8%	3%	-2%	-1%	1%	-2%	-1%	0%	1%

Waiting for 2026