WHAT ARE THE TAKE-HOME MESSAGES FROM THE BASIN STUDY?

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General Comments

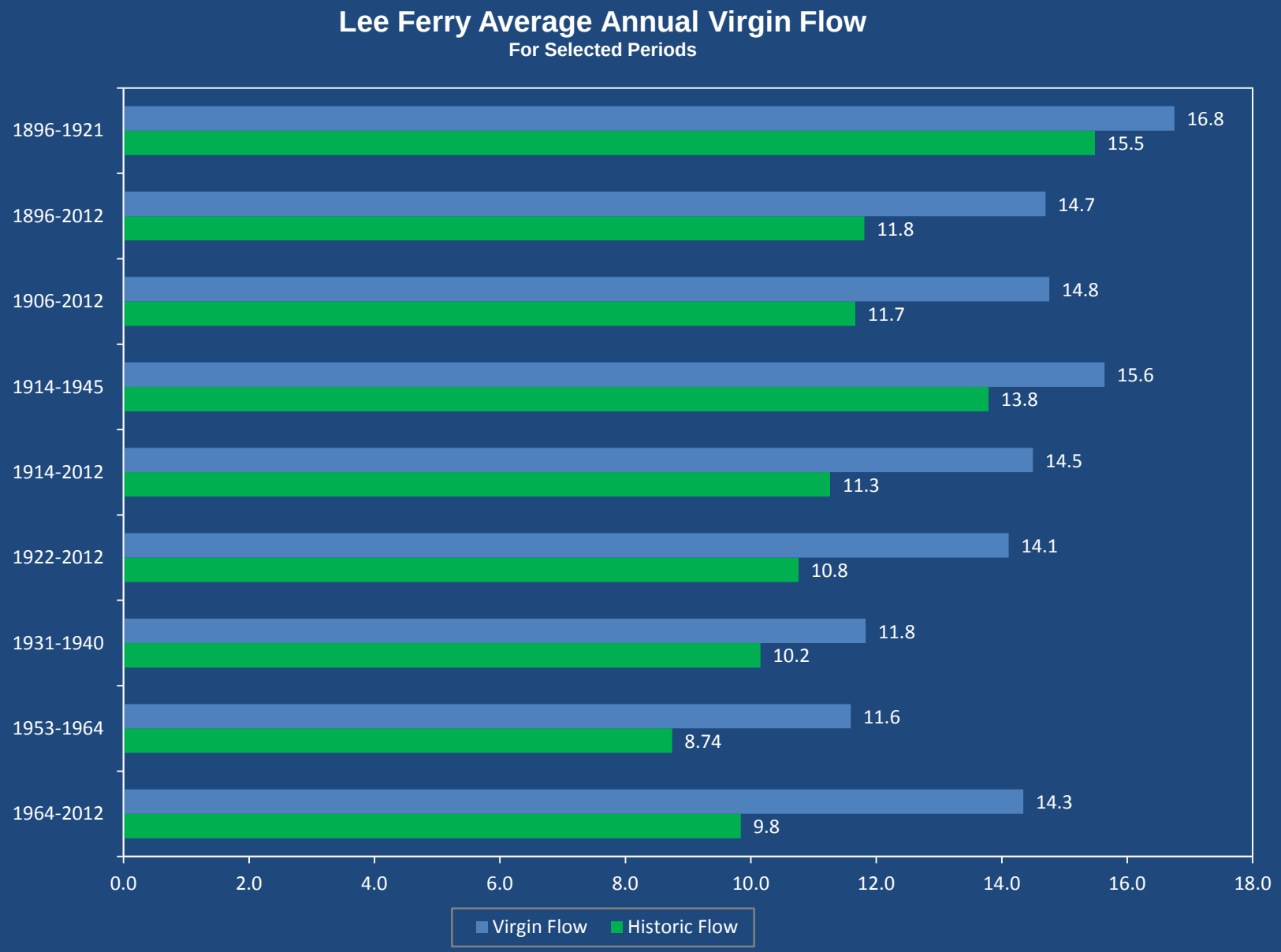
- This study was badly needed and will serve the entire Basin well
- This study is only the beginning
- Actions must follow quickly
- Reclamation staff have been outstanding in working with the states to complete the project.

DEMAND SCENARIOS

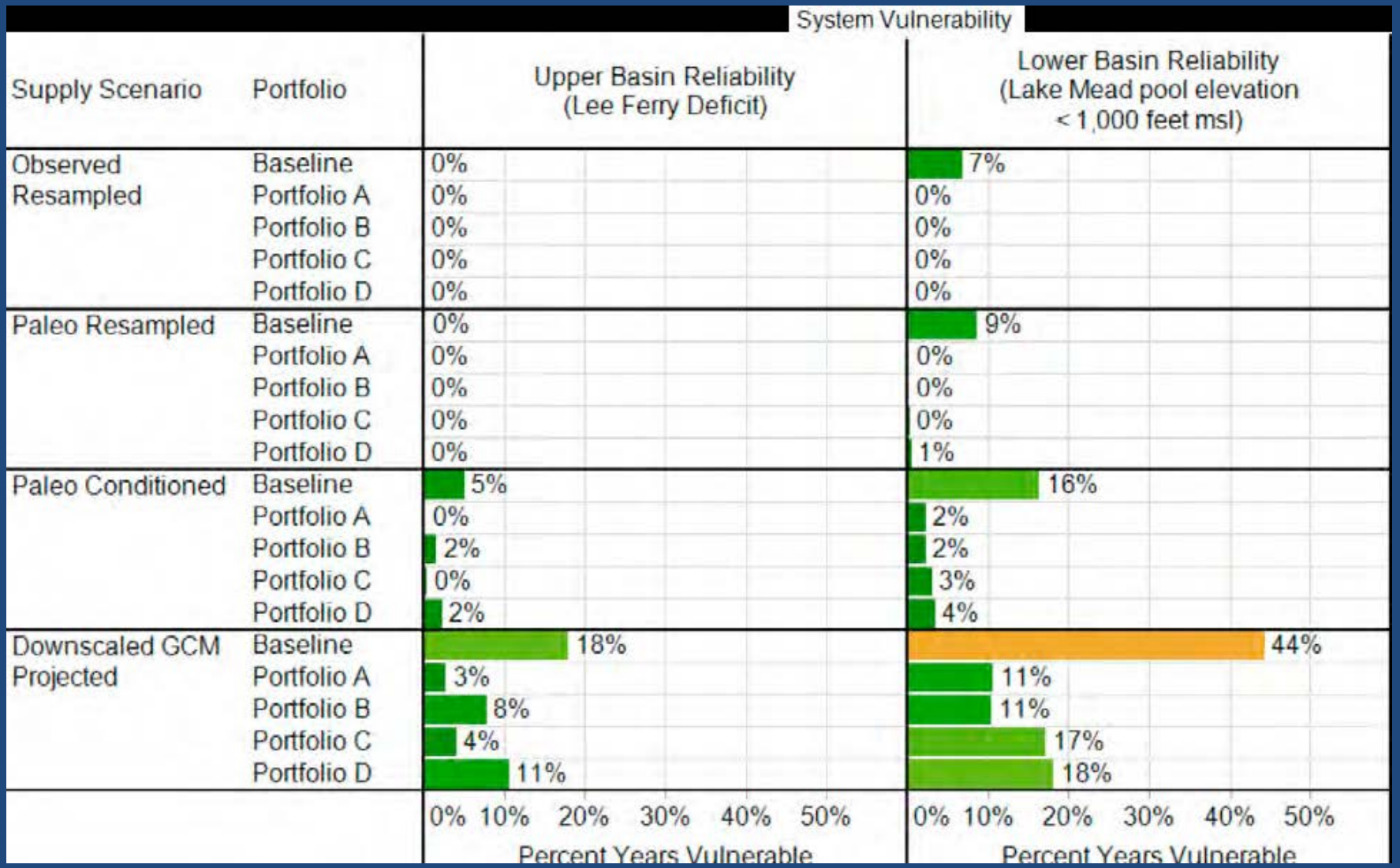
- 6 new demand scenarios over 50 years
- Future varies from 18.1 maf to 20.4 maf
- M&I biggest component of growth
- 40 million people now to 49.3 million or 76.5 million people
- What estimates of demand do we use for future planning?????? 602a storage etc.

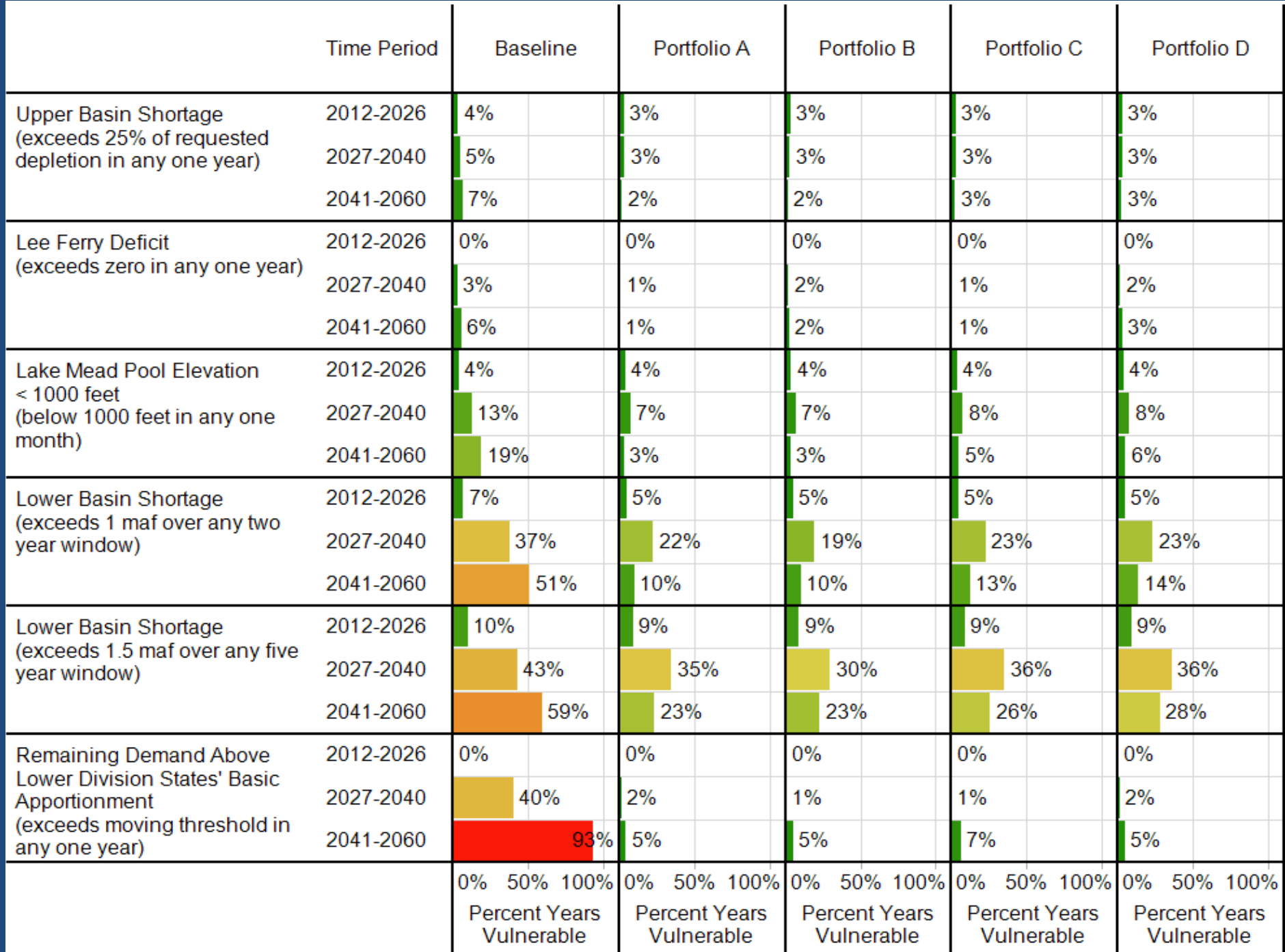
Future Supply

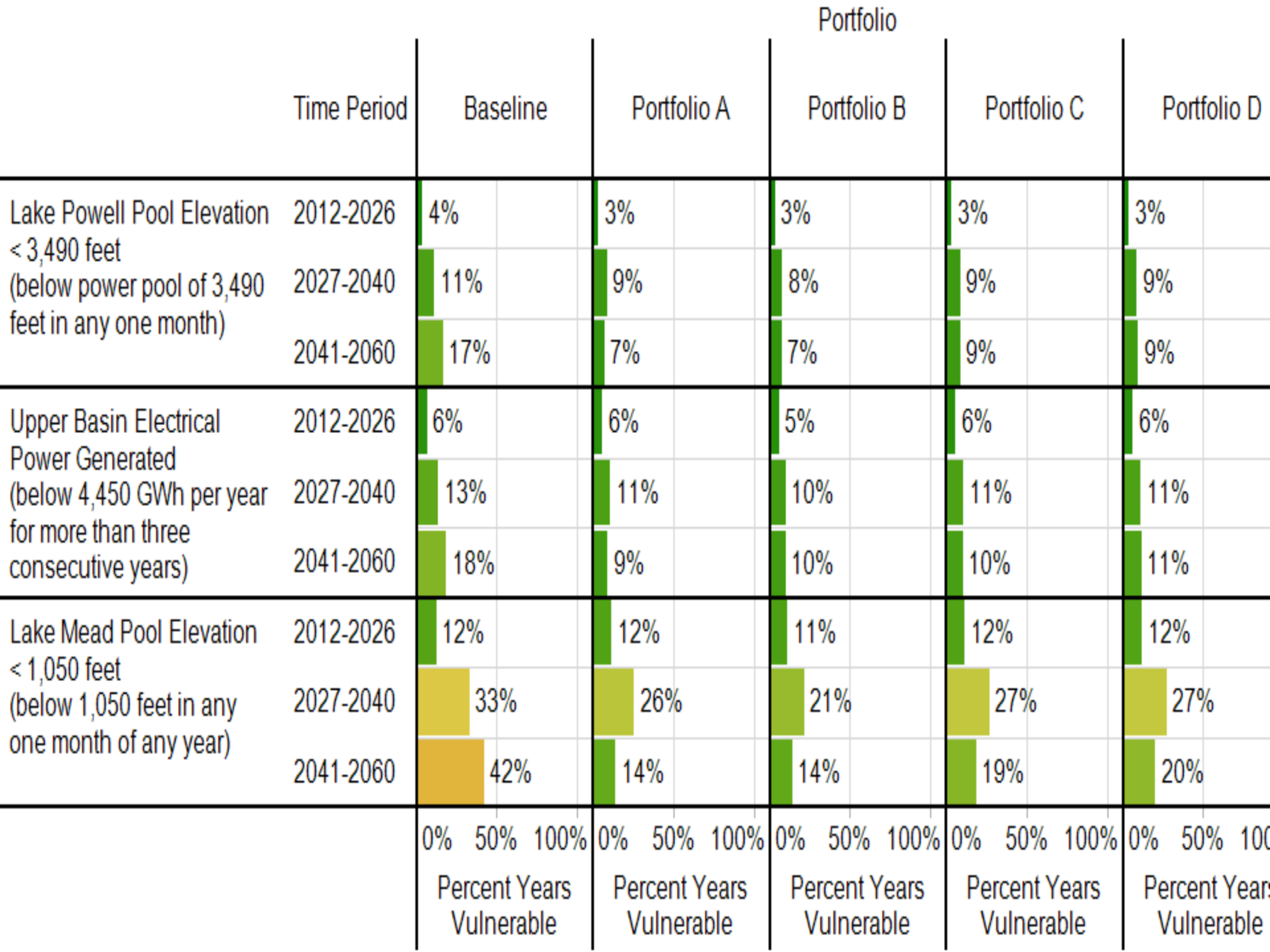
- More complicated future – 4 scenarios
  - Historic 15.0 maf average annual flow
  - Paleo Resampled 14.7 maf avg annual flow
  - Paleo Conditioned 14.9 maf avg annual flow
  - Climate Models 13. 7 maf avg annual flow
  - UCRC Average natural flow = 14.8 maf
  - Average natural flow for the past 12 years has been about 12.4maf


Lee Ferry Average Annual Virgin Flow
For Selected Periods
1896-1921
16.8
15.5
1896-2012
14.7
11.8
1906-2012
14.8
11.7
1914-1945
15.6
13.8
1914-2012
14.5
11.3
1922-2012
14.1
10.8
1931-1940
11.8
10.2
1953-1964
11.6
8.74
1964-2012
14.3
9.8
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0
18.0
Virgin Flow
Historic Flow

System Vulnerability to Supply




Time Period
Baseline
Portfolio A
Portfolio B
Portfolio C
Portfolio D
Upper Basin Shortage (exceeds 25% of requested depletion in any one year)
2012-2026
4%
3%
3%
3%
3%
2027-2040
5%
3%
3%
3%
3%
2041-2060
7%
2%
2%
3%
3%
Lee Ferry Deficit (exceeds zero in any one year)
2012-2026
0%
0%
0%
0%
0%
2027-2040
3%
1%
2%
1%
2%
2041-2060
6%
1%
2%
1%
3%
Lake Mead Pool Elevation < 1000 feet (below 1000 feet in any one month)
2012-2026
4%
4%
4%
4%
4%
2027-2040
13%
7%
7%
8%
8%
2041-2060
19%
3%
3%
5%
6%
Lower Basin Shortage (exceeds 1 maf over any two year window)
2012-2026
7%
5%
5%
5%
5%
2027-2040
37%
22%
19%
23%
23%
2041-2060
51%
10%
10%
13%
14%
Lower Basin Shortage (exceeds 1.5 maf over any five year window)
2012-2026
10%
9%
9%
9%
9%
2027-2040
43%
35%
30%
36%
36%
2041-2060
59%
23%
23%
26%
28%
Remaining Demand Above Lower Division States' Basic Apportionment (exceeds moving threshold in any one year)
2012-2026
0%
0%
0%
0%
0%
2027-2040
40%
2%
1%
1%
2%
2041-2060
93%
5%
5%
7%
5%
0% 50% 100%
Percent Years Vulnerable
0% 50% 100%
Percent Years Vulnerable
0% 50% 100%
Percent Years Vulnerable
0% 50% 100%
Percent Years Vulnerable
0% 50% 100%
Percent Years Vulnerable


Portfolio
Time Period
Baseline
Portfolio A
Portfolio B
Portfolio C
Portfolio D
Lake Powell Pool Elevation < 3,490 feet (below power pool of 3,490 feet in any one month)
2012-2026
4%
3%
3%
3%
3%
2027-2040
11%
9%
8%
9%
9%
2041-2060
17%
7%
7%
9%
9%
Upper Basin Electrical Power Generated (below 4,450 GWh per year for more than three consecutive years)
2012-2026
6%
6%
5%
6%
6%
2027-2040
13%
11%
10%
11%
11%
2041-2060
18%
9%
10%
10%
11%
Lake Mead Pool Elevation < 1,050 feet (below 1,050 feet in any one month of any year)
2012-2026
12%
12%
11%
12%
12%
2027-2040
33%
26%
21%
27%
27%
2041-2060
42%
14%
14%
19%
20%
0% 50% 100%
Percent Years Vulnerable

AN UB VIEW OF THE STUDY

- The UB does not presently use their full entitlement of Colorado River Water
- Even with increased UB use the risk of curtailment is low and manageable with action
- The UB needs to agree on, and plan for a safe amount of additional development
- A shortage management plan is needed

Don’t Panic Over Curtailment Risk But Plan

- Develop a clear policy for implementation
- Provide for lengthy advance notifications
- Agreement among states on criteria
- Sound process to defend against LB or others
- Provide a management plan to mitigate impacts of temporary shortage
  - Water banks
  - Temporary exchanges

Need To Address Climate Risks

- Much more uncertainty associated with climate based supply predictions
- Increased water use in the UB is not the main driver of risk – a warmer climate is!
- Even climate driven risk can be managed and mitigated
- Zero percent risk should not be our goal

UB VIEWS CONTINUED

- The supply and demand imbalance in the lower basin is the most pressing problem
- Shortages in the LB will become more frequent and larger as UB develops
- Shortages in the LB can harm the UB due to coordinated reservoir operations
- The LB ignoring of evap. losses is a problem

Conclusions

- We must be proactive and begin planning and take actions now
- The UB needs to pay attention to and push for resolution of imbalances in the LB
- The UB should not be frozen by revelations of curtailment risk but should smartly plan, manage and mitigate the risk

THANK YOU