



Engineering, Operations, & Technology Committee

# Power Cost Exposure with Lower Powell and Mead Storage

Item 6b

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## Item 6b

### Power Cost Exposure with Lower Powell and Mead Storage

#### Subject

Power Cost Exposure with Lower Lake Mead Storage

#### Purpose

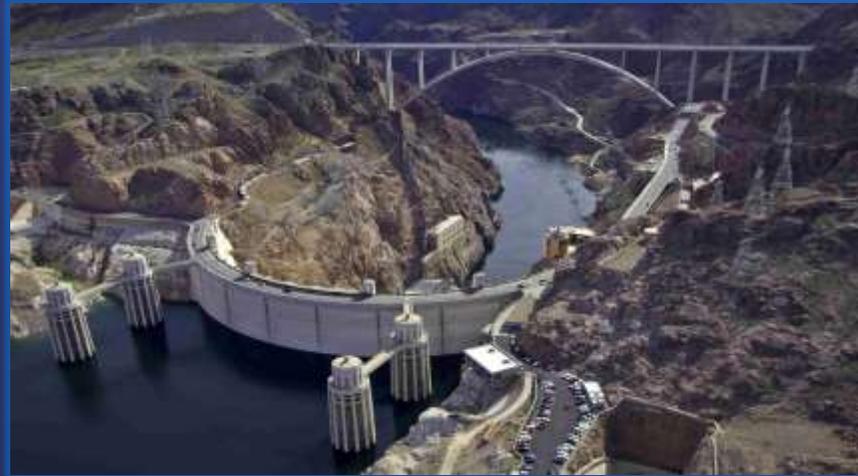
Update the Board on recent developments related to the risk of loss of a significant portion of Hoover Dam hydroelectric generation, the potential impact on Metropolitan, and potential strategies for mitigation

#### Next Steps

Continue technical and financial analysis to determine best mitigation strategies

# USBR Hydro Has Historically Provided 60% of CRA Energy Needs

## Metropolitan's USBR Hydropower Allocations



Metropolitan is the largest power contractor for Hoover Dam on Lake Mead, with a 25% share of energy



Metropolitan receives a 50% share of energy from Parker Dam on Lake Havasu



# Low-Water Operational Impacts

## Hoover Dam Generation Uncertainty



Picture source: USBR



Picture source: USBR

Five wide head turbines can operate with reasonable certainty below elevation 1,035 ft to elevation 950 ft

Twelve non-wide head turbines may experience significant cavitation damage if operated at elevations below 1035 ft

Replacement option:

- \$10M-13M per unit
- 4-5 years for up to 5 turbines
- Funding options:
  - Surplus PRB\* funds
  - Recovery through energy rates
  - Congressional appropriation

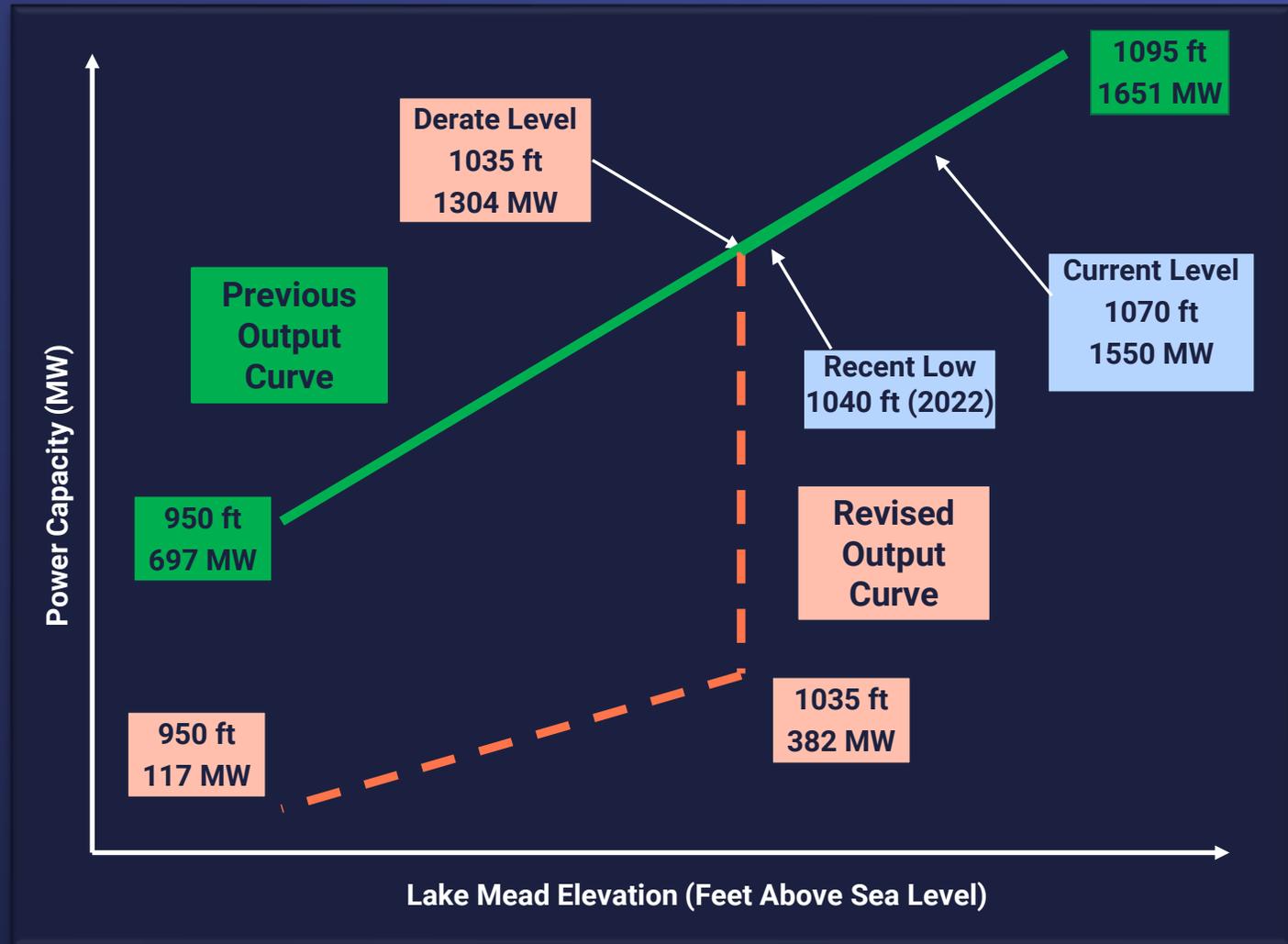
\* - Post-Retirement Benefits funds

# Loss of 12 of 17 Hoover turbines at Mead levels less than 1,035-foot elevation

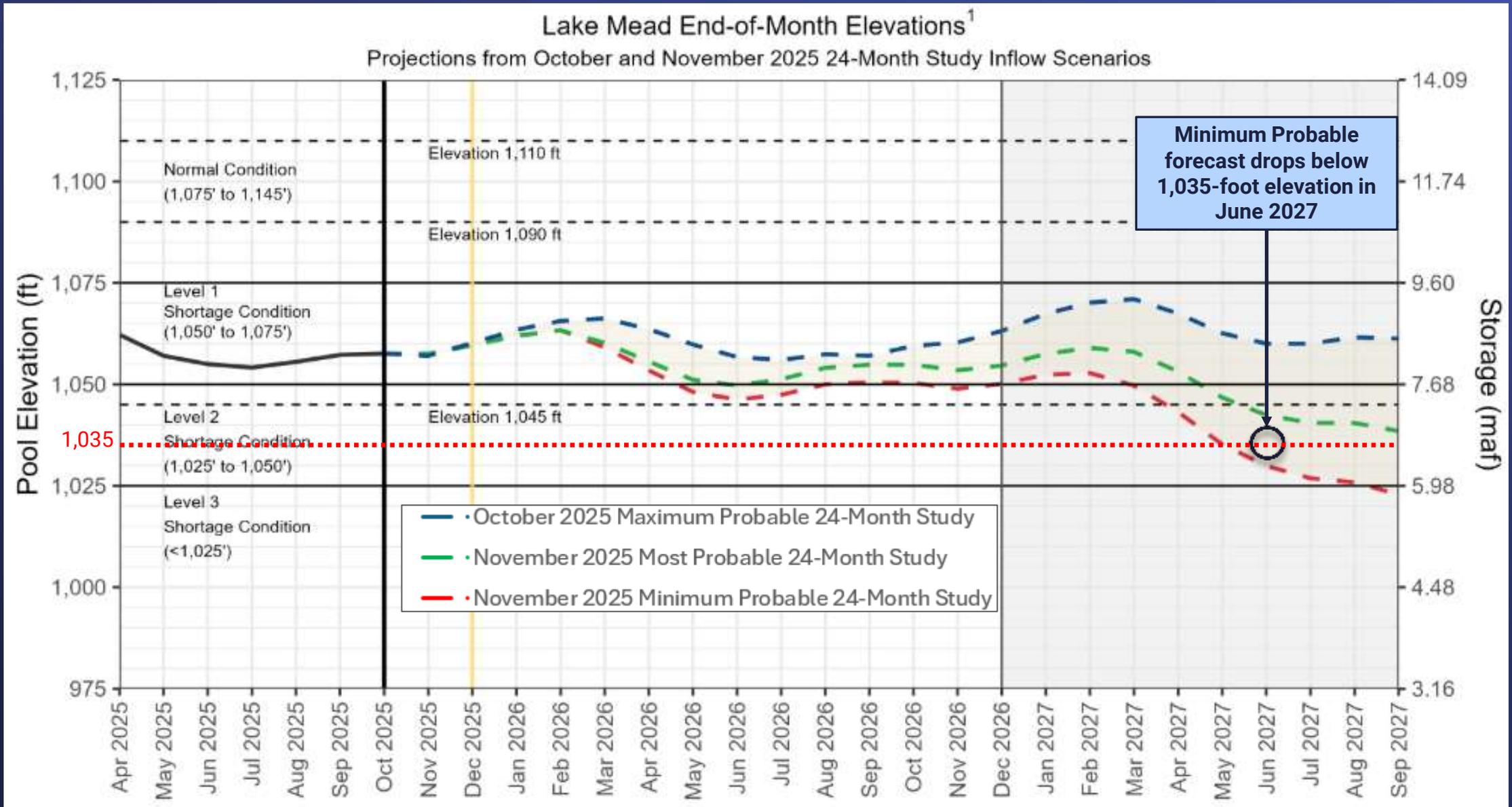
## Hoover Dam Generation Uncertainty



Source: USBR



# Current USBR 24-Month Mead Level Forecast



# Potential Impacts to Metropolitan



## Significant Potential Cost Impacts

- No impacts to Metropolitan water operations
  - CAISO market will provide energy to run the CRA
- Loss of capacity and energy from Hoover
- Loss of scheduling flexibility
  - May lose the ability to optimize Hoover generation schedule to maximize revenue and minimize costs

# Potential Impacts to Metropolitan

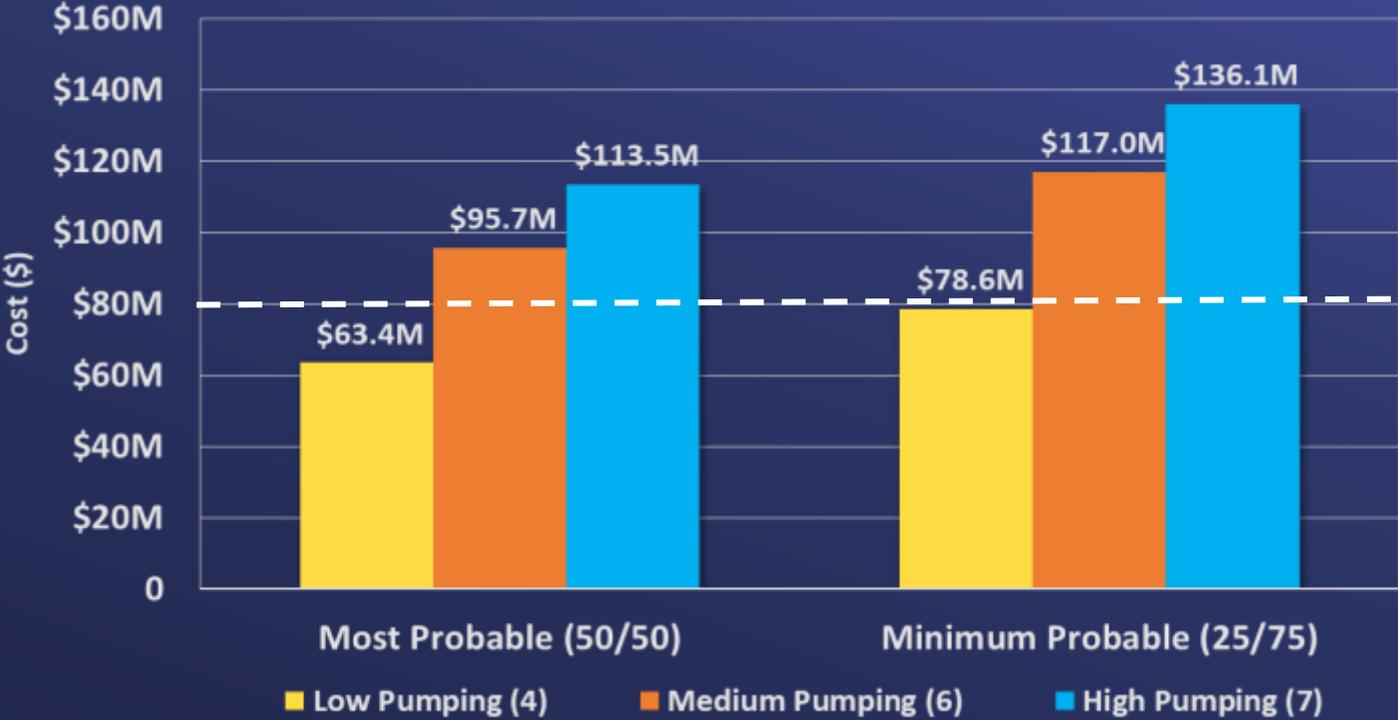


## Analyzing the Cost of Potential Impacts

- Inputs to the analysis
  - USBR's 24-month estimate of Lake Mead levels
  - Forward-looking energy cost forecasts
  - CRA operation plan
- Potential cost increase drivers
  - Replacement Resource Adequacy (RA) capacity
  - Additional market-cost supplemental energy
  - Net impact of losing scheduling flexibility

# CY 2027 Annual Net Cost Estimates

## Potential Impacts to Metropolitan



5-year cost historical (2021-2025) average: \$80 M/year  
5-year pumping average: 5.66

# Potential Mitigations



## Short, Medium, and Long-Term

- Short term (0 - 2 years)
  - No action, rely on the CAISO market
  - “Price Insurance” using financial offsets
- Medium Term (2 - 5 years)
  - Fixed-price contracts with existing generation
  - Fixed-price Power Purchase Agreements (PPA’s) with projects currently in near-term development
- Long Term (5+ years)
  - PPA's for projects in long-term development
  - Development of new generation/bulk energy storage system (BESS) or transmission capacity
  - Turbine replacement program

# Next Steps

- Continued technical and financial analysis
- Present results and mitigation options to Risk Oversight Committee
- Return to the Board with updates on conditions and mitigation strategies

