Staff Report

TO: Board of Directors

FROM: Jennifer Hanson, General Manager
Gabe Aronow, Director of Engineering

DATE: September 10, 2025

SUBJECT: **Rollins Reservoir Storage Alternatives**

ADMINISTRATION

RECOMMENDATION:
Receive a presentation for discussion related to storage options at Rollins Reservoir.

BACKGROUND:
NID completed the Plan for Water (PFW) in July of 2024 and had a Board agenda item that included recommendations to further evaluate storage options. The recommendations related to Rollins Reservoir improvements or operational changes that affect storage included:

A. Move forward with the Rollins 10,000 AF raise for further consideration. This alternative is the least costly option for increased storage and could be a viable step to address future predicted unmet demands. Further consideration would require the District to initiate a more thorough engineering analysis, specifically focusing on whether the increased height of the weir and a potential dam raise would impact the ability to pass the PFM and result in an acceptable level of freeboard. This analysis needs to be completed to determine if this alternative is feasible technically, and to update cost estimates.

B. Move forward with further consideration of the Rollins 50,000 AF expansion and conduct a more thorough engineering analysis to determine if this alternative is feasible. This alternative provides the greatest benefit of the new storage alternatives at Rollins and also includes the highest cost estimate.

C. File an amended petition on Permit 11626 for an extension of time to further develop and use water under Permit 11 Rollins and for increased storage at Rollins Reservoir under either storage alternative.

D. Continue to implement revised carryover storage targets and maximize the purchase of PG&E water to meet unmet water demands.

E. Conduct an analysis to determine if there is a project that could be constructed to reduce further sedimentation of Rollins Reservoir.

The presentation will cover the items noted above and discuss additional concepts that NID may consider related to meeting unmet water demands without building additional storage, such as system leak prevention.

FISCAL IMPACT:
There will be fiscal impacts if the Board provides direction to further study or implement any of the storage options presented or added. At this time, there is no 2026 budget allocated to storage.

GA

Attachments: One (1)
Presentation regarding Rollins Reservoir Storage Alternatives

ROLLINS RESERVOIR ADDITIONAL STORAGE OPTIONS WORKSHOP

September 10, 2025

PRESENTATION OUTLINE

- Plan for Water Summary
- Rollins – Existing Conditions
- Rollins – 10,000 AF Addition
- Rollins – 50,000 AF Addition
- Plan for Water Results
- Rollins – Sediment Removal
- Rollins – Sediment Trap
- Rollins Considerations
- Rollins Action Items
- Discussion

PLAN FOR WATER – SUMMARY

- 50 Year Horizon
- Wet, median, Dry climate
- Low, baseline, high demands
- Demands have larger storage impact than climate
- Unmet demands exist under all scenarios (6,000 to 35,000 AF)
- Strategies included adding:
  - Add 10,000 AF (18%) to Rollins
  - Add 50,000 AF (91%) to Rollins

- Not part of Plan for Water
  - Rollins Sediment Removal
  - Rollins Sediment Trap

ROLLINS – EXISTING CONDITIONS

- Year Built: 1965
- As-Built capacity: 66,000 AF
- Bathymetric Survey (2020): 55,000 AF
- Loss to Sedimentation: 11,000 AF (16%)

ROLLINS – 10,000 AF ADDITION

- Replace existing ogee spillway with
  - Labyrinth weir, or
  - Bascule gates
- Raise dam 11 feet
- Costs:
  - $30M (1986)
  - $95M (2025 – scaled at 3%/year)
- Records indicate that FERC and DSOD may not authorize concept
- Full EIR anticipated due to presence of Yellow Legged Frog

ROLLINS – 50,000 AF ADDITION

- Increase embankment height 54 feet
- Increase spillway height 53 feet
- Increase embankment length 1,300 to 1,500 feet
- Costs:
  - $290M (2020)
  - $336M (2025 – scaled at 3%/year)
- Full EIR anticipated due to presence of Yellow Legged Frog

PLAN FOR WATER RESULTS

Condition	Unmet Demand (AF)	Difference from Existing Storage(AF)
Existing Storage		
Dry Climate High Demand	35,000	
Median Climate Baseline Demand	14,000	
Wet Climate, Low Demand	6,000	
10,000 AF Added		
Dry Climate High Demand	29,000	6,000
Median Climate Baseline Demand	10,000	4,000
Wet Climate, Low Demand	4,000	2,000
50,000 AF Added		
Dry Climate High Demand	14,000	21,000
Median Climate Baseline Demand	2,000	12,000
Wet Climate, Low Demand	800	5,200

ROLLINS – SEDIMENT REMOVAL

- 2018 and 2019 NID completed sediment removal in Combie Reservoir
- Dry mechanical removal – 38,000 cubic yards
- Suction Dredging – 10,000 cubic yards
- Suction Dredging included Mercury monitoring and removal
- Mercury was demonstrated to below environmental thresholds for shallow dredging
- Local stockpile – no hauling
- 2025 Costs:
  - Mechanical removal - $108,000/AF ($67/cy)
  - Suction Dredging - $460,000/AF ($285/cy)
- 5,000* AF (8M cy) mechanical removal - $0.54B
- 5,000* AF (8M cy) Suction Dredging - $3.3B

- * Complete sediment recovery (11,000 AF) is not practical and may expose Mercury

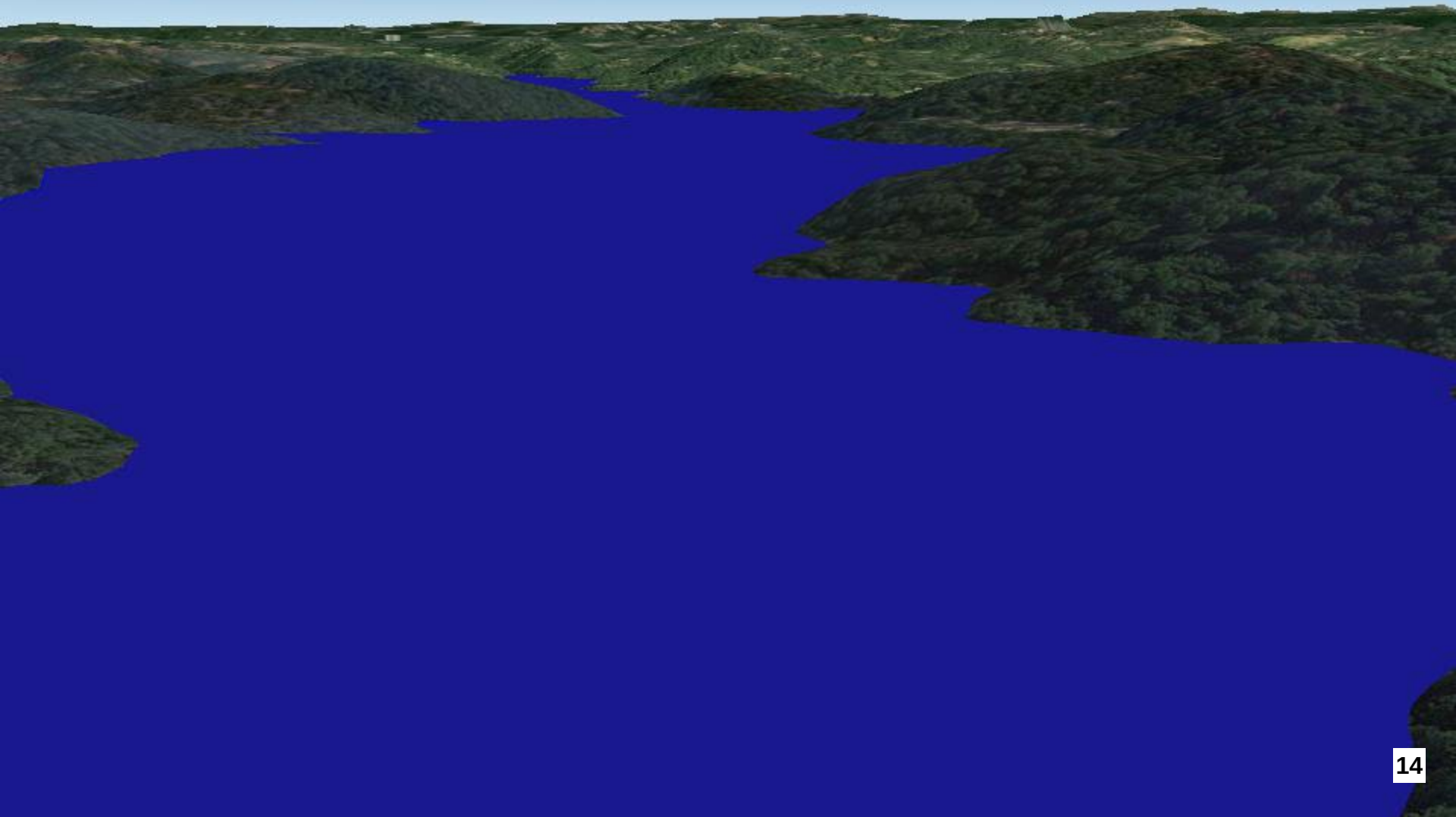
ROLLINS – SEDIMENT TRAP

- Mechanical traps – not suitable
- Trap (sump) area above water level – low velocity deposition
- Sediment Loss:
  - 11,000 AF over 60 years
  - 183 AF/year (0.3%/year capacity loss)
  - In another 60 years, anticipate to lose additional 11,000 AF
- Mechanical removal - $107,000/AF
- Trap construction: $25M
- Trap maintenance : $20M/year
- Costs do not include hauling
- Split trap volume between Green Horn and Bear River
- 183 AF above water level not be feasible without building sediment dams (not considered)

ROLLINS CONSIDERATIONS

- Cost Summary:
  - New 10,000 AF — $95M
  - New 50,000 AF — $336M
  - 5,000 AF Sediment Removal — $540M
  - Sediment Trap — $25M + $20M/year – prevent volume loss
- PFW Maximum Unmet Demand — 35,000 AF
- Alternative Volume Considerations:
  - Dry condition conservation : 25% conservation target may net 15% demand reduction, or 20,000+ AF
  - Leakage improvements: 15% loss, or 20,000+ AF. Instead of repairing canals, install pipes
  - Reduce carryover volumes during dry conditions
  - Buy additional PGE water
- New storage will encroach on some private/public properties (costs not considered)
- New storage environmental impacts may be significant

ROLLINS ACTION ITEMS

- Get new Bathymetric survey
- Develop sediment trap concept
  - Solicit specialist input
  - Refine cost estimate
- Evaluate 10,000 AF addition
  - Obtain current survey / as-built conditions
  - Collect Geotechnical data
  - Coordinate with FERC and DSOD
  - Refine cost estimate
- Further evaluate conservation, PGE water, carryover adjustments, and leak prevention
- Return to Board

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