# Operations & Engineering Workgroup

December 16, 2025

Sites

# Agenda

1.1 Update on CalSim 3 Modeling – Results of Sensitivity Analysis

1.2 Operations Plan – Comments and Revisions

Engineering and Construction Manager's Report

# Agenda Item 1.1

## Update on CalSim 3 Modeling – Results of SOD Sensitivity Analysis

# CalSim 3: SOD Sensitivity Analysis

- Issue:
  - Meet SOD Participants needs for modeling information / results for their Participation decision
- Policy Direction:
  - Provide feedback on the sensitivity analysis presented today
    - Is the approach reasonable for use in the Baseline Report?
    - Do these present a range that is useful for the Baseline Report?
    - Is this on track to getting you what you need to make a participation decision?

# Limitations of Today's Materials

- Not final numbers – making model refinements to include NOD transfers in parallel
- Not presenting NOD results
- Still working on individual agency results
- Still working on how best to present Dunnigan Pipeline capacity limitations
  - Would appreciate feedback based on today's discussion

# CalSim 3 Updates Since Last Meeting

- Modified reservoir storage capacity based on the latest Light Detection and Ranging (LiDar) survey of the Project area
  - Total storage reduced from 1.5 MAF to 1.47 MAF
  - Active storage capacity reduced from 1.44 MAF to 1.41 MAF
- Revised storage allocations for NOD and SOD members
  - NOD & SOD account sizes were updated to better reflect storage distribution amongst members when Reclamation participation is 16%
  - Increase to SOD members
    - From 734 TAF to 764 TAF
  - Decrease to NOD members
    - From 232 TAF to 177 TAF
- Separated the City of American water supply account from the SOD member water supply account
  - Storage allocation of 25 TAF

# SOD Delivery Sensitivity Analysis

- Objectives:
  - Demonstrate a range of delivery capability for SOD members
  - Evaluate limitations on the timing and magnitude of SOD deliveries
- Sensitivity Study (SS) #1: Baseline SOD Operation
  - Focuses operations on providing dry year supplies
  - Excludes transfers from NOD members to SOD members
  - Prioritizes SOD deliveries in drier years, consistent with recent CalSim models
    - Includes limitations on SOD deliveries in W, AN, and BN years
    - Includes limitation on SOD deliveries when forecasted SWP allocations are high
  - Includes limitations on off-pattern deliveries (October–November)
- Sensitivity Study (SS) #2: Elevated SOD Operation
  - Focuses operations on moving Sites Water through Delta more aggressively
  - Same as Baseline SOD Operation, but:
    - Removes limitations on SOD deliveries in W, AN, and BN years
    - Removes limitation on SOD deliveries when forecasted SWP allocation are high
    - Removes limitations on off-pattern deliveries

# Modeling Assumptions – Sites Delivery to SOD Members

- In SS#1 Baseline SOD Operations, delivery targets for SOD members are structured to incentivize deliveries in drier conditions, when water supply is more valuable per acre-foot
  - These rules typically lead to no deliveries in Wet years and limited deliveries in Above Normal and Below Normal years

| Forecasted SWP Allocation | Delivery Target |
|---|---|
| < 65% | 100% of SOD members' available storage supply |
| 65% - 85% | 50% of SOD members' available storage supply |
| > 85% | 0 TAF |

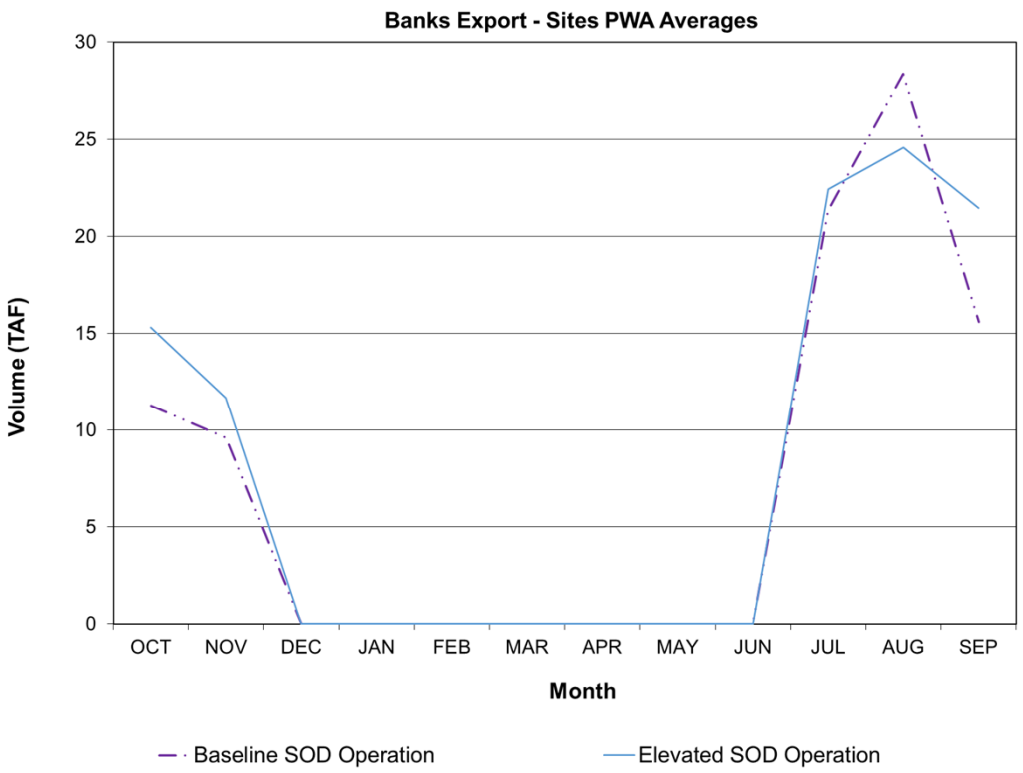
- These rules were removed in SS#2 Elevated SOD Operations

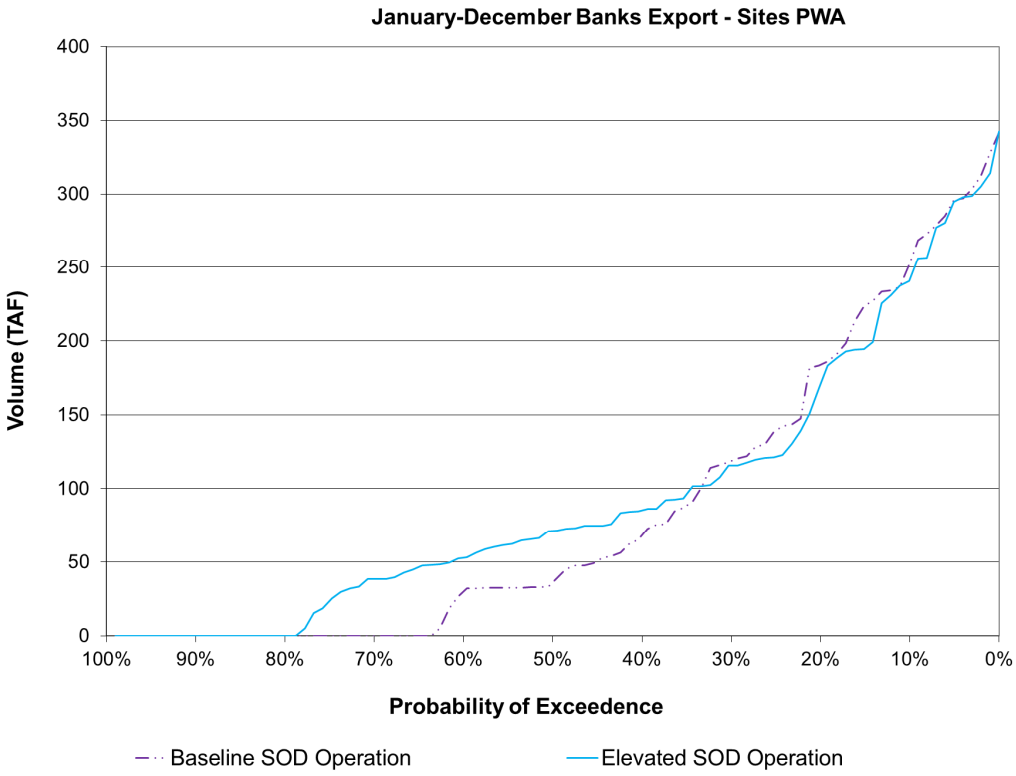
# CalSim 3 Results – Project Deliveries

| Deliveries (TAF/year) | Baseline SOD Operation | | Elevated SOD Operation | |
|---|---|---|---|---|
| | Average | Dry & Critical | Average | Dry & Critical |
| **South of Delta Members** | **85** | **153** | **94** | **142** |
| **City of American Canyon** | **2** | **3** | **2** | **3** |
| **CVP Operational Flexibility** | **26** | **69** | **30** | **78** |
| **Refuge Water Supply** | **36** | **40** | **35** | **39** |
| NOD (Level 4) | 8 | 10 | 8 | 9 |
| SOD (Level 4) | 28 | 30 | 27 | 30 |

- ***These sensitivity studies do not include finalized NOD operations. Transfers from NOD members to SOD members are not included.***
- Deliveries include carriage losses
- Compared to the Baseline SOD Operation, the Elevated SOD Operation:
  - Long-term delivery to SOD members increases from 85 TAF to 94 TAF (~10%)
  - Dry & Critical delivery to SOD members decreases from 153 TAF to 142 TAF (~8%)
  - Increase to CVP Op Flex; minimal change to State Prop 1 deliveries

# CalSim 3 Results – SOD Exports




- Compared to SS#1 Baseline Operation, SS#2 Elevated SOD Operation includes more SOD exports in wetter year types
  - The frequency of annual deliveries increases from 63% to 78%
- SS#2 Elevated SOD Operation includes less delivery in drier years because the increased used of SOD water supply in wetter years causes lower storage conditions going into drier years

# SOD Delivery Limitations

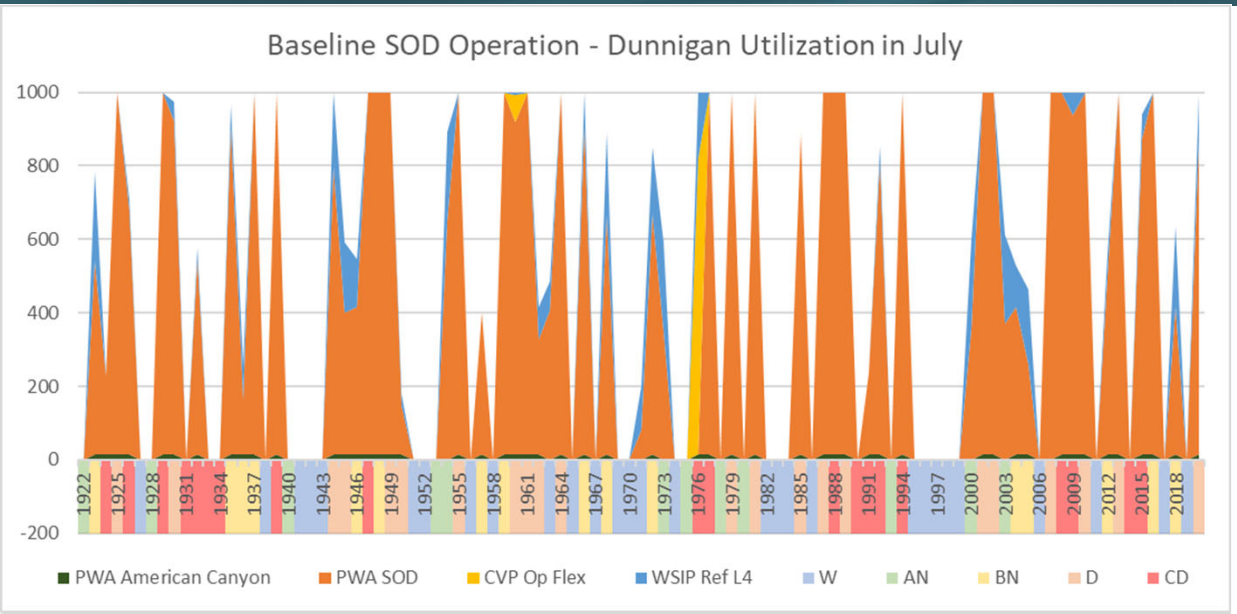
| Delivery Control | Baseline SOD Operation | Elevated SOD Operation |
|---|---|---|
| High SWP Allocation | 42% | 0% |
| Banks Pumping Plant at Capacity | 7% | 27% |
| California Aqueduct (CAA) at Capacity | 13% | 18% |
| Limited Conveyance Availability through Delta | 1% | 6% |
| Sites Storage Supply for SOD Members | 25% | 34% |
| Dunnigan at Physical Capacity & real-time exchanges with GCID Canal are maxed out | 11% | 12% |
| Long Term Delivery | 85 TAF | 94 TAF |

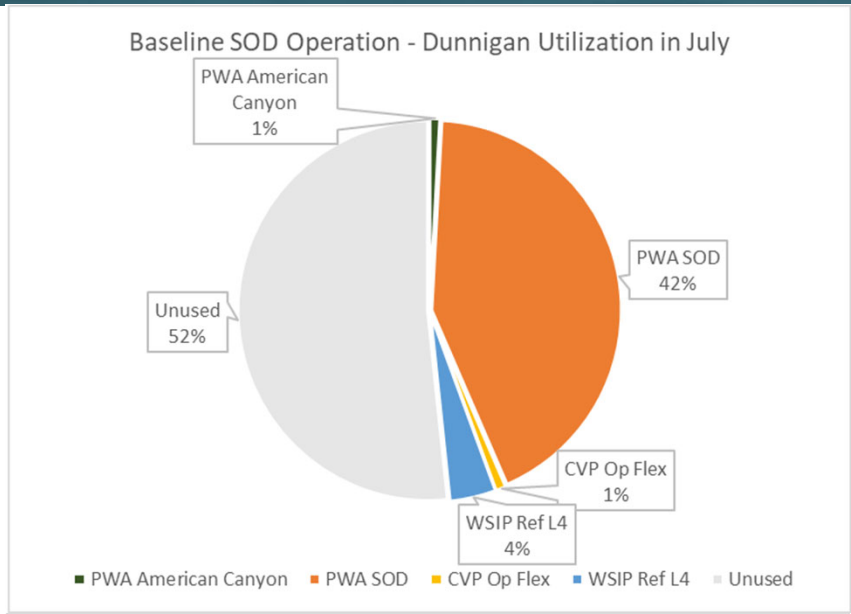
- In the Elevated SOD Operation:
  - Deliveries are not limited as much in wetter years when forecasted SWP allocations are high
  - Banks capacity is reached more frequently (7% to 27%)
  - CAA capacity is reached more frequently (13% to 18%)
  - Conveyance availability through the Delta limits delivery more frequently (1% to 6%)
  - Storage supply is limiting more frequently (25% to 34%)
  - Dunnigan Pipeline capacity is reached more frequently (11% to 12%)

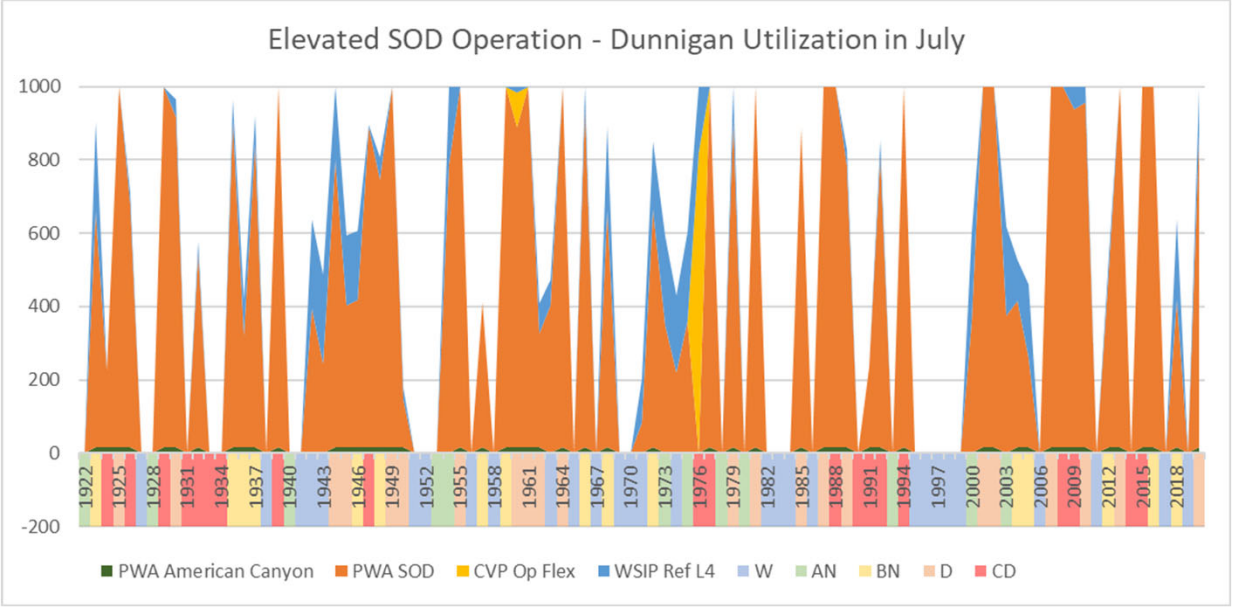
# Dunnigan Pipeline Utilization

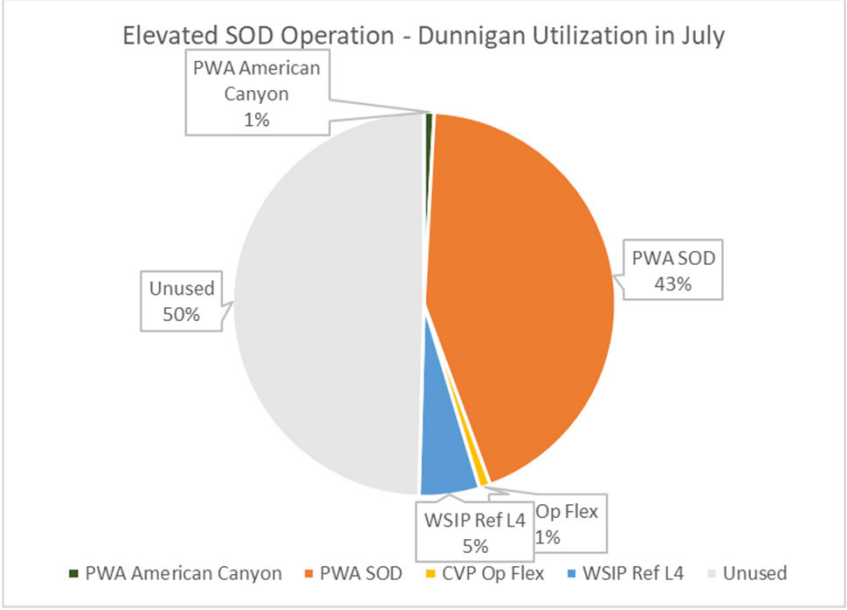
- Showing Monthly analysis
- What does “Unused” mean?
- When you get into the granularity of daily use, the Dunnigan pipeline will be at capacity during the peak summer months in the drier years.

# Dunnigan Pipeline Utilization – July Monthly Analysis



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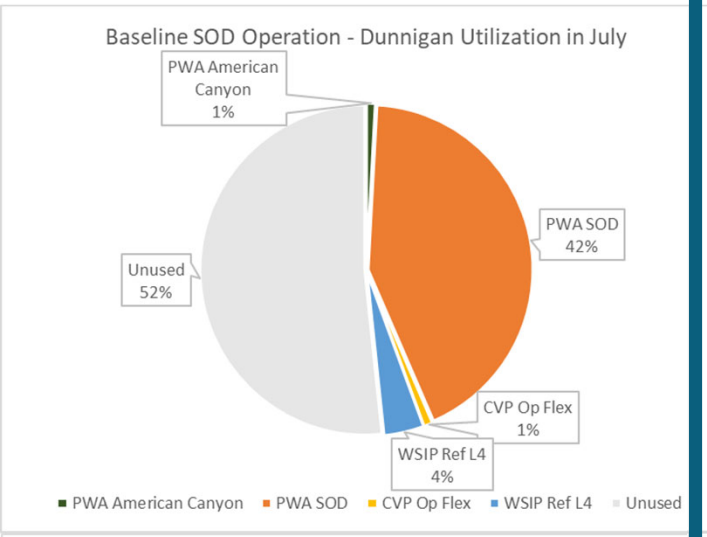


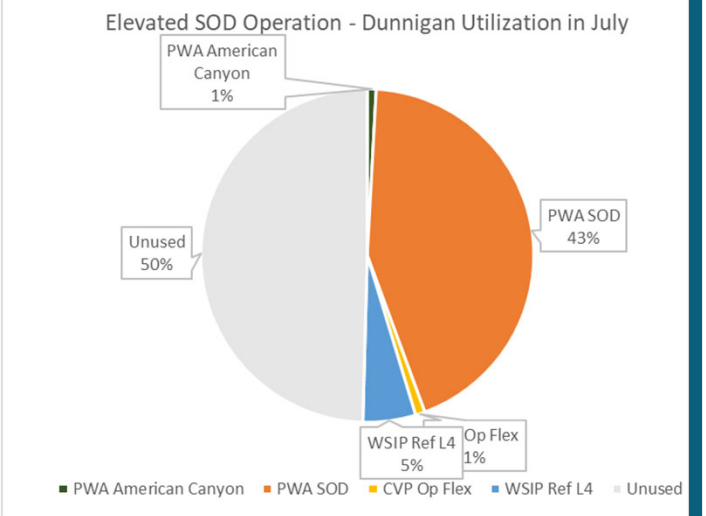


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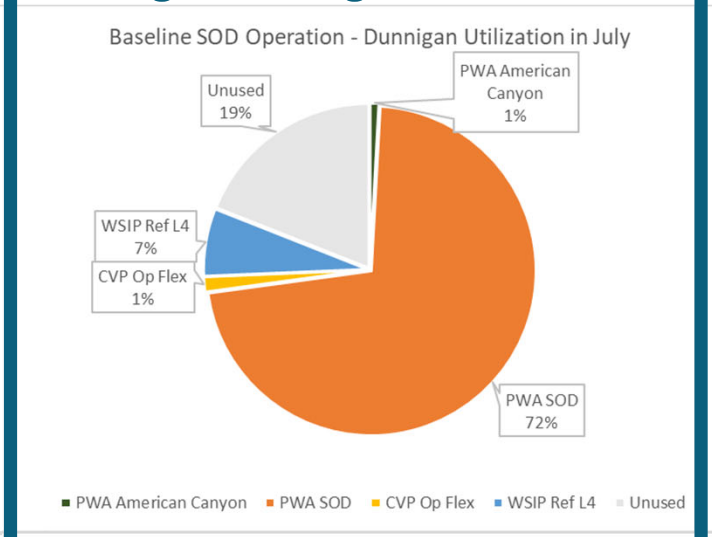


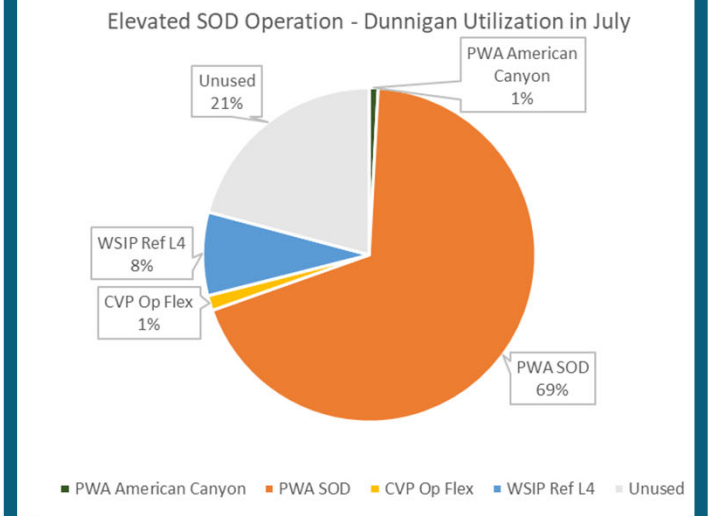


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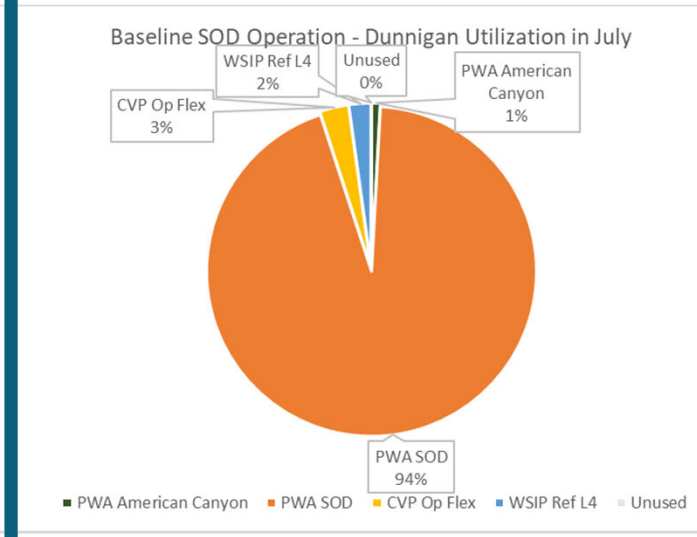


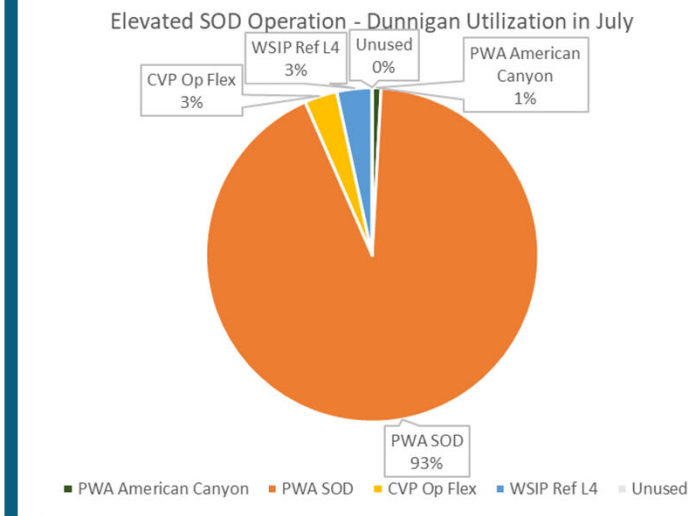

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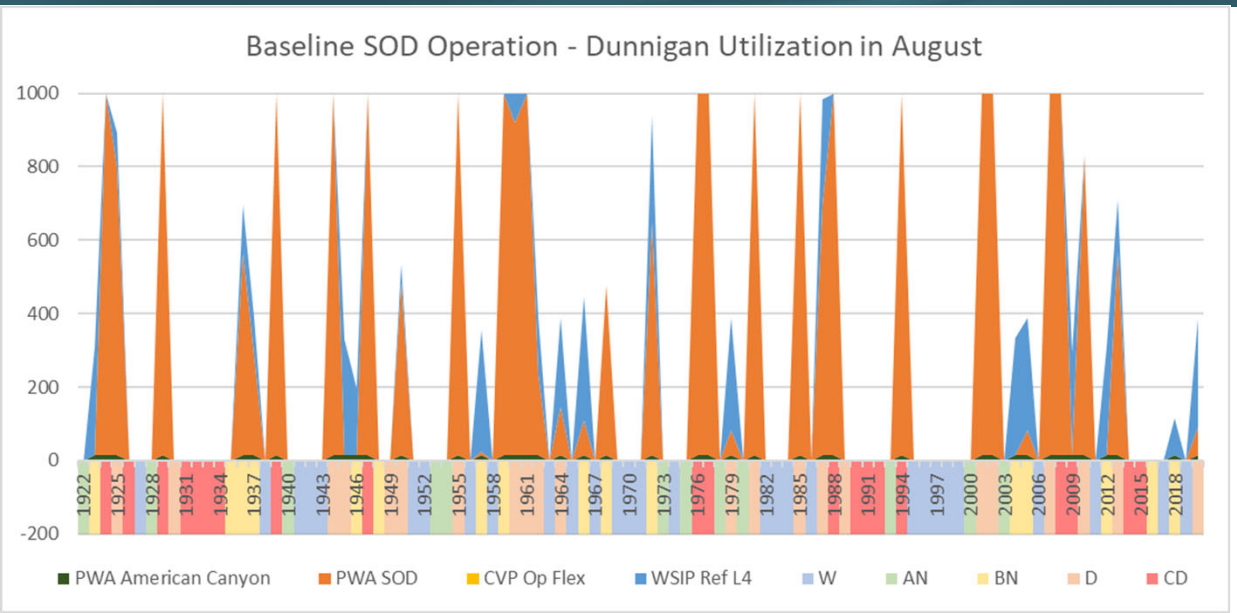


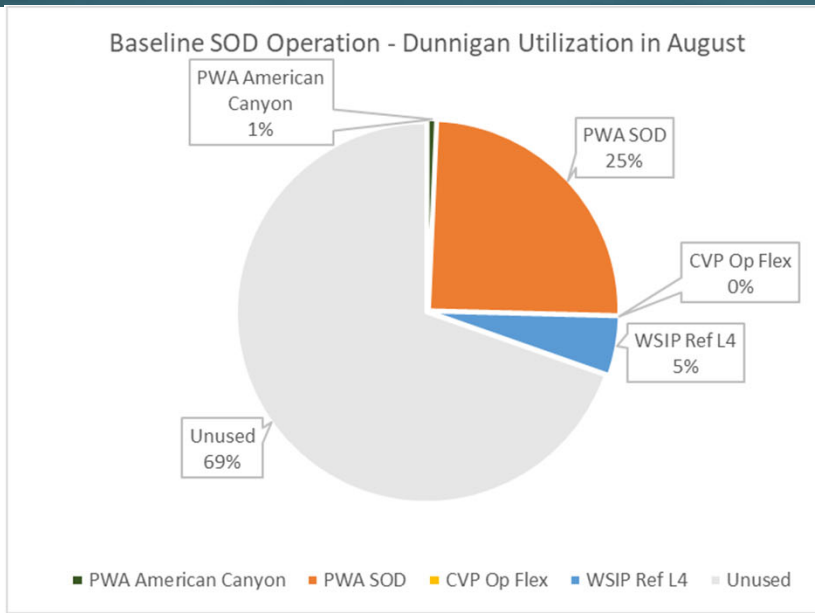


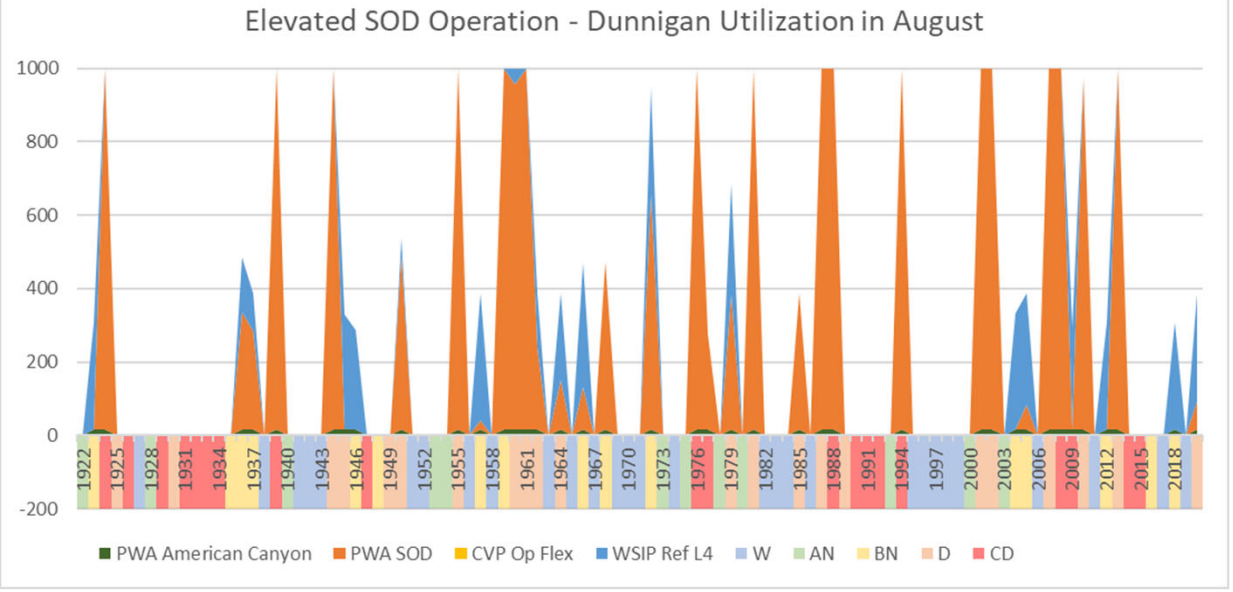


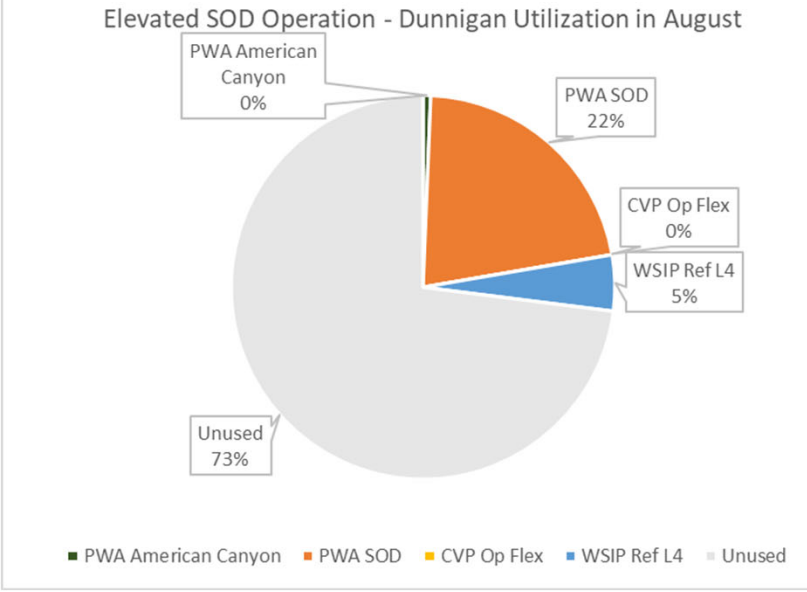

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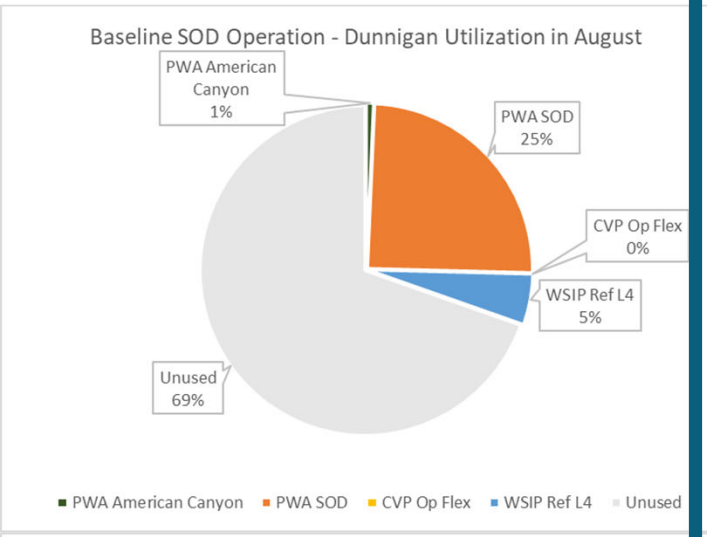


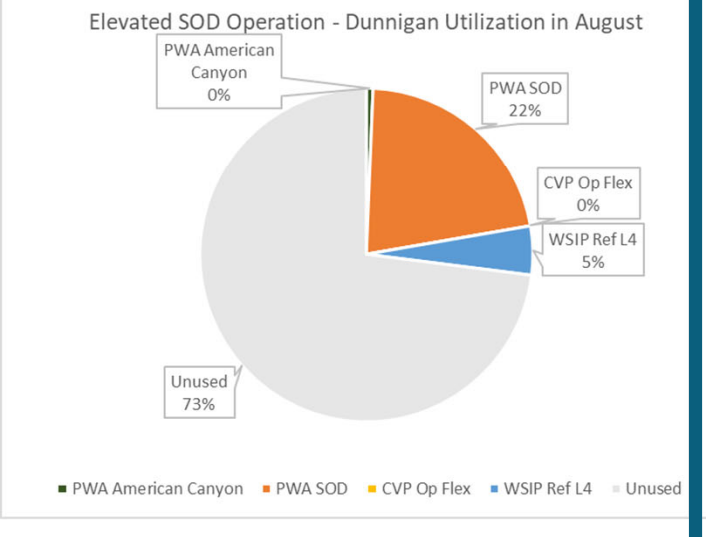


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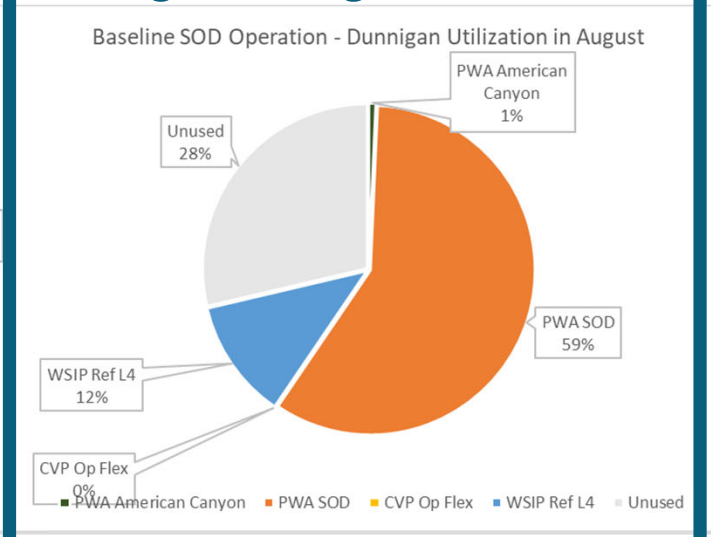


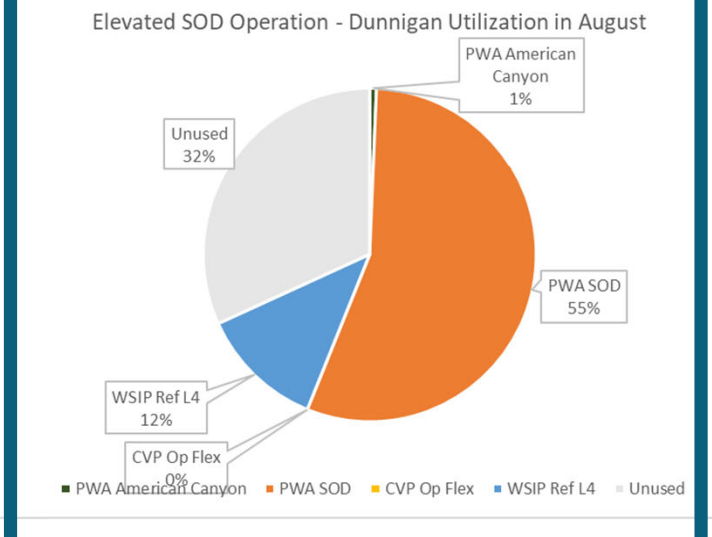


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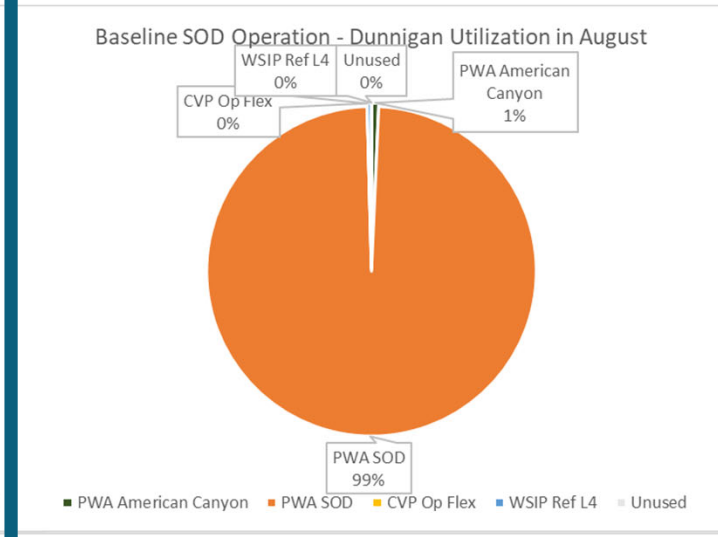


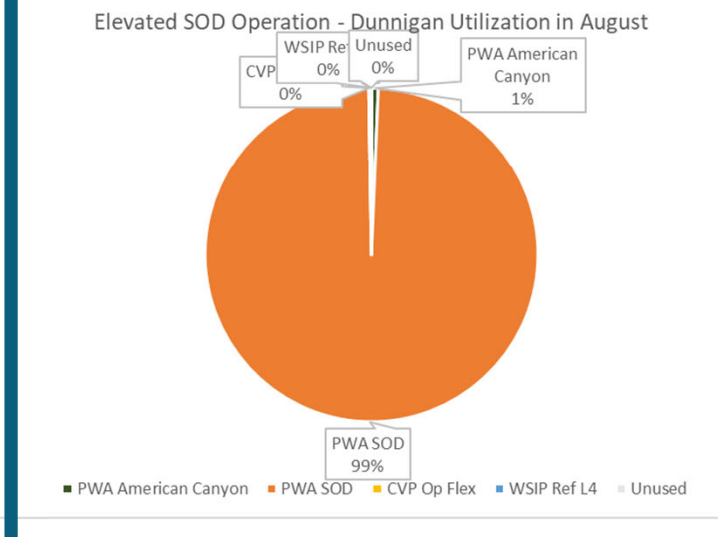

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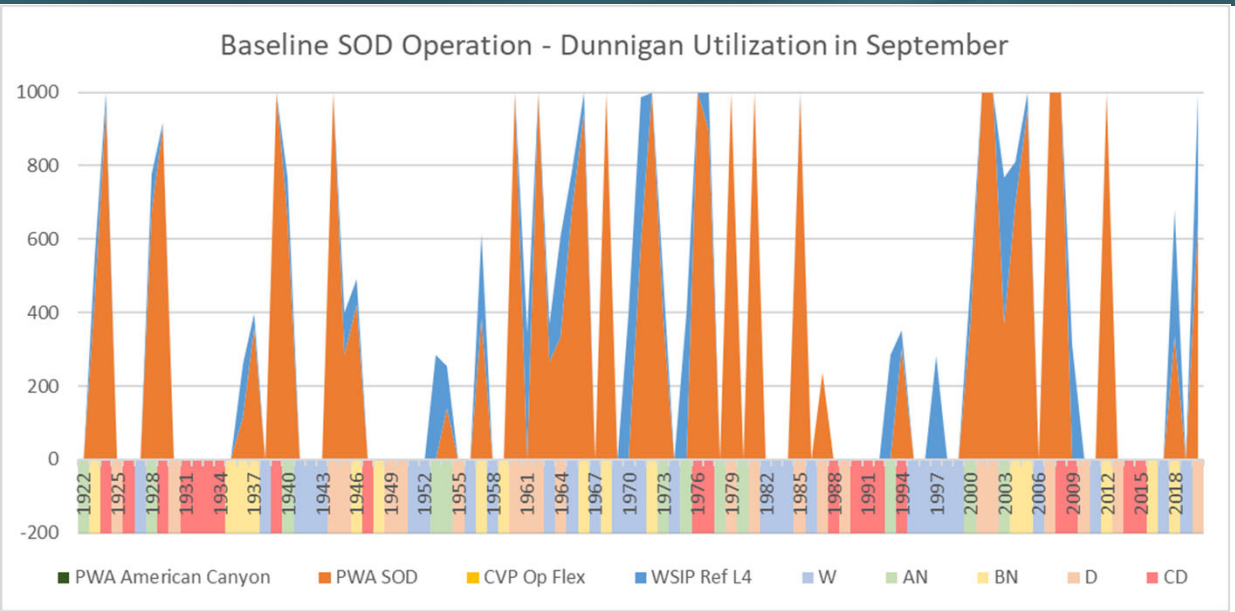


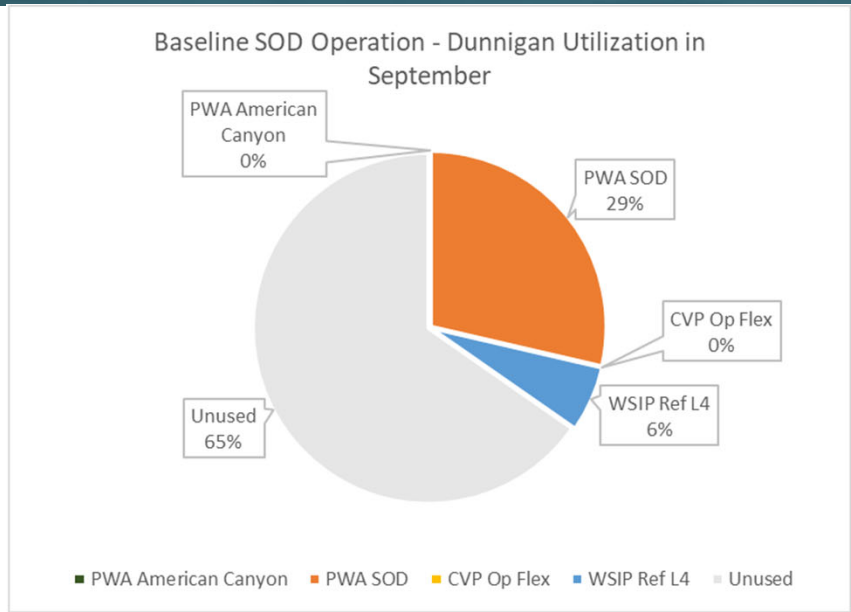


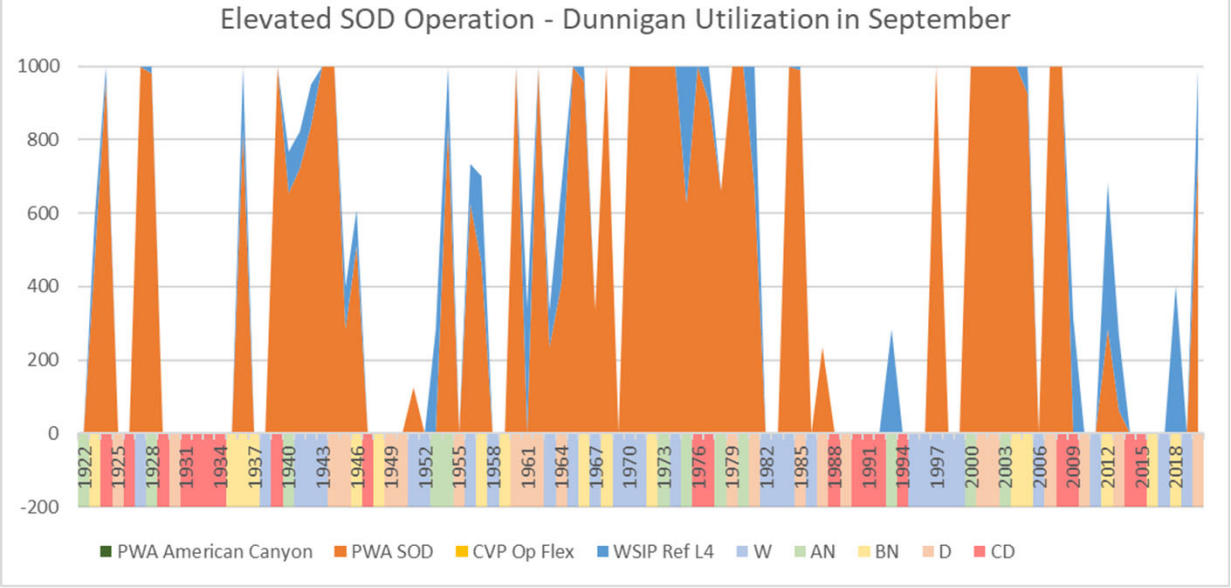


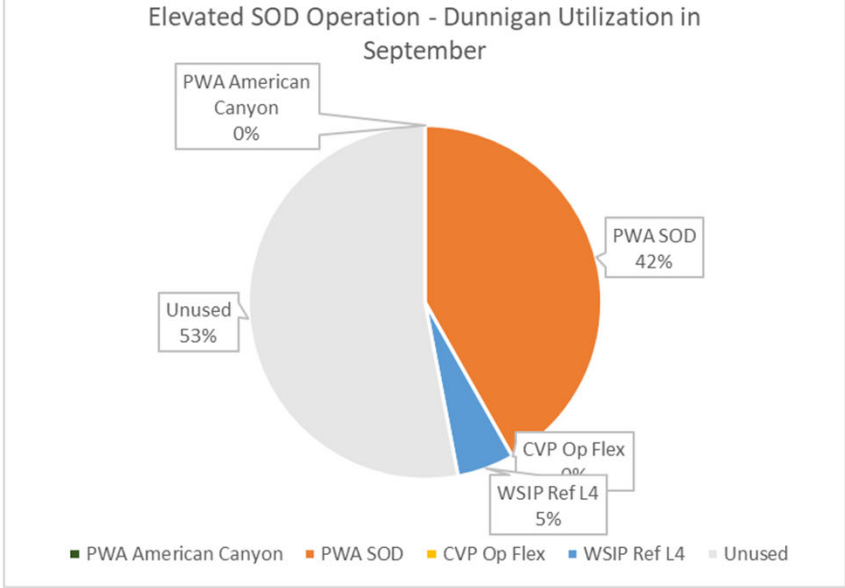

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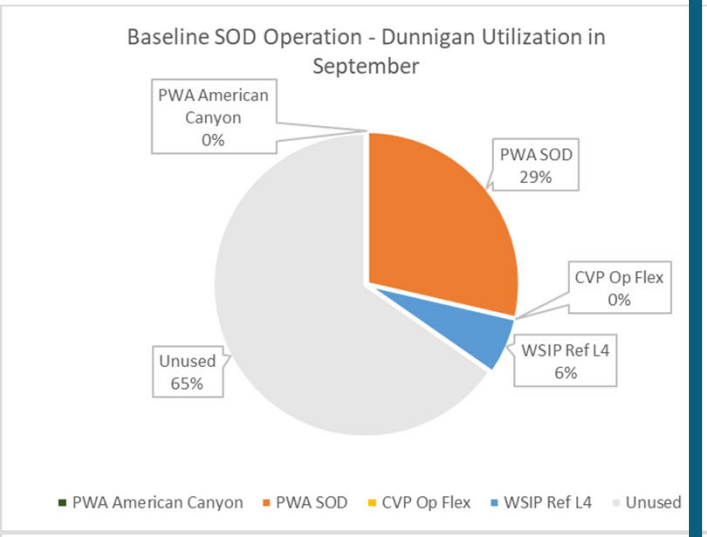


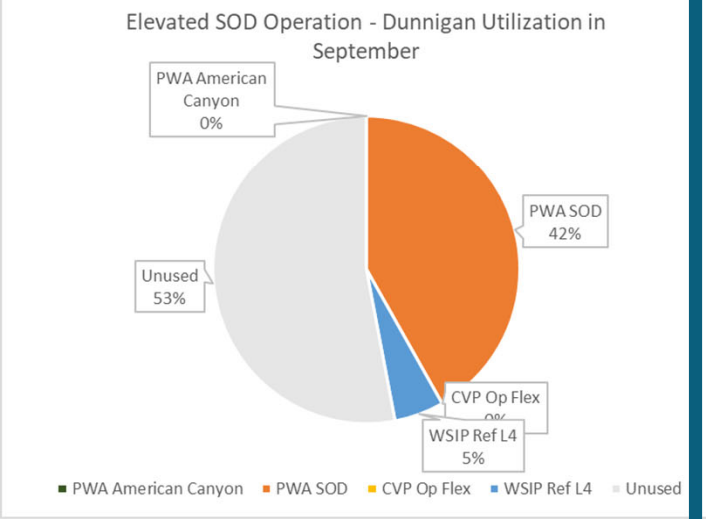


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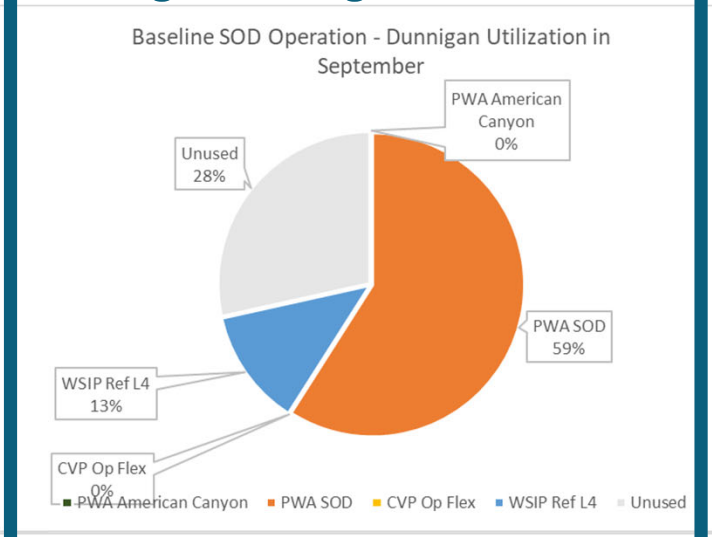


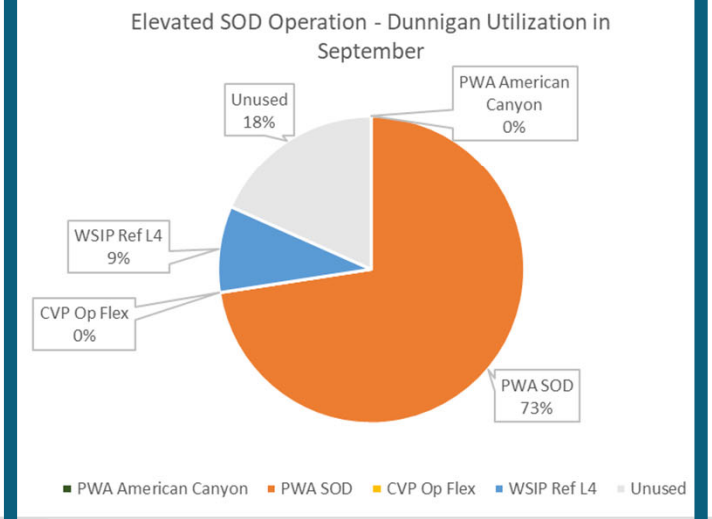


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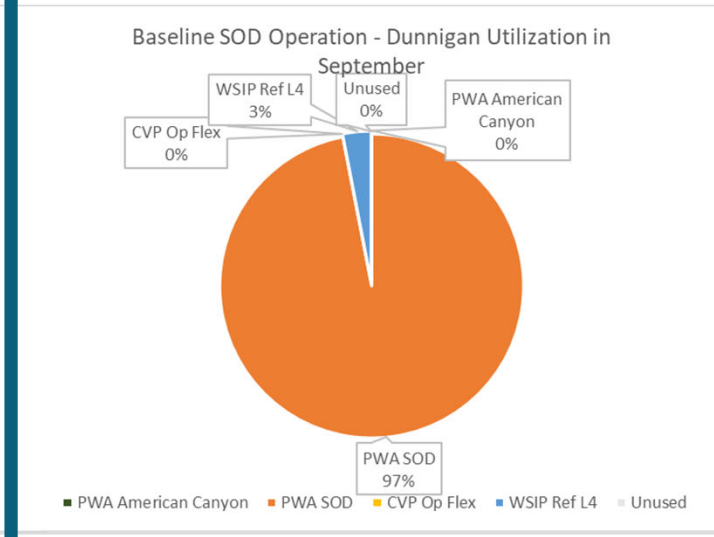


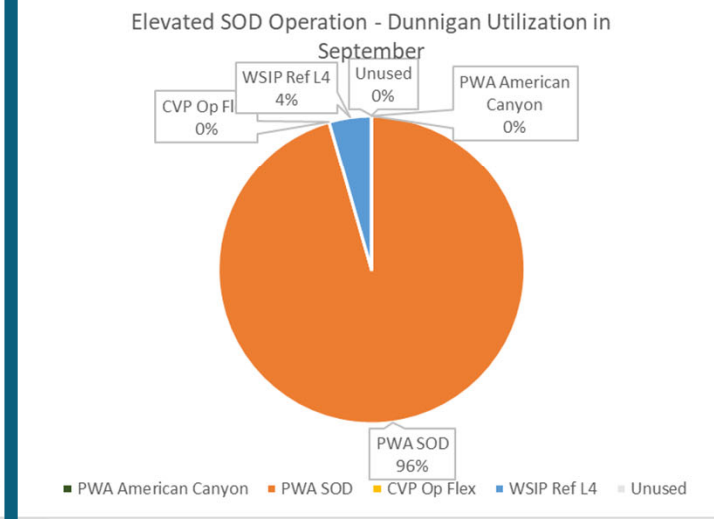

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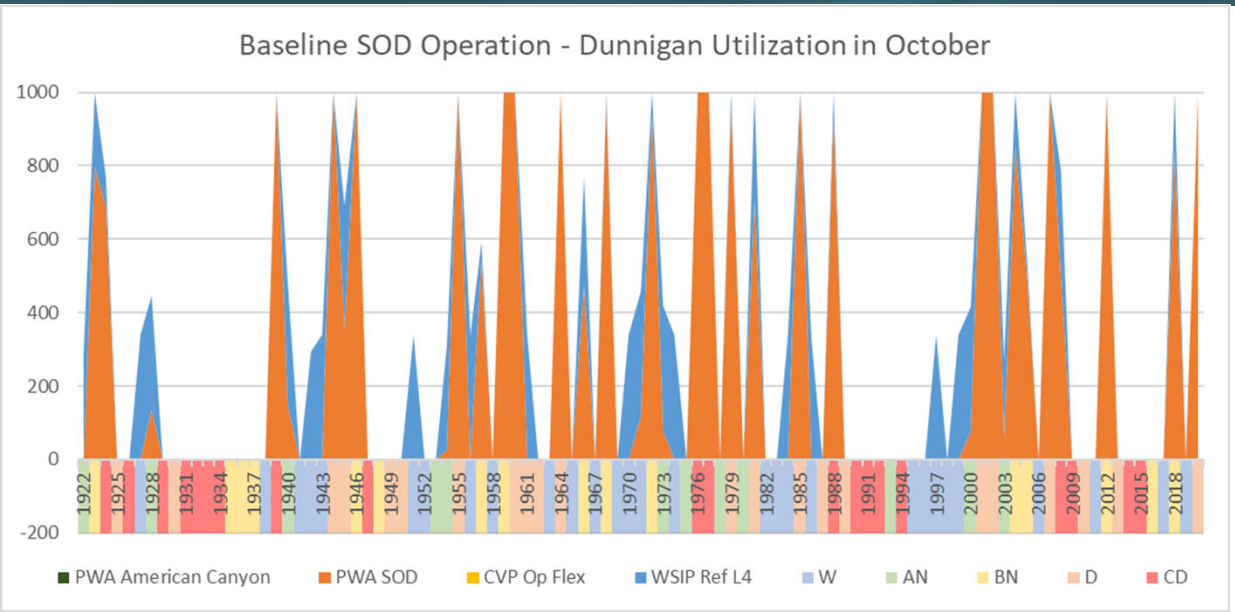


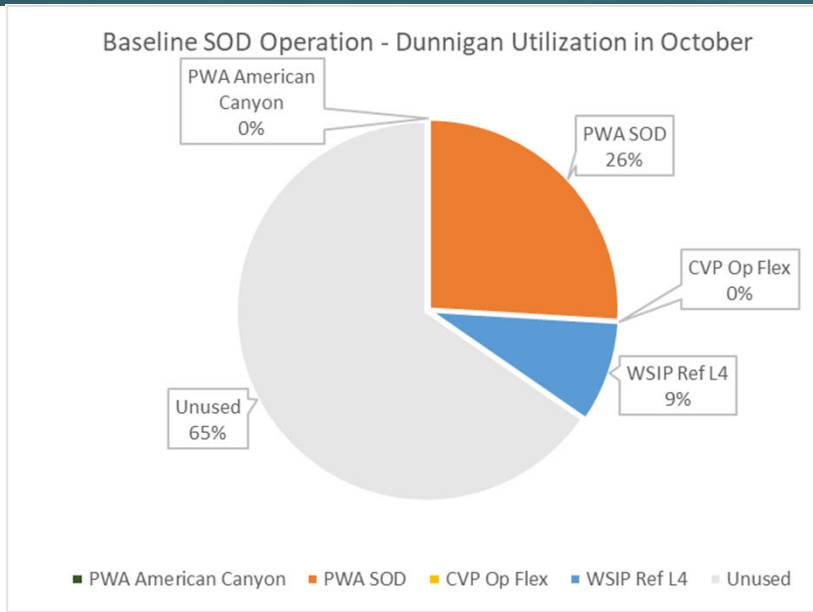


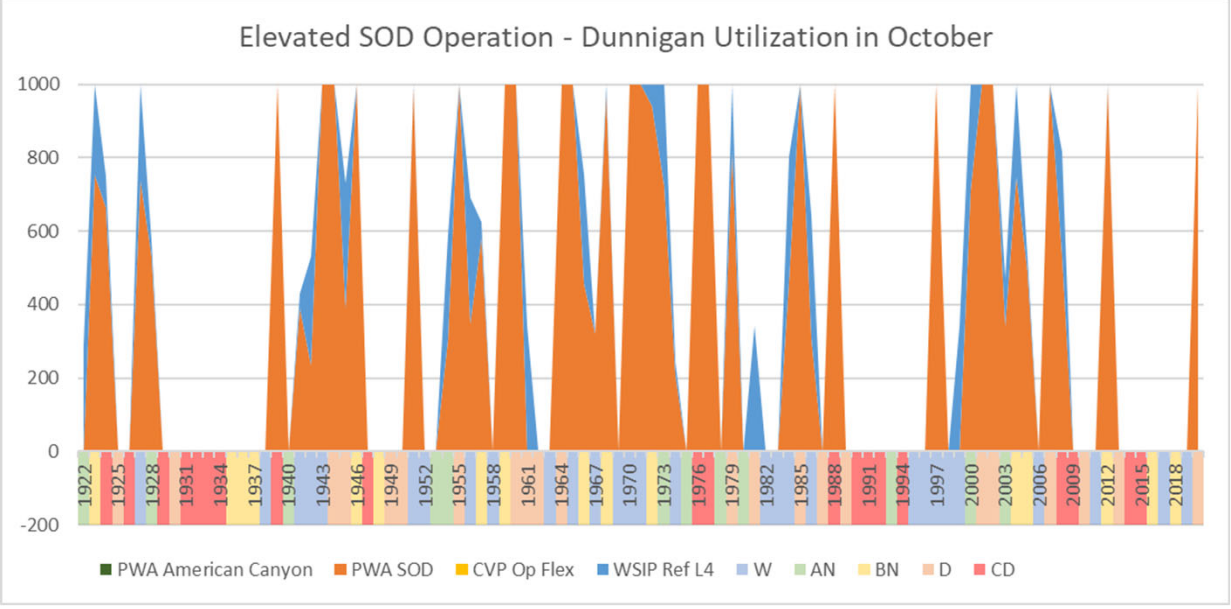


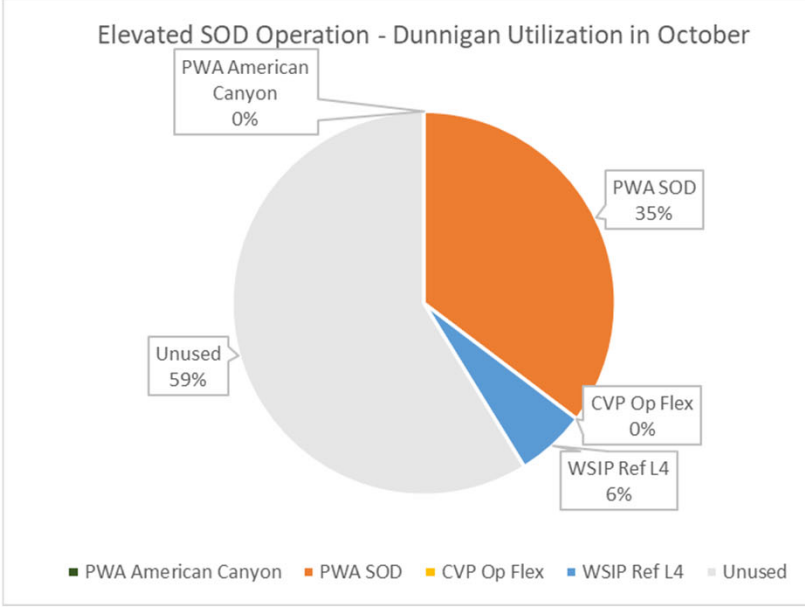

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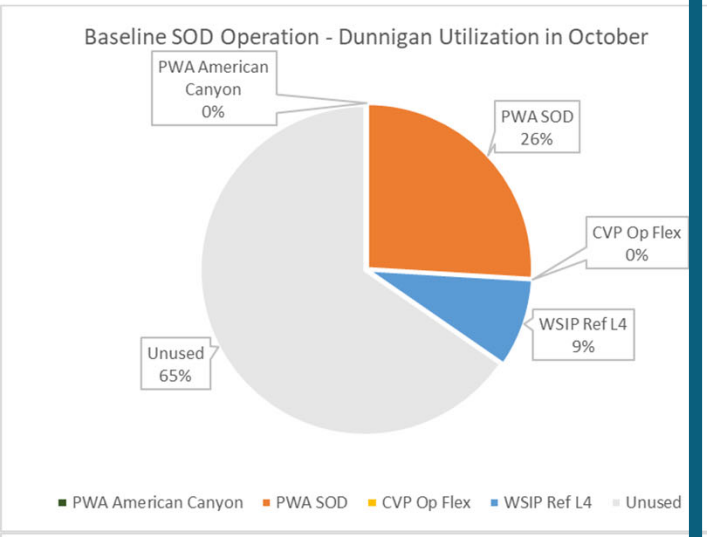


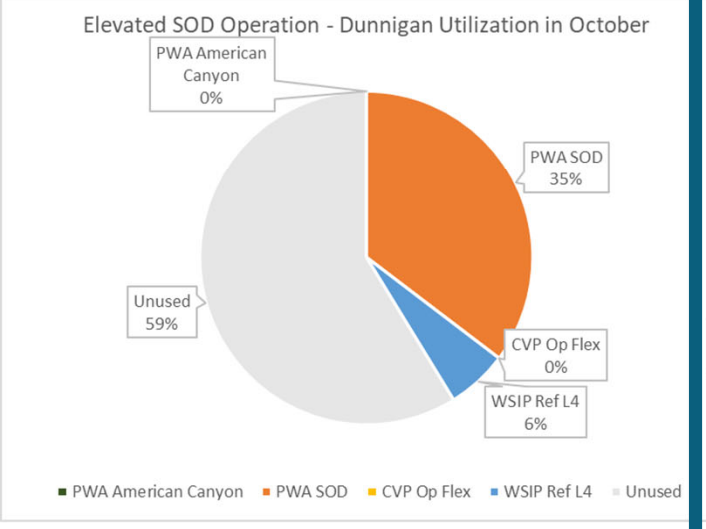


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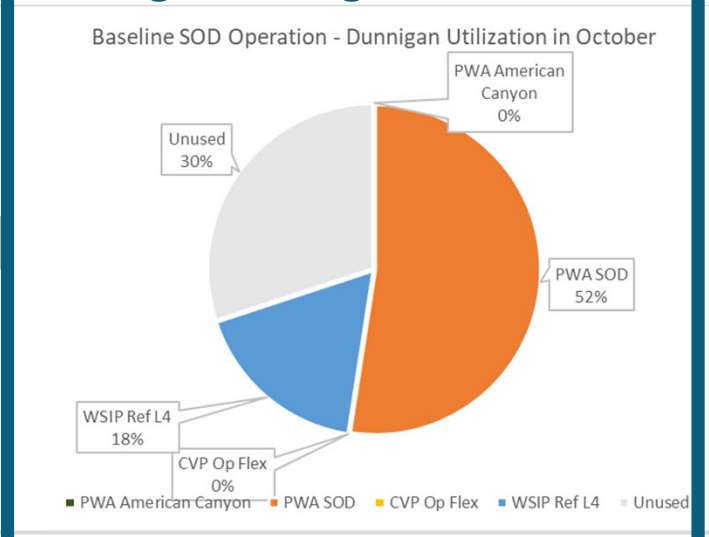


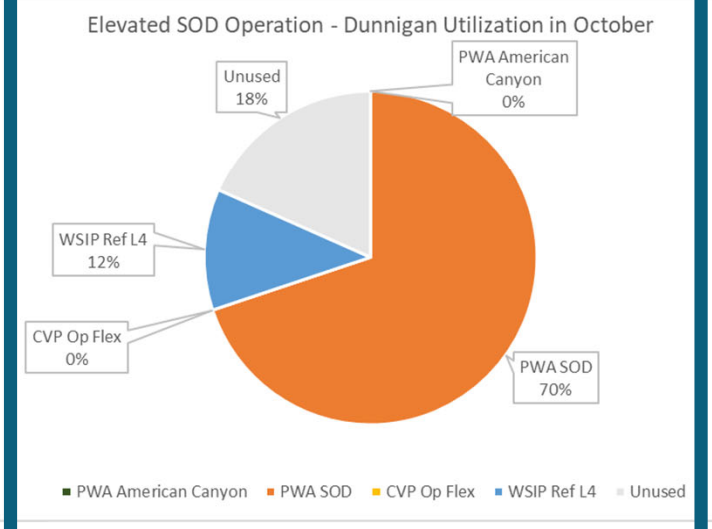


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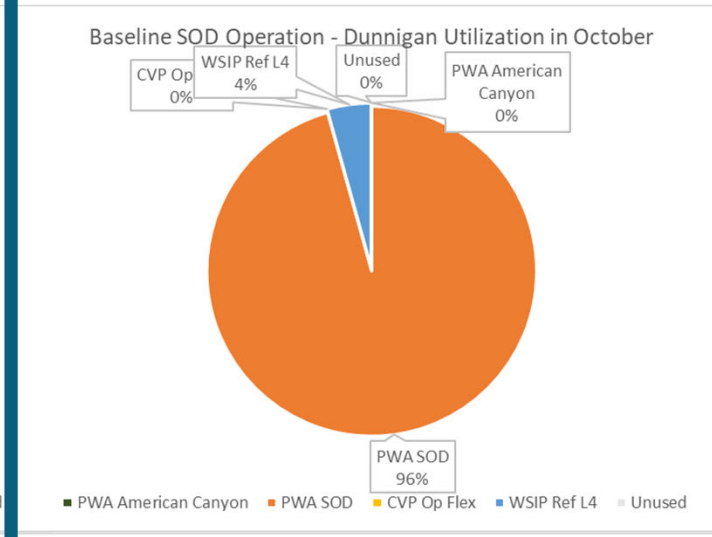


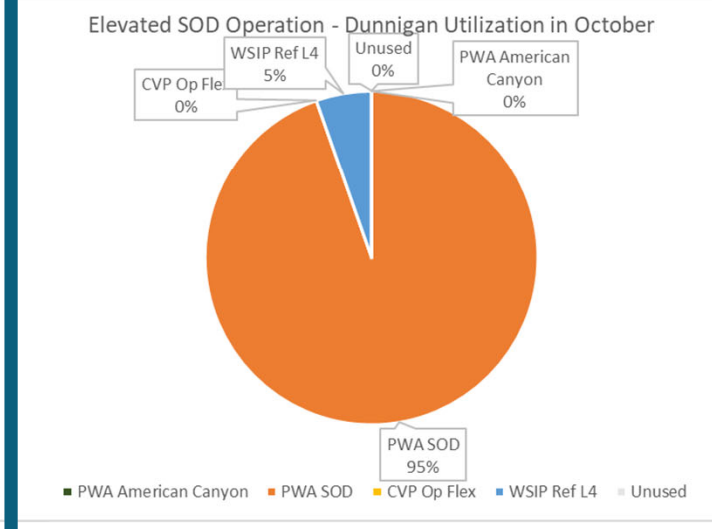

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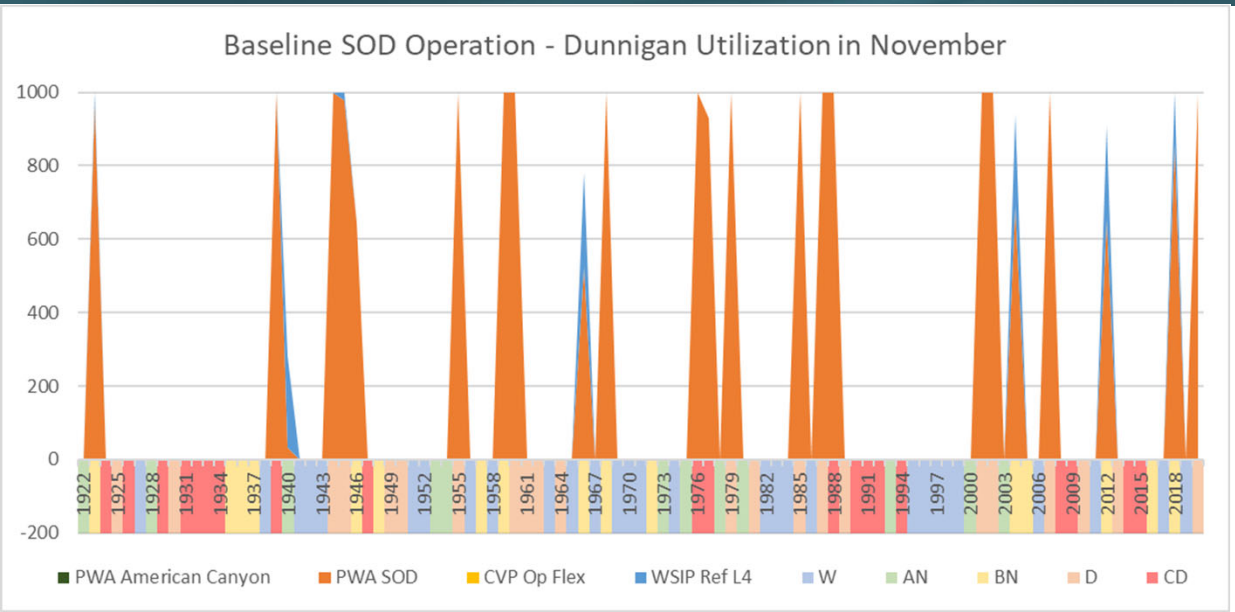


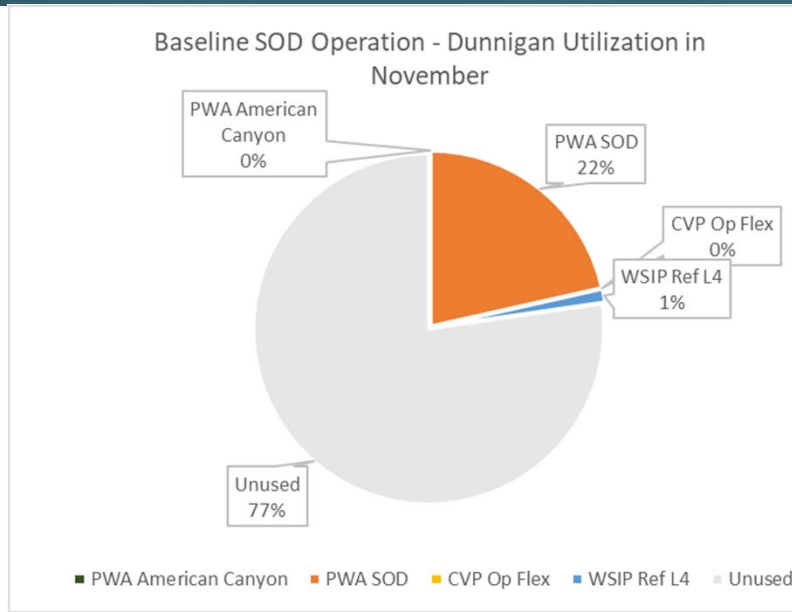


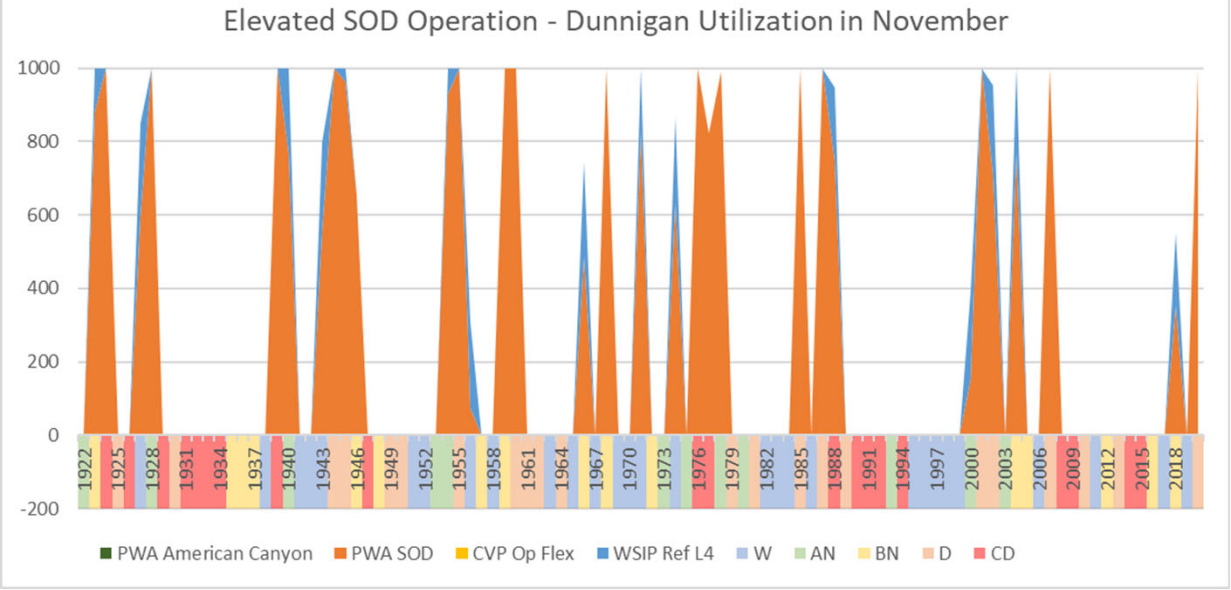


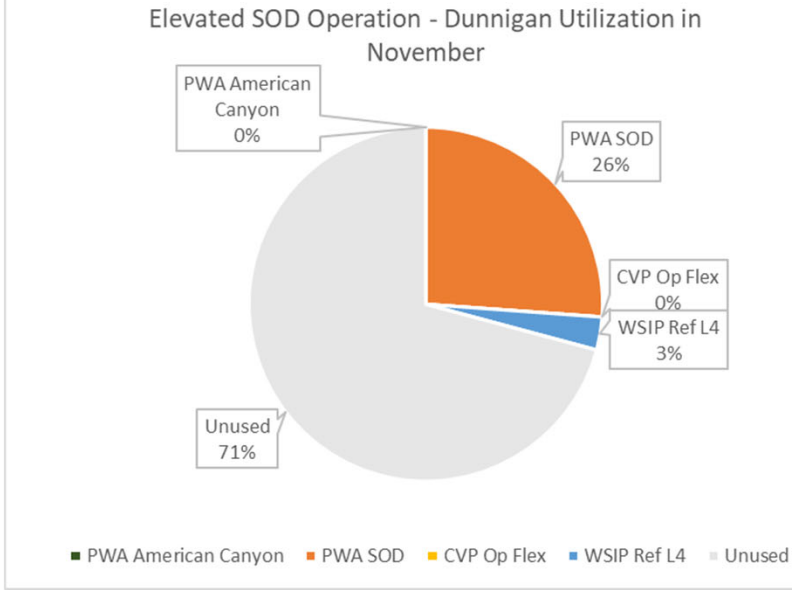

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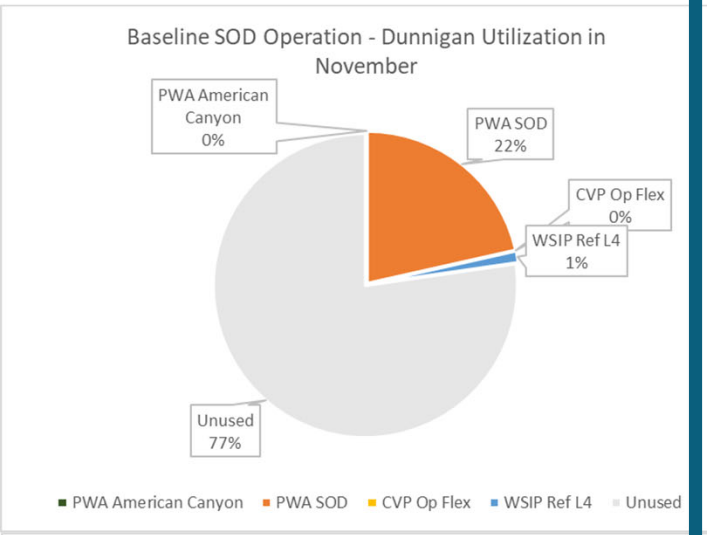
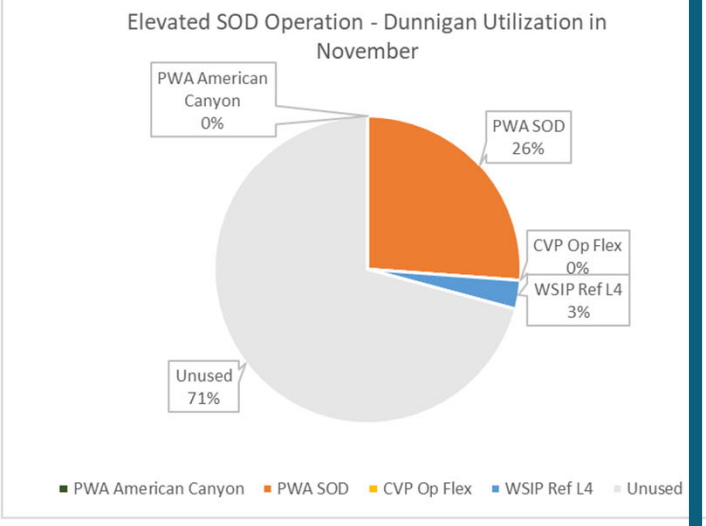
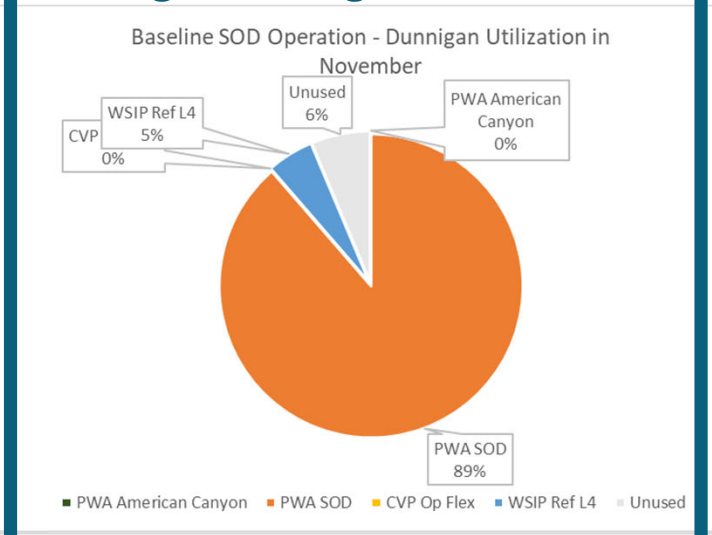
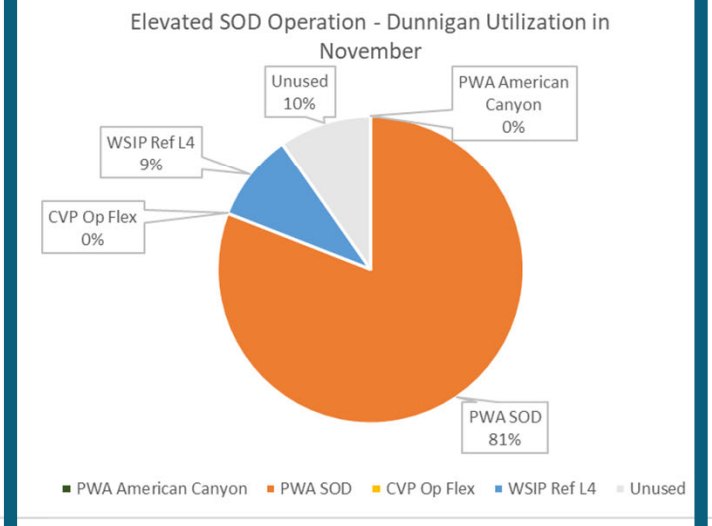


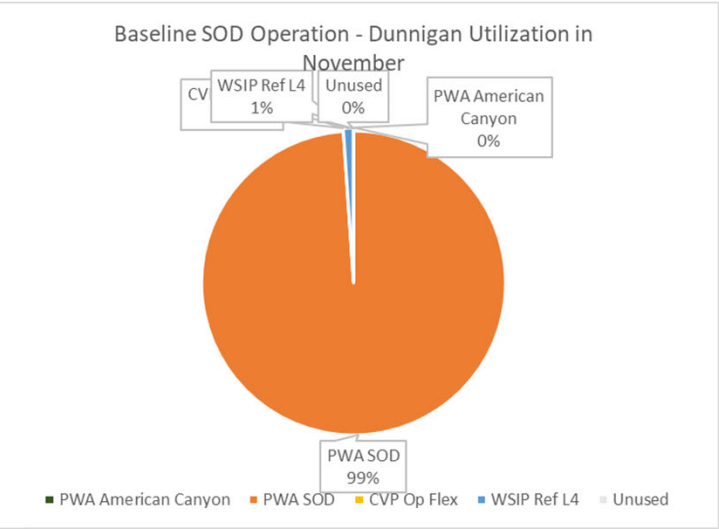



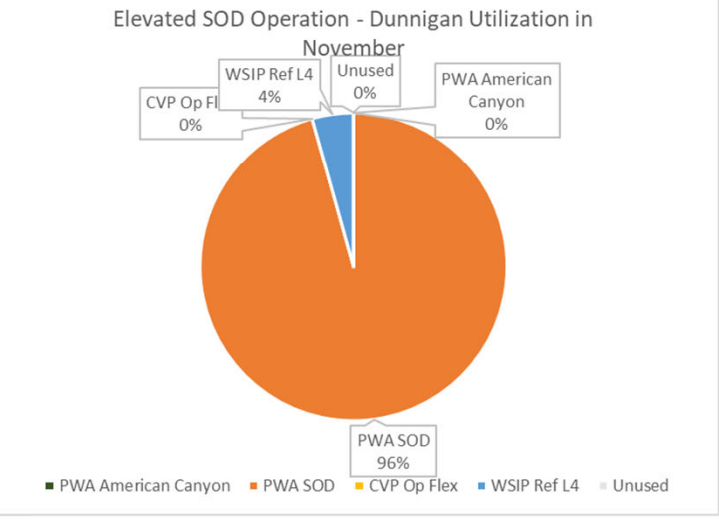

## Months with >0 cfs Flow through Dunnigan:




## Months with Max Capacity at Dunnigan (1,000 cfs):



# Policy Direction

- Provide feedback on the sensitivity analysis presented today
  - Is the approach reasonable for use in the Baseline Report?
  - Do these present a range that is useful for the Baseline Report?
  - Is this on track to getting you what you need to make a participation decision?

  - What data/graphics would be helpful?
  - How should we best present Dunnigan Pipeline capacity?

# Next Steps

- Modeling Efforts
  - In progress
    - Refine SOD delivery assumptions based on member feedback
    - Refine NOD delivery and transfer assumptions based on member feedback
    - Incorporate real-time transfers from NOD members to SOD members
  - Prior to Baseline Report
    - Review draft water order and refine model as needed based on terms and conditions
- RC/AB Workshop in late January / early February
  - Review model results for Baseline Report
  - Review draft water right

# Agenda Item 1.2

## Operations Plan – Comments and Revisions

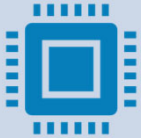
# Hierarchy and Interaction between Documents

Benefits and Obligations Contract, Partnership Agreement, Prop 1 Public Benefits Agreements

Grants capacity interests in the Project and a right to water service to Storage Partners and defines obligations

Operations Plan

Describes day to day operations including decision process for when/how to divert and release



Operations Manual (to be developed)

Will explain actual operations and physical project components, such as which valves to open, etc.

# Ops Plan V2.2 Update Process

- Aug / Sept 2024
  - Released draft Operations Plan v2.1 for E&O Workgroup review and Participant review
    - Participants provided comments on the draft
- May 2025
  - Released draft Operations Plan v2.2 for Storage Partner and Authority Board review
    - Comments provided by 3 Storage Partners

# Ops Plan V2.2 Key Updates

- Minor clarifications
- Only substance change:
  - Removed Participant exchanges with Shasta Reservoir
    - Now considered on a case-by-case basis
  - Reminder that Reclamation will continue to utilize its Storage Allocation to achieve anadromous fish benefits and exchanges with Shasta Reservoir through operational flexibility

# Ops Plan V2.2 Next Steps

- Available with AB/RC Board Packet today
- Continue to update based on:
  - Any additional comments received
    - Due February 2, 2026
  - Changes to contract documents (B&O, Participation Agreement, Prop 1 agreements)
  - Permit and approval terms and conditions
- Finalize and adopt prior to escrow period

# Engineering and Construction Manager's Report

JP Robinette

Sites

# Engineering and Construction Manager's Report

- Future Agenda Items
  - Report out on Lower Colusa Basin Drain modeling findings
  - Conveyance CMAR Procurement Checklist
  - Report out from Downstream Capacity Ad Hoc

# Questions?

# Thank you!

Upcoming Meetings:

Reservoir Committee and Authority Board:
Friday December 19 – 9 am to 12 pm

O&E Workgroup:
Wed Jan 7 – 1:30 to 3:30 pm

Environmental Planning and Permitting Workgroup:

Thurs Feb 12 – 1 to 2pm

Sites