

# Operation and Maintenance Costs For State Water Projects

Water Policy Interim Committee  
March 18, 2024

Presented by:

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Montana Dept. of Natural Resources and Conservation  
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# State Water Projects Bureau

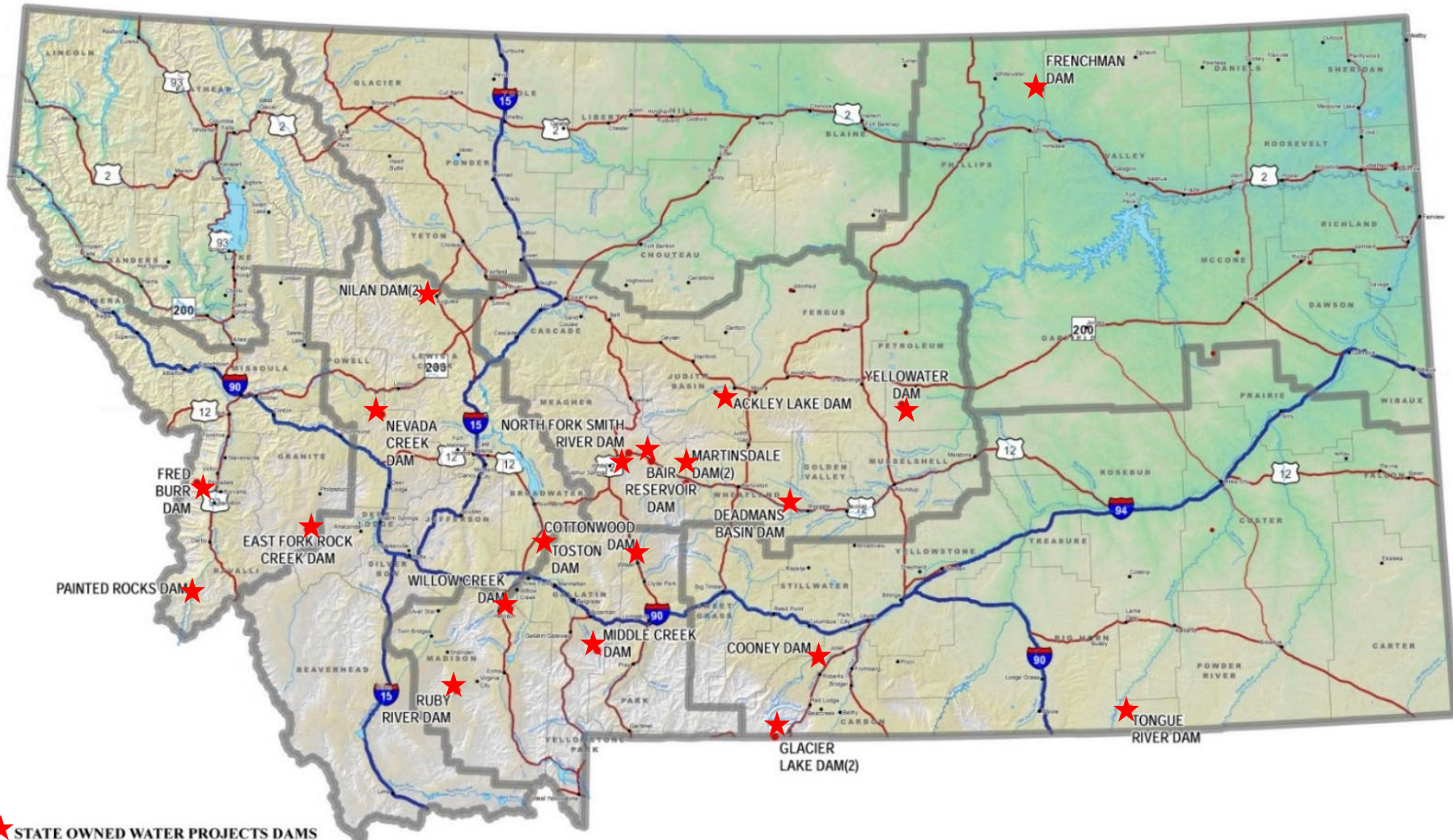
- ▶ Branch of the Water Resources Division of DNRC
  - 21 FTE (professional engineers, engineering analysts, and hydropower operators)
- ▶ Administer 18 water storage projects (DNRC owned)
  - 22 dams (all but 1 classified as high-hazard)
  - 250 miles of irrigation canals
  - Total storage ~ 380,000 acre-feet
  - Market ~ 322,000 acre-feet
  - Affiliated with 1,872 active water purchase contracts
- ▶ Own and operate the Broadwater Dam (Hydropower) Project at Toston, MT



<u>Project Name</u>	<u>Year Completed</u>	<u>Storage (acre-feet)</u>	<u>Height (feet)</u>	<u>County</u>
Ackley Lake Dam	1938	6,722	51	Judith Basin
Bair Reservoir Dam	1939	7,300	106	Meagher
Cooney Dam	1937	28,230	102	Carbon
Cottonwood Dam	1953	1,905	39	Park
Deadman's Basin Dam	1941	72,218	60	Wheatland
East Fork Dam	1938	16,040	88	Granite
Fred Burr Dam	1949	525	50	Ravalli
Frenchman Dam	1952	2,801	44	Phillips
Glacier Lake Dams	1937	4,200	57 (N) 20 (S)	Carbon
Martinsdale Dams	1939	23,348	91 (N) 49 (E)	Wheatland & Meagher
Middle Creek Dam (Hyalite)	1951	10,184	125	Gallatin
Nevada Creek Dam	1938	11,152	105	Powell
Nilan Dams	1951	10,092	54 (N) 51 (E)	Lewis & Clark
North Fork of Smith River Dam	1936	11,500	84	Meagher
Painted Rocks Dam	1939	32,362	143	Ravalli
Ruby River Dam	1938	37,642	112.5	Madison
Tongue River Dam	1940	79,071	93	Big Horn
Toston Dam (Broadwater-Missouri)	1940	4,100	51.5	Broadwater
Willow Creek Dam	1938	18,000	105	Madison
Yellow Water Dam	1938	3,842	37	Petroleum



# MONTANA STATE WATER PROJECTS DAMS



★ STATE OWNED WATER PROJECTS DAMS



# Storage In Montana

## ▶ Why Is Storage Important?

- Provides reliable water delivery for agriculture, municipalities and provides recreation needs to the citizens of Montana
- Mitigates ever changing water demands
- Drought adaptation strategy

## ▶ Montana Drought Management Plan, 2023

- #1 Recommendation (Water Supply, Storage, and Delivery)
  - Identify future and stable funding for rehabilitations (State Water Projects)
- State Water Plan

## ▶ SWPB's Role

- Identify projects that have increased storage potential
- Explore alternative funding sources for costly rehabilitations
- Diversify the portfolio of users to meet growing water needs

## ▶ Where To Start?

- Feasibility studies
  - Water availability analysis
    - Basin characteristics (hydrology)
    - Legal challenges (downstream water rights)
  - Ability to pay analysis



# State Water Projects Challenges

## ▶ Income Sources

- State Special Revenue
  - Water storage account (\$500k per biennium)
  - Hydropower sale account (Toston revenue)
- Infrequent general fund

## ▶ Hydropower Purchase Agreement Expiring (June '24)

- Accepted proposals from utility and co-op companies
- Currently negotiating with Northwestern Energy (<50% of historic revenue expected)

## ▶ Capital Investment Needs

- Backlog of major maintenance upgrades needed at Toston
- Project rehabilitations are expensive (20-50 million per rehab)

## ▶ On-going SWPB Vacancies

- 5 FTE vacancies (30%), 3 project managers for rehab projects
- Competing against private sector for engineers (high demand)



# SWPB Rehabilitations (1989-2024)

Dam	County	Rehabilitation Description	Year	Cost (mill)	Water Marketing			Public Benefits		
					Agriculture	Habitat	Municipal	General Recreation	State Park Leases	Federal Camping
Toston	Broadwater	Hydropower addition	1989	26	✓			✓		
Middle Creek (Hyalite)	Gallatin	Raise, spillway, seepage improvements	1992	5.2	✓		✓	✓		✓
Tongue River	Big Horn	Raise, spillways, outlet works, access	1999	48	✓			✓	✓	
Nevada Creek	Powell	Spillway, outlet works, toe buttress	2004	2.8	✓			✓		
Bair	Meagher	Spillway, outlet works, toe buttress	2004	2.7	✓			✓		
N. Fork Smith	Meagher	Spillway, outlet works, toe buttress	2006	0.8	✓			✓		
Ackley	Judith Basin	Spillway, outlet works, toe drainage	2009	1.4	✓			✓	✓	
Ruby	Madison	Spillway, outlet works, gatehouse	2014	16.9	✓			✓		
Painted Rocks	Ravalli	Toe Access (Bridge)	2021	1.5	✓	✓		✓	✓	
East Fork Rock Creek	Granite	Spillway, gatehouse, outlet conduit	2024	17-21	✓			✓		✓



# Active SWPB Rehab Projects

- ▶ **Economic Cost-Benefit Analysis of State Water Projects**
  - Completed half already, remaining half underway
- ▶ **East Fork of Rock Creek Dam Rehabilitation (Granite County)**
  - No storage increase decision by DNRC (based on water availability analysis and environmental constraints)
  - Public bid for construction (May '24), 2-year construction timeline
  - Engineer's estimate \$17-21 million
  - SWPB CARDD loan (16.9 million), WUA agreement (2.5 million)
- ▶ **Willow Creek Rehabilitation (Madison County)**
  - Feasibility study underway - presenting technical alternatives to WUA in April
- ▶ **Painted Rocks Rehabilitation (Ravalli County)**
  - Completed the feasibility study
  - No storage increase decision by DNRC (based on water availability analysis)
  - Environmental clearance task on-going
- ▶ **Ruby Storage Raise (Madison County)**
  - Storage increase potential identified
  - Further review of water availability (legal analysis)





# Rehabilitation Timelines

## Typical Rehab Schedule

Rehabilitation Task	Year 1		Year 2		Year 3		Year 4		Year 5		Year 6	
	1st Half	2nd Half	1st Half	2nd Half	1st Half	2nd Half	1st Half	2nd Half	1st Half	2nd Half	1st Half	2nd Half
Scoping/Consultant Procurement	█											
Feasibility Study		█	█	█								
Environmental/Permitting			█	█	█							
Final Design					█	█	█					
Construction Procurement							█					
Construction								█	█	█	█	
Project Closeout												█

## SWPB Rehab Schedule (if Fully Staffed)

SWPB Rehabilitations	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
East Fork of Rock Creek Dam	█	█									
Willow Creek Dam	█	█	█	█	█						
Painted Rocks Dam			█	█	█	█	█				
Ruby Dam Storage Raise					█	█	█	█	█	█	█

**Currently, SWPB has 3 project manager vacancies within the Rehabilitation Section. SWPB has 1 project manager and 1 section supervisor assigned to all rehabs listed above.**



# Rehabilitation Funding

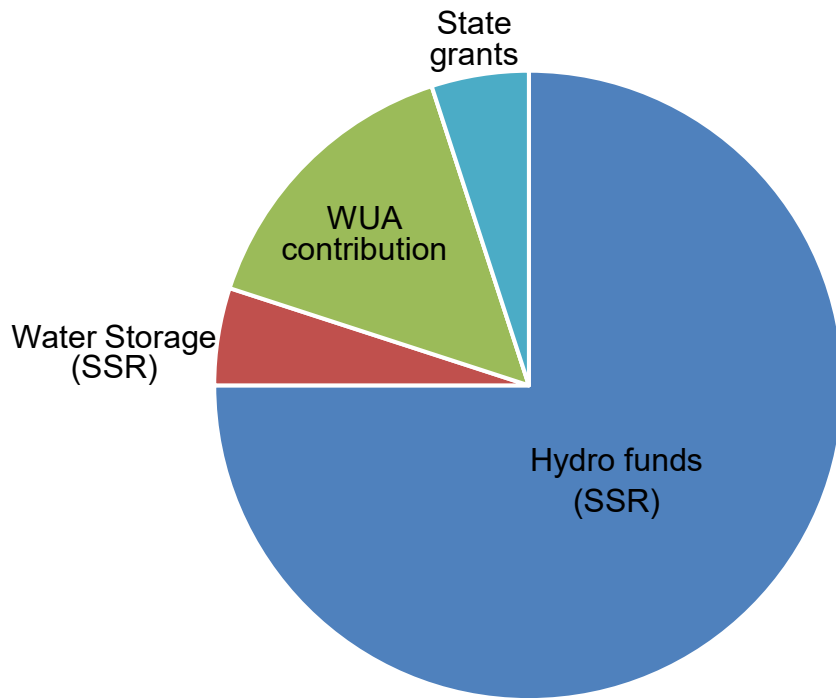


- ▶ **Governed by Montana Law and Rules**
  - MCA Title 85, Chapter 1
  - Montana ARMs, Chapter 36
  
- ▶ **Water Marketing Contracts**
  - Delegates operation and maintenance responsibility to Water Users Associations
  - Associations set O&M rates, temporarily react to rehab loans
  - DNRC does not charge an annual fee for use of water by Water Users Associations
  
- ▶ **Major Maintenance and Rehab**
  - Administered by SWPB (loans, grants, SSR combinations)
  - WUA contribution based on ability to pay analysis and negotiation
  
- ▶ **Minor Maintenance and Repairs**
  - WUA responsibility

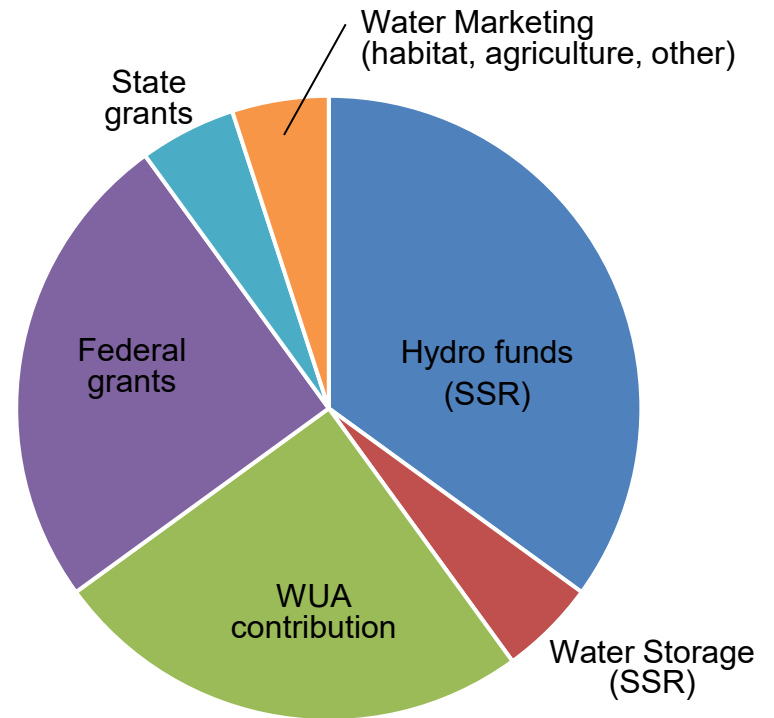


# Rehabilitation Funding Models

Current



Exploring opportunities for diversification



# Funding Diversification Moving Forward

## ▶ Federal Grants

- Aggressively apply for grants that apply to high hazard dams
- HHPD (FEMA), WaterSMART (BOR), Infrastructure Investment and Jobs Act (NRCS, USDA, DOI)

## ▶ Water Users Association Contributions/Uniformity

- Reserve accounts
- Ability to pay analysis uniformity

## ▶ Additional Water Marketing Potential

- Broadwater-Missouri (sale potential within water right)
- Evaluation of other water use at facilities

## ▶ Additional Revenues to Account for PPA Revenue Decrease

- Accounts for long-term rehabilitation and safe operation of facilities

## ▶ Need Long-Term Diversified and Stable Funding Solution



# Summary

- ▶ Water storage is important to Montana and State Water Projects play a vital role
- ▶ Dam rehabilitations take time (5-10 years)
- ▶ Rehabilitation costs are increasing, revenues are not keeping up
- ▶ SWPB faces long-term funding and short-term staffing challenges that may limit our ability to rehabilitate and operate these facilities



# Thank You!

Deadman's Basin Reservoir  
Wheatland and Golden Valley Counties

