

RECLAMATION

Managing Water in the West

Asset Management and Aging Infrastructure

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Canal/Asset Management Meeting

May 14, 2008

Denver CO



U.S. Department of the Interior
Bureau of Reclamation

Managing Construction and Infrastructure in the 21st Century Bureau of Reclamation

- “. . . the number of facilities currently owned by Reclamation appears to be relatively stable, requiring an effective management strategy and a focus on operations, maintenance, repair, and modernization rather than development.”
- “Today, Operation and Maintenance (O&M) is the primary technical workload of Reclamation and is likely to remain so because of the aging infrastructure and the need for rehabilitation and modernization of facilities.”
- “Reclamation is in a new era. This new era is marked by two new tasks: (1) the operation, maintenance, and rehabilitation of existing structures and systems and (2) the creation and nurturing of brokered agreements among a variety of players affected by the management of water resources.”

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Reclamation's Infrastructure

- 348 Dams/Reservoirs
- 58 Hydropower generation sites with 14,800 MW capacity
- 8,116 miles of Canals
- 24,674 miles of Water Distribution Laterals
- 13,095 miles of Drains

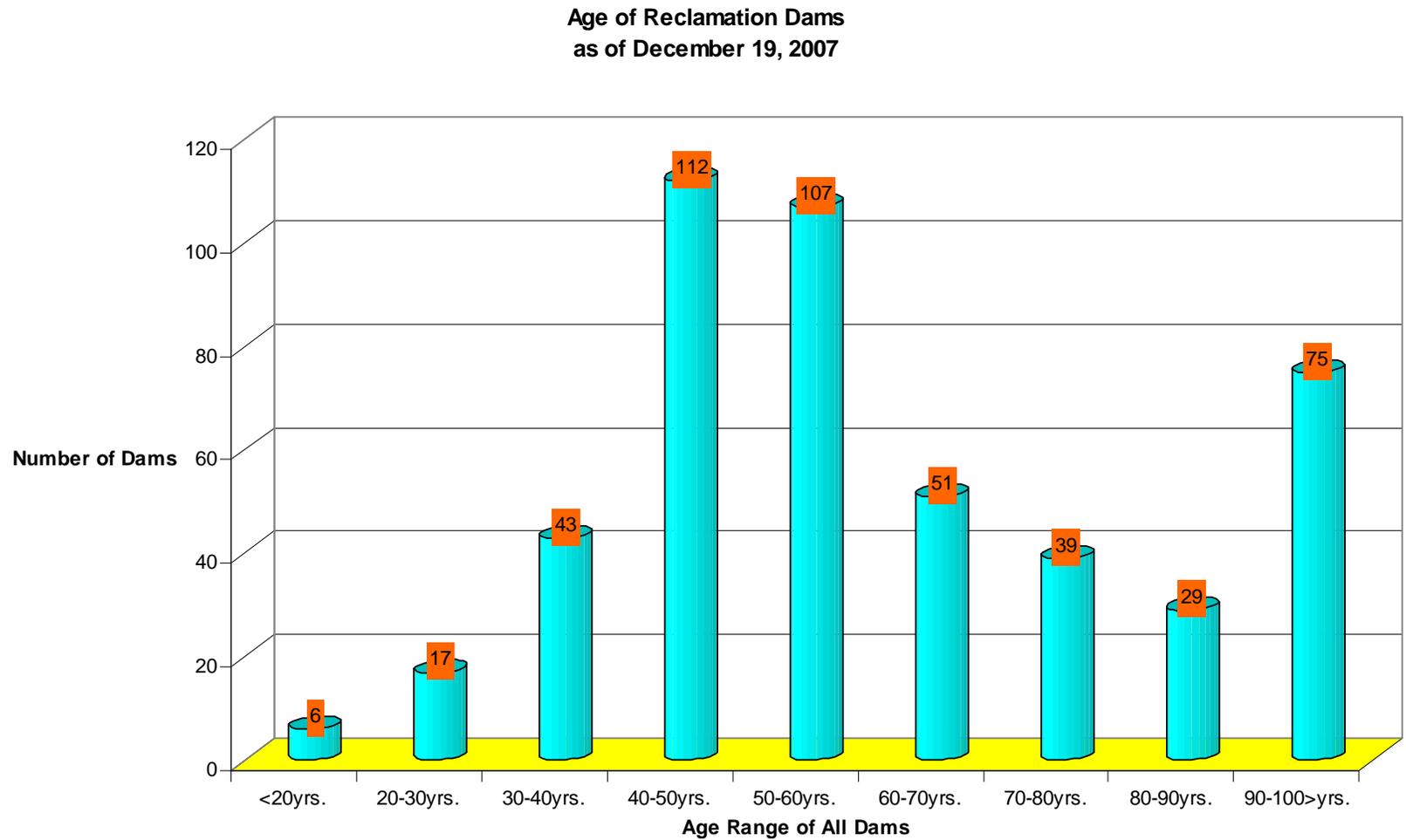
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Characteristics

- The age of Reclamation's infrastructure ranges from over 100 years old to facilities that are still under construction
- Two-thirds of the facilities have been transferred to operating partners for OM&R
- Estimated Replacement Cost of Reclamation's infrastructure = \$92 billion

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Age Distribution of Dams



Aging Infrastructure

- Age can degrade an asset or system functionality or reliability
- Degradation of infrastructure performance or condition can be expressed as a degree of risk
- The complexity of the asset (e.g., the infrastructure “system”) significantly increases the risk associated with system failure

Major Rehabilitation and Repair Estimates (Preliminary – January 2008)

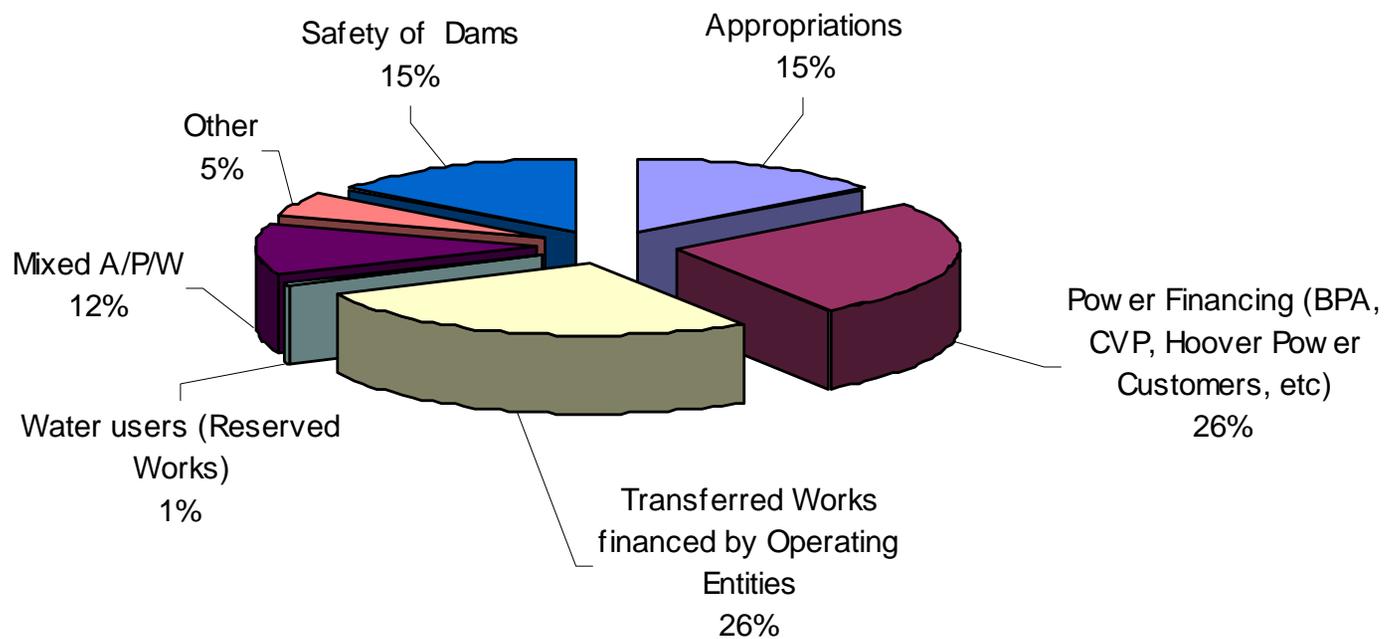
Reserved Works	190	\$1,632,527,748
Transferred Works	302	\$972,965,997
Safety of Dams	3	\$469,244,450
F&WL funded by Reclamation		\$54,748,000
Total	494*	\$3,129,486,195

* Asset included in Reserved Works and Safety of Dams (total does not count twice)

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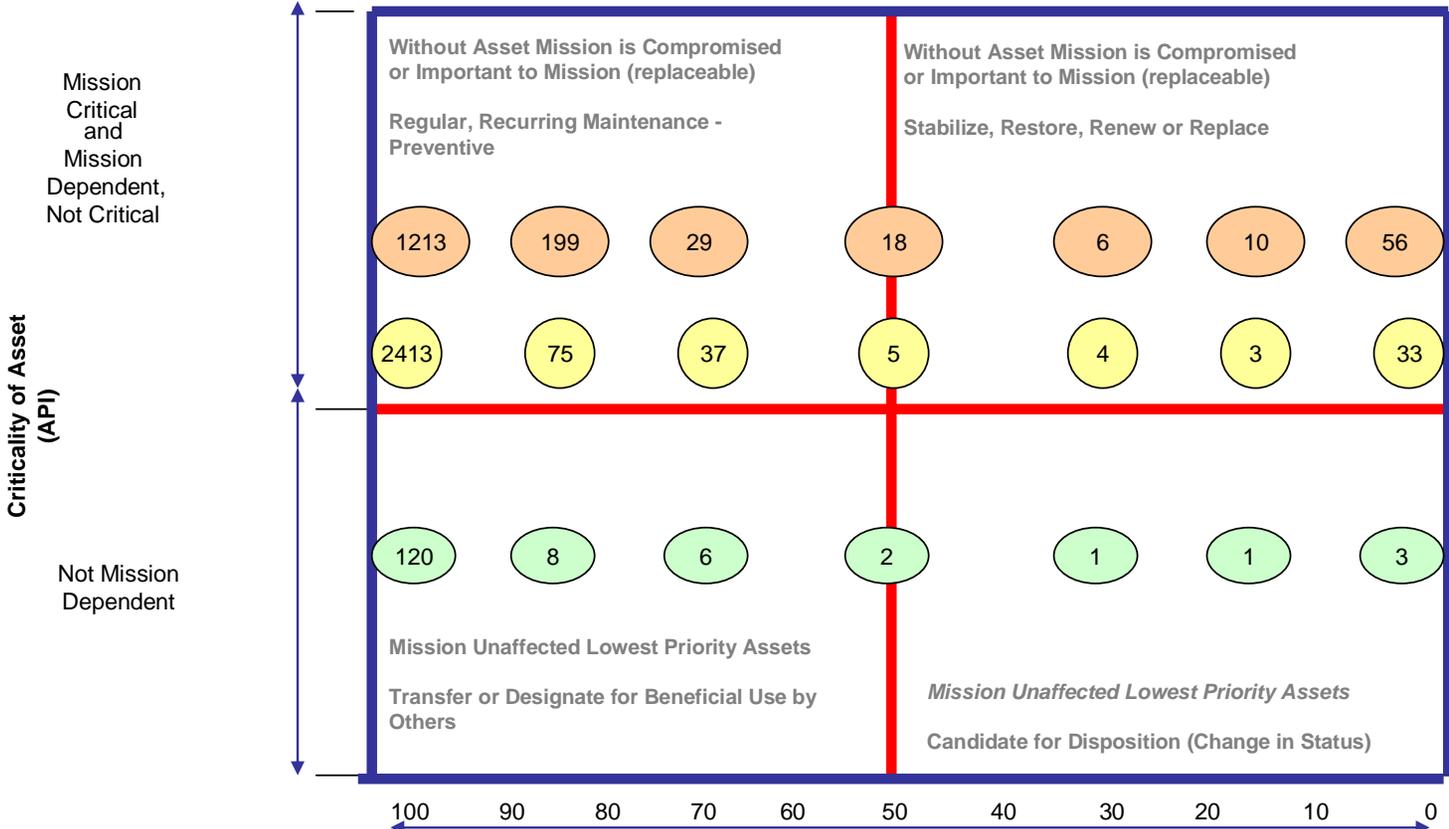
Anticipated Funding Sources for Major R&R

Funding Sources MR&R Estimates



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Reclamation Asset Priority Index (API)/Comprehensive Condition Index (CI_{comp})



Preliminary 2008

- = Mission Critical
- = Mission Dependant, not Critical
- = Not Mission Dependent

Reclamation's Asset Management Plan

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Managing Water in the West

**Bureau of Reclamation
Asset Management Plan**

Fiscal Year 2008



U.S. Department of the Interior
Bureau of Reclamation

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Asset Management Strategy

- Strategy #1 – Complete the Asset Inventory and Financial Records Verification Project
- Strategy #2 – Continue to rely on the Review/ Examination Program for High- and Significant-Hazard Dams to assess the dam safety and condition of high- and significant hazard dams.
- Strategy #3 – Continue to rely on the Power Review of Operations and Maintenance Program (PRO&M) to assess the operational and maintenance condition of generation assets.

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Asset Management Strategy

- Strategy #4 – Continue to rely on the Associated Review of Operations and Maintenance (RO&M) Program to assess the operational and maintenance condition of water diversion and delivery assets.
- Strategy #5a – Continue to pursue off-budget financing for the remainder of the Power O&M/Capital investment program.
- Strategy #6 - Establish a Loan Guarantee Program.
- Strategy #7 - Complete HydroAMP power train component guides and deploy throughout Reclamation generation sites.

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Asset Management Strategy

- Strategy #8 – Finish the deployment of MAXIMO Version 6.2 (the CARMA Project) throughout Reclamation generation sites and a limited number of water sites.
- Strategy #9 – Develop and expand water technology solutions, focusing on “Hot Spots” of water conflict in the West (e.g., Water 2025, water conservation programs, desalination).
- Strategy #10 – Further refine a 5- to 10-year overall O&M investment strategy and schedule for Reclamation.

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Asset Management Strategy

- Strategy #11 – Expand collaborative efforts with Army Corps of Engineers, Tennessee Valley Authority and other Federal/non-Federal utilities on asset management strategies and practices.
- Strategy #12 – Develop and/or compile common performance metrics for water and power assets, and link them to budget resource decision making processes using data from existing examination and review programs, MAXIMO, and HydroAMP.

Asset Management Strategy

- Strategy #13 - Using quantifiable performance and process measures, develop an annual report for Reclamation management and Budget Review Committee on asset performance, risks, and recommendations. Also, possible use as a public report.
- Strategy #14 – Integrate M4E action item findings/results into overall strategy.

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