

Impacts to Hydropower Customers and the Basin Fund from Conducting Experiments

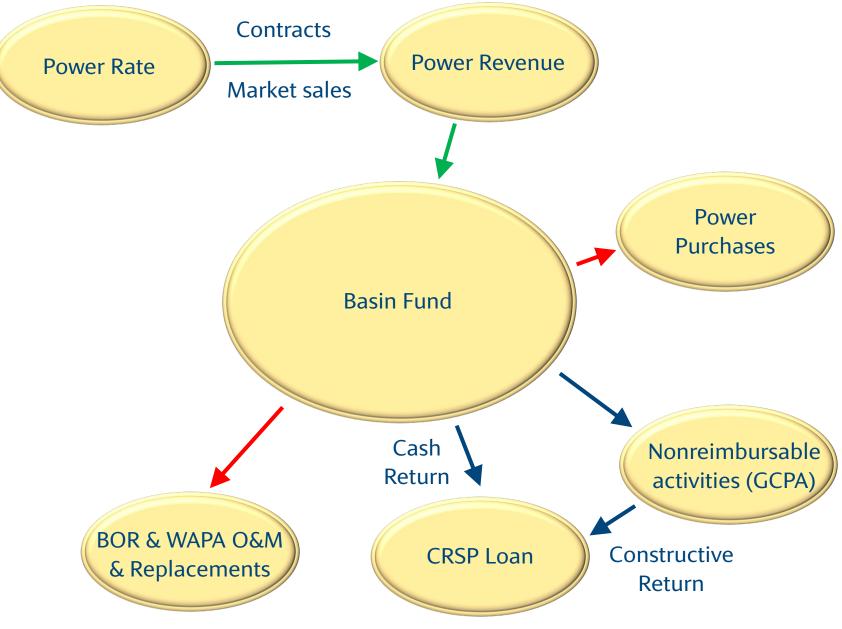
Craig Ellsworth

Fish Biologist

TWG – June 2023



The CRSP Basin Fund model





"... without further appropriations ..."

The Colorado River Storage Project (CRSP)

Initial Units

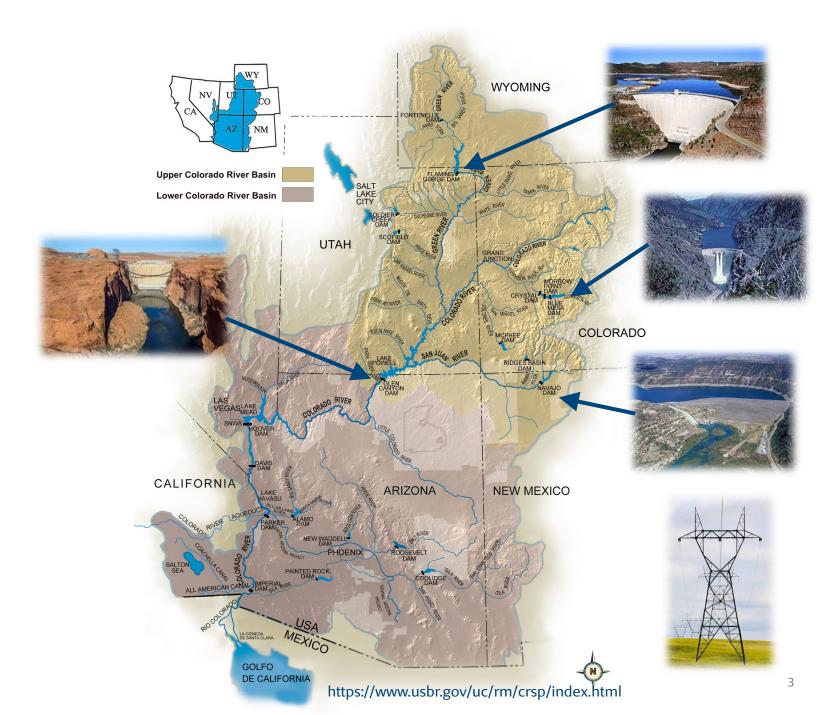
- Glen Canyon Dam
- Flaming Gorge Dam
- Aspinall Units
 - Blue Mesa
 - Morrow Point
 - Crystal
- Navajo Dam

Participating Projects

- Dolores
- Seedskadee

Water Projects

- Central Utah Project
- Many others





1956 CRSP Act

- Provided authorization for the construction of initial units
- Allowed Upper Basin to develop their water allocation
- Includes power generation and transmission
- Power revenues pays for
 - Repayment
 - O&M
 - Replacements
- Established the Basin Fund
- Operate "... without further appropriations ..."

Apr. 11 COLORADO RIVER STORAGE PROJECT

Ch. 2

COLORADO RIVER STORAGE PROJECT-AUTHORITY TO CONSTRUCT, OPERATE AND MAINTAIN

CHAPTER 203-PUBLIC LAW 485 [S. 500]

An Act to authorize the Secretary of the Interior to construct, operate, and maintain the Colorado River storage project and participating projects, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That:

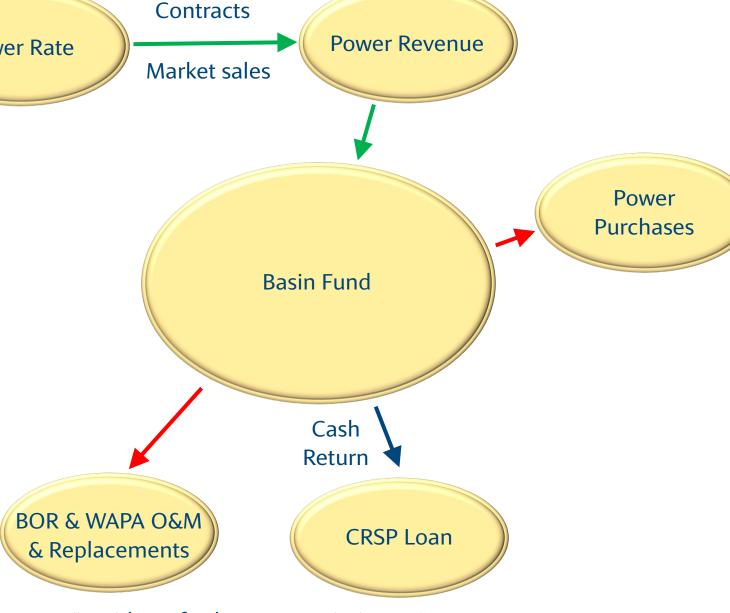
In order to initiate the comprehensive development of the water resources of the Upper Colorado River Basin, for the purposes, among others, of regulating the flow of the Colorado River, storing water for beneficial consumptive use, making it possible for the States of the Upper Basin to utilize, consistently with the provisions of the Colorado River Compact, the apportionments made to and among them in the Colorado River Compact and the Upper Colorado River Basin Compact, respectively, providing for the reclamation of arid and semiarid land, for the control of floods, and for the generation of hydroelectric power, as an incident of the foregoing purposes, the Secretary of the Interior is hereby authorized (1) to construct, operate, and maintain the following initial units of the Colorado River storage project, consisting of dams, reservoirs, powerplants, transmission facilities and appurtenant works: Curecanti, Flaming Gorge, Navajo (dam and reservoir only), and Glen Canyon: Provided, That the Curecanti Dam shall be constructed to a height which will impound not less than nine hundred and forty thousand acre-feet of water or will create a reservoir of such greater capacity as can be obtained by a high waterline located at seven thousand five hundred and twenty feet above mean sea level, and that construction thereof shall not be undertaken until the Secretary has on the basis of further engineering and economic investigations, reexamined the economic justification of such unit and, accompanied by appropriate documentation in the form of a supplemental report, has certified to the Congress and to the President that, in his judgment, the benefits of such unit will exceed its costs; and (2) to construct, operate, and maintain the following additional reclamation projects (including power-generating and transmission facilities related thereto), hereinafter referred to as participating projects: Central Utah (initial phase); Emery County, Florida, Hammond, La Barge, Lyman, Paonia (including the Mnnesota unit, a dam and reservoir on Muddy Creek just above its confluence with the North Fork of the Gunnison River, and other necessary works), Pine River Extension, Seedskadee, Silt and Smith Fork: Provided further, That as part of the Glen Canyon Unit the Secretary of the Interior shall take adequate protective measures to preclude impairment of the Rainbow Bridge National Monument.

Sec. 2. In carrying out further investigations of projects under the Federal reclamation laws in the Upper Colorado River Basin, the Secretary shall give priority to completion of planning reports on the Gooseberry, San Juan-Chama, Navajo, Parshall, Troublesome, Rabbit Ear, Eagle Divide, San Miguel, West Divide, Bluestone, Battlement Mesa, Tomichi Creek, East River, Ohio Creek, Fruitland Mesa, Bostwick Park, Grand Mesa, Dallas Creek, Savery-Pot Hook, Dolores, Fruit Growers Extension, Animas-La Plata, Yellow Jacket, and Sublette participating projects. Said reports shall be completed as expeditiously as funds are made available therefor and shall be submitted promptly to the affected States, which in the case of the San Juan-Chama project shall include the State of Texas, and thereafter to the President and the Congress: *Provided*, That with reference to the plans and specifications for the San Juan-Chama project, the storage for control and regulation of water imported from the San Juan River shall (1) be limited to a single offstream dam and reservoir on a tributary of the Chama River, (2) be used

The Basin **Fund - 1956**



- Power Revenue
 - BOR & WAPA O&M
 - Replacements
 - Firming for contracts
 - Repayment
- Power Contracts
 - WAPA is a wholesale provider
 - Project use
 - Preference customers
 - Small, rural utilities
 - 54 Tribes





1992 GCPA

Section 1804e: "Costs allocated to Section 1802 purposes shall be nonreimbursable"

- Nonreimbursable
 - Grand Canyon is national resource
 - Direct costs of GCPA are borne by the Federal government
 - Shifts burden of GCPA from project beneficiaries to the Federal government
- WAPA then books these costs as a constructive return against the debt taken to build the CRSP



RECLAMATION PROJECTS AUTHORIZATION AND ADJUSTMENT ACT OF 1992

TITLE XVIII -- GRAND CANYON PROTECTION

SECTION 1801. SHORT TITLE.

This Act may be cited as the "Grand Canyon Protection Act of 1992".

SEC. 1802. PROTECTION OF GRAND CANYON NATIONAL PARK.

- (a) In General. -- The Secretary shall operate Glen Canyon Dam in accordance with the additional criteria and operating plans specified in section 1804 and exercise other authorities under existing law in such a manner as to protect, mitigate adverse impacts to, and improve the values for which Grand Canyon National Park and Glen Canyon National Recreation Area were established, including, but not limited to natural and cultural resources and visitor use.
- (b) Compliance With Existing Law. -- The Secretary shall implement this section in a manner fully consistent with and subject to the Colorado River Compact, the Upper Colorado River Basin Compact, the Water Treaty of 1944 with Mexico, the decree of the Supreme Court in Arizona v. California, and the provisions of the Colorado River Storage Project Act of 1956 and the Colorado River Basin Project Act of 1968 that govern allocation, appropriation, development, and exportation of the waters of the Colorado River basin.
- (c) Rule of Construction. -- Nothing in this title alters the purposes for which the Grand Canyon National Park or the Glen Canyon National Recreation Area wwere established or affects the authority and responsibility of the Secretary with respect to the management and administration of the Grand Canyon National Park and Glen Canyon National Recreation Area, including natural and cultural resources and visitor use, under laws applicable to those areas, including, but not limited to, the Act of August 25, 1916 (39 Stat. 535) as amended and supplemented.

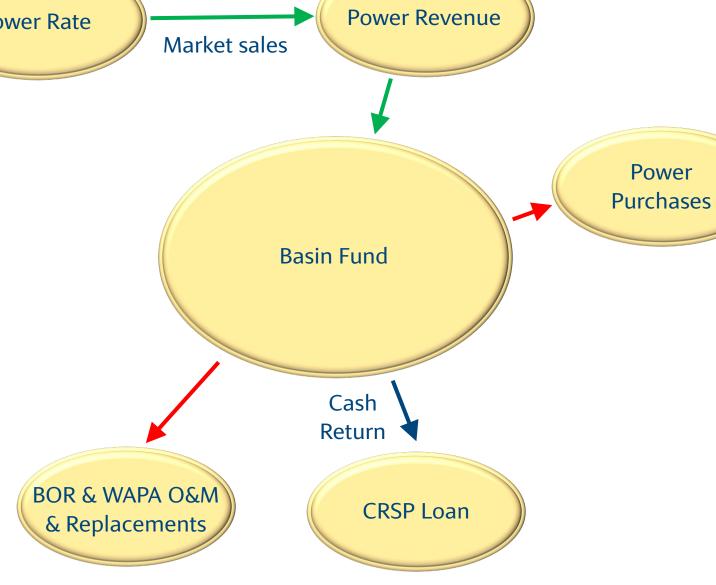
SEC. 1804.GLEN CANYON DAM ENVIRONMENTAL IMPACT STATEMENT; LONG-TERM OPERATION OF GLEN CANYON DAM.

(e) Allocation of Costs. --The Secretary of the Interior, in consultation with the Secretary of Energy, is directed to reallocate the costs of construction, operation, maintenance, replacement and emergency expenditures for Glen Canyon Dam among the purposes directed in section 1802 of this Act and the purposes established in the Colorado River Storage Project Act of April 11, 1956 (70 Stat. 170). Costs allocated to section 1802 purposes shall be nonreimbursable. Except that in Fiscal Year 1993 through 1997 such costs

The Basin **Fund - 1956**

Contracts Power Rate Market sales

- Power Revenue
 - BOR & WAPA O&M
 - Replacements
 - Repayment
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The Basin Fund w-GCPA



Power Revenue



Contracts

Power

Purchases

Nonreimbursable

activities (GCPA)

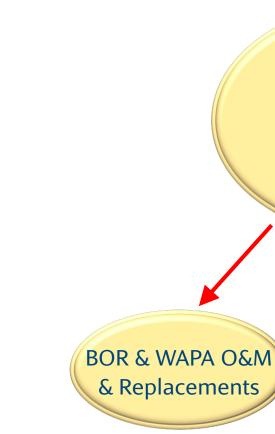
Constructive

Return

BOD C MADA OC

Power Revenue

- BOR & WAPA O&M
- Replacements
- Repayment
- Firming for contracts
- Power Contracts
 - WAPA is a wholesale provider
 - Project use
 - Preference customers
 - Small, rural utilities
 - 54 Tribes
- Nonreimbursable activities
 - GCDAMP & UCRIPs
 - Glen Canyon Dam experiments
 - Water quality and consumptive use studies







Basin Fund

Cash

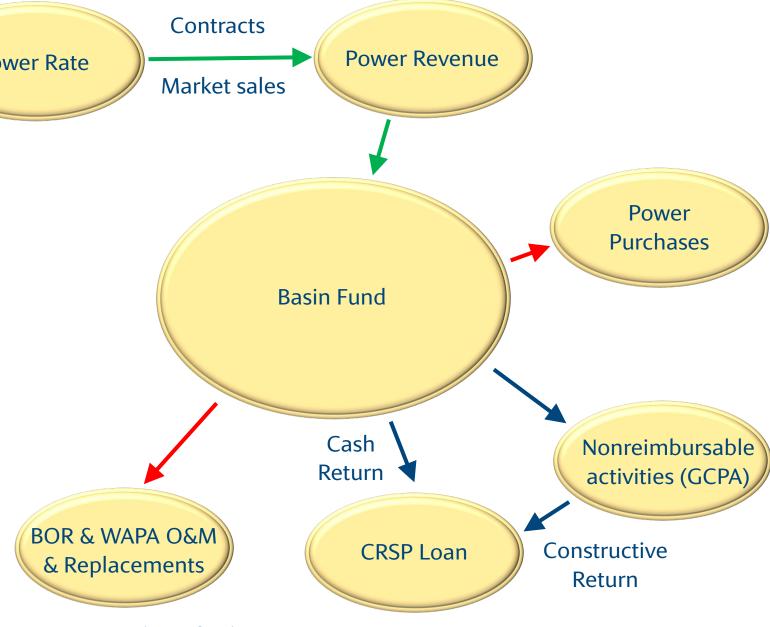
Return

CRSP Loan

Basin Fund principles

Contracts Power Rate Market sales

- Cost-based project
 - Revenues = Expenses
 - ~\$200M/yr
- Basin Fund pays for things
 - Buffers against lean years and unexpected expenses
 - Has a finite balance
 - Cannot be overdrawn (Anti-Deficiency Act)
- There is a finite amount of repayment/constructive returns
- No additional appropriations for O&M & replacements
- Glen Canyon experiments are nonreimbursable and booked as a constructive return







Status of the Basin Fund







Reduced funding for nonreimbursable activities



Inability to firm / increased risk of CRC



Deferred some replacements



Ahead on repayment



 Reduced O&M on water and power





"... without further appropriations ..."

Power

Purchases

Another day: Experiments may also have non-Basin Fund related impacts

- Changes in energy prices linked to experiments
 - 2000 LSSF
 - HFEs
 - SMB Bypass EA
- Difficulty in finding and delivering on-peak replacement energy and selling off-peak power
- Reduced power resources = Increased competition = Higher prices for everyone
- Larger experiments could threaten grid stability



Glen Canyon is an integral component of the Western grid and hydropower plays a critical role in power production, grid stability, and emergency response.

Hydropower works in concert with wind and solar and is an important component of a renewable, non-carbon-based power portfolio.



Possible Solutions

Establish an Experimental Fund and Budget

4:15 PDT (:15)

Sustain Funds to Maintain Infrastructure: David Rosenberg, Utah State University (USU)

Presentation (10 minutes)

Q&A and discussion (5 minutes)

https://www.usbr.gov/uc/progact/amp/twg/2023-04-13-twg-meeting/20230413-TWGMeeting-FinalAgenda-508-UCRO.pdf

Bugs Pay for Days of Steady Reservoir Releases to Reduce Costs to Hydropower Customers and

- Nonreimbursable appropriation to Reclamation to offset cost of experiments
- Cost share from power, water, recreation, conservation, resource management agencies, and research grants
- In order to comply with GCPA, hydropower costs would need to be transferred back into the Basin Fund





Summary

Why can't we afford a \$40-\$80M/yr nonreimbursable expense to the Basin Fund?

- The nonreimbursable program was an elegant solution.
- Absorbing the costs of experimental releases is not what the Basin Fund is for.
- The purpose of the Basin Fund is to operate and maintain the CRSP.
- The 1992 GCPA says project beneficiaries are not to cover the costs of experimental releases.
- Because of the repayment obligation, the nonreimbursable program has worked for smaller experiments, but it does not work for larger experiments.
- Keeping things in perspective:
 - BOR UC budget request to operate the entire CRSP = \$80M/yr
 - Aging infrastructure: \$40M in replacements at Glen Canyon
 - Unanticipated repairs: \$15M storm damage on 3 miles of the Pinnacle Peak – Rogers line in 2022 (Glen Canyon to Phoenix/Mesa)





