Clarence Cannon Conundrum: relinquish water storage or not?

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Background

- Clarence Cannon (then Joanna Reservoir) was first proposed in 1937 to address flooding by Salt River in Northeast Missouri.
- Multipurpose project – hydroelectric power, flood damage reduction, recreation, fish and wildlife conservation, water supply and navigation.
Definitions

• Future-use storage: water supply storage that has not been activated by the user
• Present-use storage: water supply storage that is currently being used
• Activation: commencement of use of water stored
Clarence Cannon Contracts

- 3-way contract between U.S. Army Corps, State and CCWWC

- Water Storage contracts: 20,000 acre-feet
  - State of Missouri – 13,125 acre-feet (11 MGD) – future use
  - CCWWC – 6,875 acre-feet (5 MGD) – present use
State of Missouri’s payments

- O&M and interest:
  - Range - $435,000 to $835,000 in O&M and interest
  - The difference in payments are largely due to activities taken up by the Corps
  - $11.3 million due in 2038 for the cost of dam
  - State of Missouri continues making O&M payments beyond 2038 as long as water is used
  - O&M payments are proportional to water use
MISSOURI
POPULATION TRENDS
BY COUNTY 1900-2010

University of Missouri-Columbia
Social Science Division
Department of Rural Sociology
MU Extension Division

NOTE:
Populations are expressed in thousands of persons.

SOURCE:
Populations counts are shown as reported by the United States Census Bureau.

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Policy options: to relinquish or not?

• Water Resources Reform and Development Act 2014 provisions:
  – Section 1046 (d): Option for relief from contractual obligations on future-use storage for water supply
  – Section 7001 (c): Project modification to existing project

• Policy options:
  1. In the wake of population decline, does it make sense to hold on to water storage in anticipation of future growth?
  2. Release water storage and reduce payments on interest, O&M and capital costs?
  3. What if there’s growth in the future?
State’s cost calculations

• Missouri’s payment:
  – Annual Operation and Maintenance:
    7.24% x \(\frac{13,750}{20,000}\) x Annual O&M
  – Annual Interest rate – 3.22%
    3.22% x 11,318,268 = $95,094.98

• FY 2016 payment:
  – Interest = $364,448.22
  – O&M = $ 90,710.99
  – Total = $455,159.21
Future use

• When is the payment of $11.3 million due?
  – If no water storage is converted to present use it’s due in 2038 when the contract ends
  – Or when State of Missouri converts future use to present use i.e., starts using the water
  – An option of amortizing that $11.3 million exists if State of Missouri uses that water
Missouri’s Payments 1994-2014

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<th>Interest</th>
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Marketability potential

- Red: Systems with population decline
- Yellow: Systems considering dropping out
- Green: Systems with small population growth
- Teal: Systems with high population growth
Reasons to request relief from contract

- Population in a declining trend – less customers
- 13,125 acre-feet has not been used or called to use in 25 years (even in severe droughts)
- Barriers to system expansion
  - Physical – infrastructure upgrades
  - Economic – fewer grants, higher rates for communities, not an agreeable solution, not so robust economy
  - Systems treating their own water, dropping out of CCWWC’s service
Risks of contractual release

• Risks of release from contractual obligations:
  – If water demand increases, State will have to pay a higher cost to buy back storage
  – If a severe drought occurs, the stored water can supplement existing sources
  – If systems determine that infrastructure upgrades are expensive, they may revert back to CCWWC demanding water
  – A water-intensive operation/firm/employer if relocates in Northeast MO can trigger a growth in population and stabilize the economy and increase water demand
  – If we revert back storage to the Corps, the uncontracted water storage can be claimed on a first-come-first basis or by other authorized purpose
  – Need to start over on interest payments and interest rates could go up
Scenarios

• Scenario I: Business as usual

• Scenario II: Release 5,600 acre-feet to the USACE assuming:
  a. Hypothetical animal feeding operation with a water demand - 2,000 acre-feet (100 head cattle)
  b. Hypothetical ethanol plant (1 million gallons per year capacity) with a demand – 4,600 acre-feet

• Scenario III: Release water storage gradually until 2025
Clarence Cannon Service Area Population projections

![Graph showing population projections for Clarence Cannon Service Area with three lines representing low, medium, and high scenarios. The x-axis represents years from 2000 to 2060, and the y-axis represents population in thousands, ranging from 0 to 350,000. The population projections increase over time, with the high scenario reaching approximately 300,000 by 2060.](image-url)
Scenario II: Hypothetical water demand

![Graph showing hypothetical water demand from 2015 to 2038 for USACE, CCWWC, and MO.]
Missouri’s water storage 2015-2038
Scenario III: Gradual release of storage
Savings

• Scenario I: no savings

• Scenario II: $10 million savings
  – $5.5 million savings in interest + O&M
  – $4.5 million savings in Principal

• Scenario III: $11.2 million savings
  – $6.7 million savings in interest + O&M
  – $4.5 million savings in Principal
Conclusions

• Missouri chose Scenario II to allow for storage adjustments for unforeseen circumstances and minimizing negative impacts
• 7001 project modification under review
• Savings from this project can potentially be used to support other water supply projects
• Uncertainty about future complicates decision
Questions?