Water Exchange Negotiation—Lake Powell Pipeline

Purpose

The State of Utah, represented by the Utah Division of Water Resources, and the United States, represented by the Bureau of Reclamation, are partnering to negotiate a water exchange contract, which will help facilitate Utah’s use of its Colorado River apportionment. The exchange concept secures timing and other benefits for Utah from Flaming Gorge Dam releases, while preserving flows in the Green River to meet Flaming Gorge Dam Record of Decision obligations. It also complies with the Law of the River and provisions under the 1996 agreement that assigned the subject water right to the State of Utah.

Background

In 1956, Congress passed the Colorado River Storage Project (CRSP) Act, which authorized construction of Flaming Gorge, Glen Canyon, Navajo and Curecanti dams, along with the Central Utah and other participating projects. However, in 1992 Congress deauthorized construction of the Central Utah Project (CUP) Ultimate Phase. As a result, in 1996 Reclamation formally assigned the water right previously associated with the CUP Ultimate Phase to Utah. That assignment included a condition that Utah would enter a contract with the United States for benefits it receives from CRSP water facilities. This exchange negotiation satisfies that condition and secures benefits of reliable water flows for the state from Flaming Gorge Dam. It also acknowledges additional benefits the state will receive from Lake Powell.

Overview of Exchange Concept

Utah will trade use of variable Green River tributary flows for reliable releases from Flaming Gorge Dam. Such an exchange enables full use of Utah’s assigned water right by providing reliable assurance for the state and a needed water source for 13 southern Utah communities. It maintains flexibility for Reclamation to meet Flaming Gorge Dam Record of Decision obligations. Part of the state’s Colorado River apportionment will flow from Flaming Gorge Dam for delivery through Utah’s proposed Lake Powell Pipeline. The exchange compensates the United States for benefits Utah receives from existing federal water facilities, while avoiding the need for Utah to finance, construct and operate new state-owned water storage facilities to enable use of its assigned water right.

This Negotiation is Not...

- A water purchase contract
- A water storage contract
- A transfer or purchase of water rights
- Reopening Flaming Gorge Dam Record of Decision
- Changing Flaming Gorge Dam or Glen Canyon Dam operations
- Modifying the Colorado River Compact
Benefits of Exchange

The concept of this exchange carries several benefits for the State of Utah, the federal government, and the state's constituent water users. It provides a stable future water supply for Utah and allows the state to fully develop its assigned water right. It preserves reliable flows for Flaming Gorge Dam Record of Decision operations. It reduces risk of shortage for the state from hydrologic fluctuations. It maintains the original water right priority date of 1956. It preserves operational flexibility, continues environmental flow compliance and increases Flaming Gorge Dam base flow releases during peak recreation seasons.

Key Contract Clauses

Under the concept of this exchange, the State of Utah and United States will negotiate several key contract clauses, including:

- Water management and accounting.
- 3rd party contracts between the State of Utah and its constituent water distributors and users.
- Pricing (per acre foot) for benefits Utah receives from existing federal water facilities. Acre foot billed amounts will be based on actual depletions.

Water Exchange Negotiation Process

1. Negotiation meetings—Kick-off with public open house in St. George, Utah on December 4, 2017. Additional public negotiation sessions will be scheduled in Salt Lake City.
2. Agreement on terms and conditions.
3. Environmental compliance completion—Will include separate process for open public participation.

How Can You Be Involved?

Public comments, specific to this exchange contract negotiation, are welcome by:

- Submitting a feedback form at one of the public negotiation meetings;
- Providing comments during the formal public comment period during public negotiation meetings; or,
- Emailing comments to: UtahComments@usbr.gov

Additional opportunities for public involvement are available separate from this negotiation process, including Flaming Gorge Work Group meetings held several times each year, an environmental compliance public comment period and the water rights review process for change applications.
Ultimate Phase Timeline

1922  Colorado River Compact signed

1939  Colorado River-Great Basin Project proposed to divert water from the Green River to the populous Wasatch Front

1945  Central Utah Project (CUP) proposed as extension of the proposed Colorado River-Great Basin Project

1946  U.S. Bureau of Reclamation establishes its Central Utah Project Office

1948  Upper Colorado River Basin Compact signed

1956  Colorado River Storage Project Act - Authorizes construction of Glen Canyon, Flaming Gorge, Navajo and Curecanti dams along with the Central Utah and other participating projects

1958  Construction begins on Flaming Gorge Dam

1959  State of Utah grants portion of its water right to Bureau of Reclamation to facilitate construction of Central Utah Project (CUP)

1963  President John F. Kennedy initiates power generation at Flaming Gorge Dam

1964  First Lady Claudia "Lady Bird" Johnson dedicates Flaming Gorge Dam

1966  CUP Vernal Unit completed

1967  CUP Bonneville Unit groundbreaking

1980  CUP Jensen Unit completed

1992  Central Utah Project Completion Act - Deauthorizes completion of the CUP Ultimate Phase and provides guidance for completing remaining units

1996  Bureau of Reclamation assigns water right associated with the CUP Ultimate Phase to State of Utah through Assignment Agreement

2017  After years of discussion between State of Utah and United States, formal negotiations begin on water exchange concept to facilitate full use of Utah's assigned water right and comply with requirements of 1996 Assignment Agreement and Law of the River
Welcome
to the State of Utah and
U.S. Bureau of Reclamation
Lake Powell Pipeline Block
Water Exchange Contract Negotiation
How Can You Be Involved?

1. Public comments welcome through:
   a. Submitting feedback form
   b. Providing comments during public comment period
   c. Emailing comments to: UtahComments@usbr.gov

2. Additional opportunities for public involvement are available separate from this negotiation process, including:
   a. Flaming Gorge Work Group Meeting – March 8, 2018 in Price, Utah
   b. Flaming Gorge Work Group Meeting – April 19, 2018 in Vernal, Utah
   c. Environmental compliance public comment period – TBD
   d. Water rights review process for change applications – TBD
What is the Process?

1. Negotiation meetings
2. Agreement on terms and conditions
3. Environmental compliance completion
   a. Separate process for public participation
4. Contract signed between State of Utah and United States
5. State water right change application process
   a. Separate public review process
6. Contract signed between water users/providers and State of Utah
Key Contract Clauses

1. Water Measurement and Accounting

2. 3rd party contracts between State of Utah and water distributors

3. Pricing (per acre foot)
   a. Operation & Maintenance
   b. Ultimate Phase Rate
   c. Energy Savings Assessment
   d. Acre foot billed amounts will be based on actual depletions
Pumping Cost Savings Due To Lake Powell

Pumping Energy = Water Quantity x Water Lift Height

Pumping Costs = Pumping Energy x Electric Rate

Energy Cost Savings = Pump Costs without Lake Powell - Pump Costs with Lake Powell

Energy Cost Savings are a function of the electric rate and reduced water lift height (pumping energy) due to the elevation of water in Lake Powell
Benefits of Exchange

- Allows Utah to fully develop its assigned water right
- Provides reliable flows for Flaming Gorge Dam Record of Decision operations
- Maintains original water right priority date of 1956
- Reduces shortage risk from hydrologic fluctuations
- Preserves operational flexibility
- Continues environmental flow compliance
- Increases base flow releases during peak recreation
- Provides stable future water supply for Utah
Overview of Exchange

- Proposes trading variable tributary flows for reliable Flaming Gorge Dam releases.
- Enables use of Utah's assigned water right.
- Water will flow from Flaming Gorge Dam more than 400 miles to Utah's proposed Lake Powell Pipeline.
- Provides reliable timing of flows for Utah and a needed water supply for 13 southern Utah communities.
- Maintains flexibility for Flaming Gorge Dam Record of Decision compliance.
- Avoids State construction of new water storage facilities.
- Compensates the United States for benefits Utah receives from federal water facilities.

Note: Compensation is limited to the value of benefits to the State from use of federal facilities. Utah holds the water right, has the legal right to beneficially use the water and is not purchasing water from Reclamation.
This Negotiation is Not...

- A water purchase contract
- A water storage contract
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- Reopening Flaming Gorge Dam Record of Decision
- Changing Flaming Gorge Dam operations
- Modifying the Colorado River Compact
Purpose of Negotiation

- State and Federal partnership to facilitate Utah's full use of its Colorado River water apportionment
- Meet 1996 Assignment provision that Utah enter contract with United States
- Comply with Law of the River and other legal obligations
- Achieve exchange that enables development of Utah's water right
- Secure timing and other benefits from Flaming Gorge Dam releases
- Preserves flows in the Green River to meet Flaming Gorge Dam Record of Decision obligations
Meeting Schedule

1:00 – 1:50 p.m. Open house
1:50 – 2:00 p.m. Break
2:00 – 2:10 p.m. Introductory Presentation
2:10 – 4:00 p.m. Negotiation
4:00 – 4:10 p.m. Break
4:10 – 5:00 p.m. Public Comment Period

Further negotiations will be held in Salt Lake City.
Hi Jane,

Please see the attached sheet that was shown in the St. George negotiation meeting. An energy cost savings assessment is part of the overall cost being negotiated under this contract to compensate the U.S. government for benefits Utah will receive from federal water facilities. The formulas are intended to calculate an energy savings benefit given the average elevation of the water in Lake Powell. It is not intended to calculate the pumping costs for the project. The formulas in this slide represent the state’s initial proposal to Reclamation and might be subject to change as the parties continue to negotiate the final contract. Hope this is what you are looking for.

Best,

Joel

On Fri, Dec 15, 2017 at 12:39 PM Jane Whalen <janewhalen@earthlink.net> wrote:

Hi Joel

You showed a slide that had the cost of power for pumping the Lake Powell Pipeline and can you send me that slide.

Best,

Jane Whalen
Conserve Southwest Utah
Phone 435-635-2133

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Utah Division of Water Resources
1594 West North Temple, Suite 310
P.O. Box 146201
Salt Lake City, UT 84114-6201

Ph: (801) 538-7249
Fax: (801) 538-7279

joelwilliams@utah.gov
Energy Savings Assessment Calculator

Previous 5-yr Average Lake Elevation: \[ \text{3601 ft} \]

Minimum Functional Lake Elevation: \[ \text{3525 ft} \]

Total head benefit for Savings: \[ 76 \text{ ft} \]

\[
\text{Power (HP)} = \frac{(yQh/550)}{E}
\]

\[
\begin{align*}
\gamma \text{ (water unit weight)} & = 62.4 \text{ lb/ft}^3 \\
Q \text{ (flow)} & = 124.24 \text{ cfs} \\
LPP \text{ Flow (AF/yr)} & = 86,249 \text{ AF/yr} \\
LPP \text{ Flow (cfs)} & = 124.24 \text{ cfs} \\
h \text{ (pumping lift)} & = 76 \text{ ft} \\
1 \text{ HP} = 550 \text{ ft-lb/sec} & = 550 \text{ ft-lb/sec} \\
E \text{ (Pumping Efficiency)} & = 0.85
\end{align*}
\]

\[
\begin{align*}
\text{Power} & = 1260.31 \text{ HP} \\
\text{conversion} & = 0.746 \text{ kW/HP} \\
\text{Power} & = 940.19 \text{ kW/HP} \\
\text{Time (50 weeks)} & = 8400 \text{ hrs} \\
\text{Pumping Energy} & = 7897594.531 \text{ kW-hrs} \\
\text{Electric Cost/kw-hr} & = $0.02000 \text{/kW-hr} \\
\text{Annual Pumping Cost} & = $157,951.89 \text{ dollars} \\
\text{Cost / AF} & = $1.83 \text{ /AF} \\
\text{Board's Percentage:} & = 50\%
\end{align*}
\]

**Total Annual Charge:** \[ $0.92 \text{ /AF} \]