

**I. The Utah Rivers Council (“URC”) is formally protesting Change Application #a45683.**

The URC hereby submits a timely protest and request for a hearing, pursuant to Utah Code §73-3-7, regarding Application for Permanent Change of Water No. a45683 (“Application”) filed by the State of Utah Board of Water Resources (the “Applicant”) on April 13, 2020. This Application pertains to a proposal for an additional point of rediversion and a change of the nature of use and place of use of the water claim in order to facilitate the development of the Lake Powell Pipeline (“LPP”).

The URC is a non-profit 501(c)(3) grassroots community-based organization that advocates for sound water policy and protection and conservation of Utah’s rivers, streams, and clean water sources for today’s citizens, future generations, and wildlife. The URC has a long history working to protect the Green and Colorado Rivers and their tributaries and we believe the proposed water rights change application affects numerous stakeholders, including the thousands of members of our organization and many URC members throughout Utah. These members are taxpayers, ratepayers, conservationists, fishermen, outfitters, guides, other recreationists, and business leaders who have a vested interest in sustainable water management, fiscally conservative water spending, and the continued existence of aquatic ecosystems.

Our experience in drafting and implementing statewide water policy, analyzing municipal water use data, studying water project economics, initiating water conservation programs and our ability to provide expertise on sustainable water policy has made our organization a leader in the conservation community in Utah. As such, the URC is formally protesting Change Application #a45683 as a “persons interested” under Utah Code §73-3-7. The arguments for our protests are as follows.

**II. The Kane County Water District has dropped out of the Lake Powell Pipeline project; therefore, the Application should be refiled to account for this change in material circumstances.**

According to the Application, “The Washington County Water Conservancy District and the Kane County Water Conservancy District will contract with the Board to place water under the Water Right to beneficial use providing a critical water supply to communities in the service area of the Districts.” However, according to the Kane County Water District, it has withdrawn itself from participating in the Lake Powell Pipeline because it is “fortunate to have local water resources that they can develop to meet its currently projected growth.”<sup>1</sup> The Application does not represent these changes in material circumstances and therefore the Application should be refiled to remove the Kane County Water District as a contracting party.

**III. A change application is an inappropriate filing because there is not a currently-existing perfected water right and, due to climate change, no water is available for a new beneficial use; therefore, this water right change application should be withdrawn and an application to appropriate should be filed instead.**

According to Utah Code §73-3-3(3)(a), “a person entitled to the use of water may make a change to an *existing right* to use water” through the filing of a change application (emphasis added). Therefore, if a water right currently exists, an applicant should file a change application with the State Engineer to make any changes to that existing right. However, if an applicant is attempting to appropriate water that has yet to be appropriated, said party must file a different application under Utah Code §73-3-2.

Water Right #41-3479 (A30414d) was initially applied for appropriation on August 7, 1958. The quantity of available water that exists in the Colorado River Basin (“CRB”) has materially declined since 1958, largely due to climate change and depletions throughout the

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<sup>1</sup> *Kane County Withdraws from Lake Powell Pipeline Project*, AP News (April 17, 2020) <https://apnews.com/f32c2cc8d1f9f9136e58583481f52866>

system. Additionally, the 1958 water right was never perfected. As a result, no water right exists so as to be “changed” as the Application proposes. A change application may not be used to create an entirely new water right. Instead, a separate application must be completed and submitted to the State Engineer pursuant to Utah Code §73-3-2.

According to Utah Code §73-3-2(1)(a), “In order to acquire the right to use any unappropriated public water in this state, any person who is a citizen of the United States [...] shall make an application in a form prescribed by the state engineer before commencing. . . .”

This application must include the name and post office address of the applicant, the nature of the proposed use for which the appropriation is intended, the quantity of water to be appropriated, the time of year it is to be used, the name of the source from which the water is being diverted, the place on the course where the water is to be diverted and the nature of the diverting works, the dimensions, grade, shape, and nature of the diverting channel, and any other facts that clearly define the purpose of the proposed appropriation.<sup>2</sup>

As discussed more robustly in Section VIII of this Protest, the BOR studies show that climate change will deplete flows in the Colorado River, so much so that it will no longer be able to support existing demands for Colorado River water in many locations, including and specifically to service the water rights of the proposed Lake Powell Pipeline. Accordingly, the State Engineer should consider this new data before moving forward with this Application.

**IV. The State Engineer should stay the change application until the litigation surrounding the Green River Block Exchange Contract is resolved because the water right claims in this Application originate from this contract.**

It would be premature for the State Engineer to make any decision regarding this Application because the Green River Block Water Exchange Contract (“GRB”) from which this

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<sup>2</sup> Utah Code §73-3-2(1)(b).

water right change application was initiated is a federal agency action under the Bureau of Reclamation (“BOR”) which is currently being litigated by a wide array of plaintiffs in the District Court of the District of Columbia. The water claims involved in the GRB are identical to the water claims of this Change Application.

In January 2016, the BOR received a letter from Utah requesting two contracts for the use of its assigned water right totaling 158,890 acre-feet.<sup>3</sup> One of these contracts is the LPP Exchange Contract that represents 86,249 acre-feet and is to be used for the development of the LPP. The second contract is the GRB which represents the remaining 72,641 acre-feet of the assigned right and is to be used for development along the Green River. In the final Environmental Assessment (“EA”) issued by the Bureau, the two contracts are considered “separate and distinct” and “one contract is not reliant on the other.” However, as is described in detail below in Section VIII the rapid decline in available water flows as a function of climate change temperature increases and appurtenant snowpack declines has extinguished valid claims to these water rights as distinct water volumes. Rather, this separation appears to be a deliberate attempt by the Applicant to avoid considering the cumulative impacts of these projects together in a single NEPA evaluation.

The applicant of this water right change application itself has expressed its belief that the water rights from the GRB are in fact associated with the Lake Powell Pipeline water rights claim. Eric Millis, Director of the Utah Division of Water Resources, spoke directly to the Board of Water Resources on October 11, 2018 about the water claims of the Application at issue.

Millis noted at Minute 1:45:40 of the meeting:

*“We have been working with the Bureau of Reclamation on a number of things. We held negotiation meetings, as you’ll remember last winter, on the terms for the [GRB], which*

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<sup>3</sup> *Green River Block Water Exchange Contract, Final Environmental Assessment*, Bureau of Reclamation (January 2019)

*are required as a condition for the [BOR] having given the Board [of Water Resources] the Flaming Gorge water right, which become the basis for the water right for the Lake Powell Pipeline, as well as any other projects.”*

To avoid further confusion and misinterpretations, a Board Member then asked a clarifying question, “*That’s the Flaming Gorge water right we’re talking about?*” To which Millis responded with a confident “*It is.*”

This recorded transcript is undeniable proof that the water claims of the Application are identical to the water claims that are currently subject to litigation in the GRB EA. For these reasons, the State Engineer should stay the change application until the pending litigation is resolved.

To postpone a decision for a change application that may be impacted by disputes pending a resolution is not an unprecedented option for the State Engineer.<sup>4</sup> Therefore, the URC urges the State Engineer to postpone any decision regarding the fate of this Application until the GRB litigation concludes.

**V. A separate NEPA process has been initiated for the Lake Powell Pipeline Exchange Contract which is incomplete and unresolved and may yield a determination that no water is available for Lake Powell Pipeline water rights, thereby warranting a stay of this proposed water right change application.**

If the water claims contained in the GRB litigation and those of the Application are not identical, the State Engineer should nonetheless stay the change application until the proper NEPA procedure is completed as required by federal law. The Bureau of Reclamation has initiated scoping for this proposed NEPA work for the Lake Powell Pipeline Water Exchange

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<sup>4</sup> Cf. *Salt Lake City v. Silver Fork Pipeline Corp.*, 5 P.3d 1206, 1211 (Utah 2000) (noting that the State Engineer decided to stay action on the defendant’s claim and the plaintiff’s change application pending the resolution of the dispute at issue); *Jensen v. Jones*, 270 P.3d 425, 430 (Utah 2011) (noting that the State Engineer is limited to consider factors of Utah Code §73-3-8 when deciding to approve or deny a change application, but may elect to stay a change application while waiting for the results of an adjudication).

Contract, which the State Engineer must consider the findings of before acting upon this Application.

NEPA is a procedural state that requires federal agencies to take a “hard look” at possible environmental consequences of their actions before proceeding with any significant projects. NEPA is triggered by “major federal actions significantly affecting the quality of the human environment.”<sup>5</sup> This means that for such action, a comprehensive summary of possible environmental impacts of the action must be prepared in order to ensure the “consideration of environmental factors” and to allow for public disclosure of possible environmental implications.”<sup>6</sup> This detailed summary is referred to as an Environmental Impact Statement (“EIS”).<sup>7</sup> If there is no significant threat to the human environment, a less-involved form of analysis is permissible, that is, the EA.<sup>8</sup>

If after conducting an EA, an agency determines that an EIS is not necessary, a “Finding of No Significant Impact” (“FONSI”) is issued.<sup>9</sup> The FONSI indicates that an agency has determined that their proposed action “will not have significant effects on the human environment” and why “an environmental impact statement will therefore not be prepared.”<sup>10</sup> However, a FONSI may not be appropriate after conducting an EA, in which case an EIS will be initiated.<sup>11</sup>

The Application explicitly states that, “Through this Application, the Board, along with the Districts, seek approval to add a point of rediversion and to change the place of use and

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<sup>5</sup> 42 U.S.C.A. § 4332.

<sup>6</sup> *Overview of the National Environmental Policy Act: Environmental Impact Assessments and Alternatives*, CZ017 ALI-CLE 687 (June 2018).

<sup>7</sup> 42 U.S.C.A. § 4332(C).

<sup>8</sup> 40 C.F.R. § 1508.9(a).

<sup>9</sup> 40 C.F.R. § 1508.13.

<sup>10</sup> *Id.*

<sup>11</sup> *Id.*

nature of use of the Water Right to facilitate the development of the [LPP] Project.” This Application is thus interconnected with the LPP Exchange Contract, which as mentioned above, has been proposed in order to facilitate the development of the LPP water right. The LPP Exchange Contract has yet to be effectuated into law. Moreover, the LPP Exchange Contract is currently pending NEPA review.

Because the Final EA or EIS and the possible issuance of a ROD will contain valuable information pertaining to the proposed water claims of the Application, it would be rash for the State Engineer to decide on the change application before this information is made available. As such, the State Engineer should stay the change application. Furthermore, it is not certain that the Lake Powell Pipeline Block Exchange NEPA process will result in the approval of this water right claim, which would make the State Engineer’s decision on this water right change application superfluous.

**VI. The approval of this Application would result in a violation of the Colorado River Compact of 1922 because the Lake Powell Pipeline is a trans-basin water diversion from the Upper Colorado River Basin to the Lower Colorado River Basin.**

The Application proposes to transfer water from an Upper Basin water right for use in the Lower Basin. However, according to a letter exchanged between the State of Arizona and the Applicants, such a transfer would violate the terms of the Colorado River Compact. The letter states:

*“...it is ADWR’s position that water from Utah’s Upper Basin Allocation may not be transported from Lake Powell to communities in southern Utah located in the Lower Colorado River Basin, including St. George, without specific authorization from Congress. This is because of the ‘exclusive beneficial use’ language in Article III(a) of the Colorado River Compact of 1922, which allocates water from the Colorado River System to the Upper Basin for exclusive use in that basin and to the Lower Basin for exclusive use in that basin.”<sup>12</sup>*

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<sup>12</sup> Exhibit A, Letter from the Director of the Arizona Department of Water Resources to the Director of the Utah Division of Water Resources (July 18, 2017), <https://www.waterrights.utah.gov/docImport/0624/06246283.pdf>

For such a transfer, there must be approval by the United States Congress as well as all seven states that are party to the Colorado River Compact. Without such approval, the State Engineer lacks the authority to approve such a transfer. Therefore, this Application should be rejected or otherwise risk violating an existing, legally binding compact.

**VII. The Lake Powell Pipeline threatens the water supplies of the Central Utah Water Project and other water uses in Utah which are currently dependent upon Colorado River water, particularly during a curtailment scenario of the Colorado River Compact.**

The Central Utah Water Project (“CUP”) is an elaborate water project sprawling across 9 Utah counties and currently utilizing the waters of the Colorado River Basin. This is a large water development project initiated in 1956 and administered by the Central Utah Water District and other Utah water agencies which are receiving CUP water into their water supply portfolios. The CUP provides Utah with the opportunity to beneficially use a portion of its allocated share of the Colorado River via both agricultural water use and municipal water supplies. Water is provided to more rural areas of Utah in the Uintah and Bonneville Basins for irrigation, as well as to the Wasatch Front for municipal and industrial use.<sup>13</sup>

According to Utah Code §73-3-8, the State Engineer should reject an application if the proposed use of the water will impair existing rights or interfere with a more beneficial use of the water. CUP water is currently being used for municipal, industrial, irrigation, hydroelectric power, fish, wildlife, conservation, and recreation. The Application threatens the existing water rights of the CUP particularly in a curtailment scenario under the guidelines of the Colorado River Compact. For this reason, the Application should be rejected because it does not meet the requirements of Utah Code §73-3-8(1)(a)(ii).

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<sup>13</sup> *Central Utah Project*, Bureau of Reclamation, <https://www.usbr.gov/projects/index.php?id=498>



In the years that there is not enough water available in the Colorado River Basin to meet the requirements of the Upper Basin States to deliver 7.5 million acre-feet to the Lower Basin States,<sup>14</sup> CUP water will be threatened. Under Article IV of the Upper Colorado River Basin Compact:

*In the event of curtailment of use of water by the States of the Upper Division at any time shall become necessary in order that the flow at Lee Ferry shall not be depleted below that required by Article III of the Colorado River Compact, the extent of curtailment by each State of the consumptive use of water apportioned to it by Article III of this Compact shall be in such quantities and at such times as shall be determined by the Commission upon the application of the following principles: [...] If any State or States of the Upper Division [...] shall have consumptively used more water than it was or they were [...] entitled to use under the apportionment made by Article III of this Compact, such State or States shall be required to supply at Lee Ferry a quantity of water equal to its, or the aggregate of their, overdraft of the proportionate part of such overdraft, as may be necessary to assure compliance with Article III of the Colorado River Compact, before demand is made on any other State of the Upper Division [...].*

Essentially, if the Lower Basin States were to not receive their allocated share of the Colorado River as apportioned in the Colorado River Compact, Upper Basin States are responsible for forgoing portions of their water supplies and uses from the Colorado River to make up the water deficit. This means that under a curtailment scenario, Utah may need reduce its use of water from the CUP, or other Colorado River water uses outside of the CUP.

**VIII. The Application should be rejected because it is an impermissible deviation from the State Engineer's duty under Utah Code §73-3-8(1)(a)(i) because of the decline in water supplies by virtue of climate change.**

Voluminous studies conducted by credible research institutions, local, state, and federal water supplies, and independent scientific academizations, which have been published consistently in peer-review journals and other publications, demonstrate widely that climate change has reduced the flows of the Colorado River, and will continue to do so. The water

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<sup>14</sup> See Article III of the Colorado River Compact

system is in a constant state of decline due to climate change. As a result, the water the Application is seeking to utilize does not exist. The State Engineer may be inclined to approve this Application with a junior status, however, such approval would be a reckless abandonment of his duties under the Utah Code because the Application is not physically or economically feasible and its approval would pose a significant threat to the public's welfare.

Under Utah Code §73-3-8(1)(a)(i), a State Engineer may approve a change application if there is unappropriated water in the proposed source. If there is no unappropriated water, the application should be rejected. Accordingly, the URC urges the State Engineer to reject the Application as per the requirements of Utah Code §73-3-8(1)(a).

**a. The unperfected water rights in question are associated with two separate NEPA actions led by the Bureau of Reclamation, which has published several climate change studies which demonstrate a lack of available water supply to service the proposed use of water rights.**

The Bureau of Reclamation has published several studies which show that climate change will deplete flows in the Colorado River, so much so that it will no longer be able to support the demand for Colorado River water in many locations, specifically to service the water rights of the proposed Lake Powell Pipeline.

The most recent, basin-wide study of the effects of climate change on the Colorado River and its tributaries published by the Bureau of Reclamation is their 2012 *Colorado River Basin Water Supply and Demand Study*.<sup>15</sup> The BOR published a climate change report in 2016, however this report failed to conduct a new analysis for the flows of the Colorado River Basin. Rather, it restated the findings from the 2012 study. Therefore, the 2012 report is the most relevant study for the evaluation of this water right change application. The 2012 report shows

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<sup>15</sup> *Colorado River Basin Water Supply and Demand Study, Executive Summary*, Bureau of Reclamation (2012) [https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/Executive%20Summary/CRBS\\_Executive\\_Summary\\_FINAL.pdf](https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/Executive%20Summary/CRBS_Executive_Summary_FINAL.pdf)

that climate change will decrease flows in the Colorado River somewhere between 9% and 15% by the middle of the 21<sup>st</sup> century. It also concludes that in 2060, the likelihood of a Colorado River Compact violation will be between 17% and 25%. This means that on average, at least once in every 4 to 5 years, the flows of the Colorado River will not be sufficient to service the water rights of the Lake Powell Pipeline.

The 2012 report is broken into multiple sections, called “Technical Reports,” which detail the study’s methodology, results, and conclusions individually. Technical Report B details the methodology used to determine how climate change will affect hydrology in the CRB. Specifically, the 2012 study used three different potential emission pathways as inputs for 16 different Global Climate Models (“GCMs”). From here, Reclamation describes their methodology as the following:

*A total of 112 future climate projections used in the IPCC Fourth Assessment Report (2007), subsequently bias corrected and statistically downscaled, were obtained from the Lawrence Livermore National Laboratory under the World Climate Research Program’s (WCRP) Coupled Model Intercomparison Project Phase 3 (CMIP3) [...] Each of the 112 downscaled climate projections was then used as input into the VIC hydrology model. The VIC hydrology model used the climate projections along with land cover, soils, elevation, and other watershed information to simulate hydrologic fluxes. The hydrologic fluxes were then routed to each of the 29 natural flow locations using a routing network derived from the topography [...] The result of this approach was 112 unique sequences of natural flow under future climate projections.*<sup>16</sup>

The BOR then used these simulated natural flows to estimate what the overall effect on the Colorado River would be. These climate simulation results were then paired with a variety of

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<sup>16</sup> Colorado River Basin Water Supply and Demand Study, Technical Report B, Bureau of Reclamation (2012) [https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/Technical%20Report%20B%20-%20Water%20Supply%20Assessment/TR-B\\_Water\\_Supply\\_Assessment\\_FINAL.pdf](https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/Technical%20Report%20B%20-%20Water%20Supply%20Assessment/TR-B_Water_Supply_Assessment_FINAL.pdf)

growth estimates for Colorado River Basin communities, which served to model demand for Colorado River water. These growth models are described in Technical Report C.<sup>17</sup>

By combining the supply estimates generated from the climate models and the demand estimates generated from the growth models, the BOR was able to estimate what the future of the Colorado River system would look like for a number of important measures (e.g. Lake Mead elevation, Lake Powell elevation, likelihood of a Lees Ferry deficit, etc.). These results are stated in Technical Report G and are described below.<sup>18</sup> Generally, these results show that climate change will decrease flows in the Colorado River, threaten elevation levels in Lake Mead and Lake Powell, and largely destabilize the Colorado River Basin system in its entirety. In essence, the BOR 2012 study broadly shows that climate change will reduce the reliability of the Colorado River and suggests that all water users in the basin find ways to ease the burden on the Colorado River. It does not, as the Applicant has claimed in media reports but without the creation or publication of any published studies, show that the Colorado River is a stable source of water for the Lake Powell Pipeline.

**b. The BOR Predicts that Climate Change Will Destabilize the Colorado River Basin.**

The main result of the BOR 2012 study's models was that a large imbalance would develop between the supply of water and the demand for it. Specifically, the report stated that by

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<sup>17</sup> *Colorado River Basin Water Supply and Demand Study, Technical Report C*, Bureau of Reclamation (2012) [https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/Technical%20Report%20C%20-%20Water%20Demand%20Assessment/TR-C-Water\\_Demand\\_Assessment\\_FINAL.pdf](https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/Technical%20Report%20C%20-%20Water%20Demand%20Assessment/TR-C-Water_Demand_Assessment_FINAL.pdf)

<sup>18</sup> *Colorado River Basin Water Supply and Demand Study, Technical Report G*, Bureau of Reclamation (2012) [https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/Technical%20Report%20G%20-%20System%20Reliability%20Analysis%20and%20Evaluation%20of%20Options%20and%20Stategies/TR-G\\_System\\_Reliability\\_Analysis\\_FINAL.pdf](https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/Technical%20Report%20G%20-%20System%20Reliability%20Analysis%20and%20Evaluation%20of%20Options%20and%20Stategies/TR-G_System_Reliability_Analysis_FINAL.pdf)

2060 the demand for Colorado River water would outpace the supply of it by 3.2 million acre-feet (“MAF”).<sup>19</sup> This imbalance is driven by two factors.

The first and most concerning, is the projected decline in Colorado River flows. By 2060, the BOR 2012 study estimates that mean natural flows at Lees Ferry will drop 9% from the 1906-2007 baseline period by 2060. This would mean that the River’s average natural flows decrease from 15 MAF to 13.7 MAF. However, if the median is taken instead of the mean, this decrease could be closer to a 15% decrease (a drop from 15 MAF to 12.7 MAF).<sup>20</sup> The difference in the projected mean and median flow levels is accounted for by a few unusually high flow years skewing the average upward. In other words, the CRB is likely to face mostly low flow years over the next 50-year period with a few flood years intermixed.

The second factor driving the demand-supply imbalance is increasing municipal and industrial water demand (“M&I”), primarily driven by population growth. The BOR 2012 study estimates that populations in the CRB could grow from as little as 9.3 million people to as much as 26.5 million people by 2060.<sup>21</sup> If current water habits persist, this will result in a large increase in Colorado River water use.

The combination of decreasing Colorado River water flows and increasing demand means that the Colorado River cannot support additional diversions. As it is, the River has already become over allocated. Creating new diversions, like the LPP, will accelerate these imbalances and further overstretch the River’s supplies.

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<sup>19</sup> *Colorado River Basin Water Supply and Demand Study, Executive Summary*, Bureau of Reclamation (2012) [https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/Executive%20Summary/CRBS\\_Executive\\_Summary\\_FINAL.pdf](https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/Executive%20Summary/CRBS_Executive_Summary_FINAL.pdf)

<sup>20</sup> *Colorado River Basin Water Supply and Demand Study, Technical Report B*, Bureau of Reclamation (2012) [https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/Technical%20Report%20B%20-%20Water%20Supply%20Assessment/TR-B\\_Water\\_Supply\\_Assessment\\_FINAL.pdf](https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/Technical%20Report%20B%20-%20Water%20Supply%20Assessment/TR-B_Water_Supply_Assessment_FINAL.pdf)

<sup>21</sup> *Colorado River Basin Water Supply and Demand Study, Executive Summary*, Bureau of Reclamation (2012) [https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/Executive%20Summary/CRBS\\_Executive\\_Summary\\_FINAL.pdf](https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/Executive%20Summary/CRBS_Executive_Summary_FINAL.pdf)

**c. The 2012 BOR Climate Change Study, taken with current observations of Colorado River Basin reservoir levels demonstrates it is likely there will be a Violation of the 1922 Colorado River Compact.**

The 1922 Colorado River Compact requires that the Upper Basin states deliver at least 75 MAF of water over a 10-year period to the Lower Basin states.<sup>22</sup> To date, no such Compact violation has occurred. However, the BOR 2012 study predicts that climate change will steadily raise the likelihood of a violation throughout the next half century. In 2060, the BOR predicts that the likelihood of a violation will be between 17% and 25%, meaning that a violation will occur every 1 year out of 4 or 5 consecutive years.

The BOR 2012 study estimated that flows in Lees Ferry would be about 13.7 MAF for the 2011-2060 period. However, real naturalized flow data attained from the BOR in 2020 shows that the mean natural flow at Lees Ferry for the 2011-2018 period (the latest year available) was 12.9 MAF.<sup>23</sup> In other words, the BOR 2012 study's estimate was off by nearly 800,000 acre-feet, an amount nearly three times Nevada's Colorado River allocation.

In a similar manner, the BOR 2012 study's estimates for the elevations in Lake Mead and Lake Powell fall far from the true lake elevation levels today. Below, is a graph of Lake Powell's expected elevation level from the BOR 2012 study. This graph can be found on page 18 of Technical Report G.

The x-axis represents time, as stated in decades up until 2060 and the y-axis shows Lake Powell's elevation as feet above sea level. The different colored lines represent different supply and demand scenarios. A single scenario line is generated by running various climate models to predict future water supplies, running various growth models to predict future water demand, and

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<sup>22</sup> Colorado River Compact, Bureau of Reclamation (1922)  
<https://www.usbr.gov/lc/region/g1000/pdfiles/crcompact.pdf>

<sup>23</sup> Colorado River Basin Natural Flow and Salt Data, Bureau of Reclamation (updated Jan. 10, 2020)  
<https://www.usbr.gov/lc/region/g4000/NaturalFlow/current.html>

then combining these two halves to determine the net effect. In this graph, the only scenarios which account for climate change are bounded by and include the red and blue lines. The other lines (i.e. the orange and green lines and the grey lines surrounding them) ignore climate change and, therefore, are not relevant for this discussion since it is a widely accepted reality that climate change is real and is having a demonstrable impact on water flows in the Colorado River Basin. The purple horizontal line is not precise but was added to show the rough location of Lake Powell's critical elevation level. At this critical elevation level, below 3,525 feet, Lake Powell cannot generate hydropower. The yellow star, line, and black text saying "Current Level" were also added. The yellow star on this graph indicates Lake Powell's 2020 elevation of 3,601 feet.<sup>24</sup>

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<sup>24</sup> *Lower Colorado Water Supply Report*, Bureau of Reclamation (updated May 26, 2020)  
<https://www.usbr.gov/lc/region/g4000/weekly.pdf>

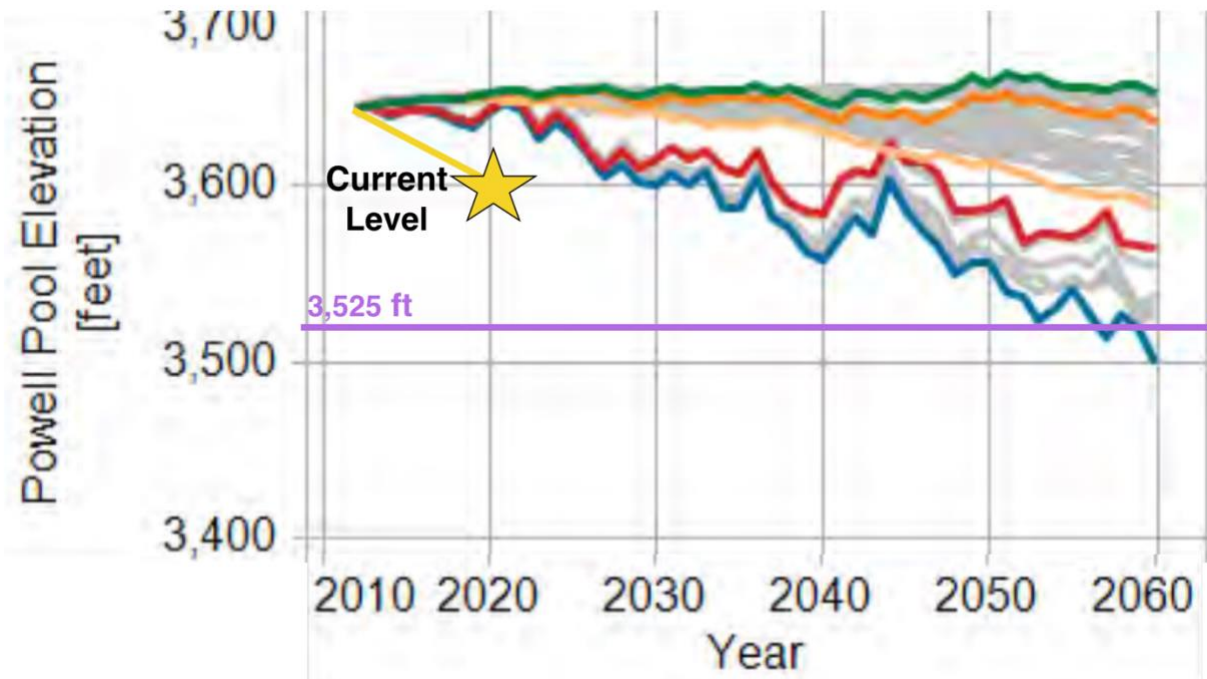


Figure 1: BOR 2012 Study's Estimate for Lake Powell's Elevation Level

This 2020 current level of the Lake Powell reservoir demonstrates that the Bureau failed to adequately consider the impacts to water supply reductions from increased air temperatures reducing snowpack in the headwaters of the Colorado River Basin. As the graph indicates, the BOR 2012 study far overestimated Lake Powell's elevation. The BOR did not predict that Lake Powell would hit an elevation of 3,600 feet until the mid 2030's or 2040's. This means that Lake Powell is at best, 10 years ahead of these predictions.

Similarly, the BOR 2012 study estimates for Lake Mead are off by five to seven years. This can be seen in the graph below, which can be found on page 21 of Technical Report G. Like the above graph, the relevant lines to focus on are the bold red and blue lines. The purple horizontal line, yellow star, and yellow line were all added and are not precise. The purple line



marks the 1,090-foot level of Lake Mead, below which water cuts begin under the Drought Contingency Plan. The star marks the 1,093-foot level Lake Mead is currently at.<sup>25</sup>

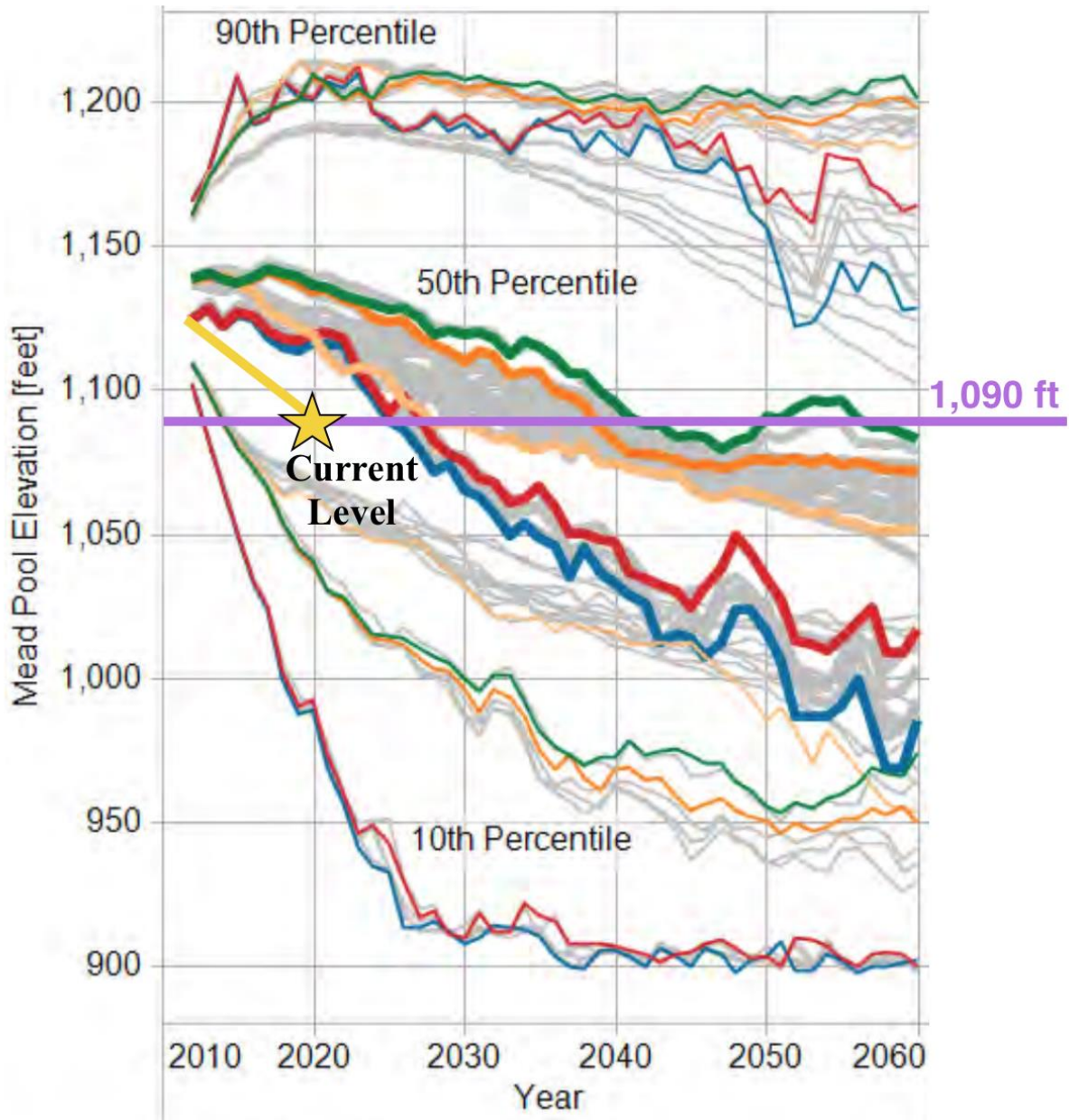


Figure 2: BOR 2012 Study's Estimate of Lake Mead's Elevation Level

<sup>25</sup> *Lower Colorado Water Supply Report*, Bureau of Reclamation (updated May 26, 2020) <https://www.usbr.gov/lc/region/g4000/weekly.pdf>

Again, we can see that the BOR 2012 study overestimated what Lake Mead's elevation level would be. The BOR did not expect to see levels in Lake Mead reach 1,090 feet until the late 2020's. The decline of Lake Mead below 1090 feet triggered the conditions of the Drought Contingency Plan and Arizona is now forgoing its use of 192,000 acre-feet of water from the Colorado River and Nevada is forgoing its use of 8,000 acre-feet of water as well. For the Applicant to wantonly ignore these reductions in allocations by advancing this Lake Powell Pipeline water right represents a risky behavior which itself jeopardizes the public interest.

The graph below, found on page 20 of Technical Report G, details these findings. Here, the x-axis represents time, as stated in decades up until 2060. The y-axis shows the percent of model runs which produced a Lee Ferry deficit. In other words, the y-axis roughly represents the likelihood that the Upper Basin delivers less than 75 MAF of water to the Lower Basin over a given 10-year period.

The different colored lines represent different supply and demand scenarios. A single scenario line is generated by running various climate models to predict future water supplies, running various growth models to predict future water demand, and then combining these two halves to determine the net effect. In this graph, the only scenarios which account for climate change are bounded by and include the red and blue lines. The other lines (i.e. the orange and green lines and the grey lines surrounding them) ignore climate change and, therefore, are not relevant for this discussion.

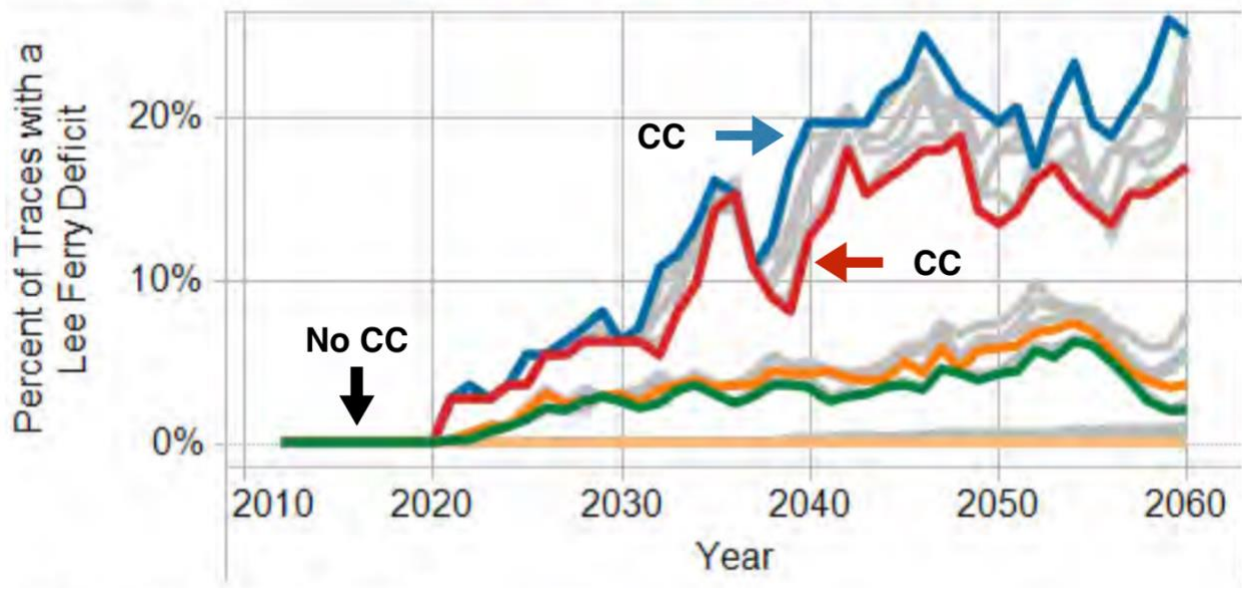


Figure 3: BOR 2012 Study's Estimates of the Likelihood of a Compact Violation

The important takeaway from this chart is the upward growth of the red and blue lines over time. This upward trend shows that climate change is projected to steadily increase the risk of an unprecedented Compact violation. By 2060, the likelihood of a Compact violation under the red line scenario reaches 17% and under the blue line scenario it is 25%.

Furthermore, the predictions in these graphs were created using the BOR's methodology, which as is shown below and in previous examples, underestimates the impacts of climate change in reducing water flows. Given this, it is likely that the real threat of a Compact violation is even higher than the BOR depicts in its 2012 study. If this graph were replotted using hydrology models which did adequately account for megadroughts and did not underestimate the effects of climate change, we would likely see the red and blue lines climb more steeply and reach higher absolute likelihoods. This only serves to worsen the outlook for the Colorado River and those who rely on its water supplies including Utah taxpayers.

#### **d. The BOR 2012 Study Underestimates the Effects of Climate Change.**

Although a 9% to 15% decrease in Colorado River flows would prove challenging enough on its own, in the eight years since the BOR's 2012 study, new science has come out that suggests the declines will likely be even worse. Brad Udall and Jonathan Overpeck summarize this best in their 2017 paper:

*Fifteen years into the twenty-first century, the emerging reality is that climate change is already depleting Colorado River water supplies at the upper end of the range suggested by previously published projections.<sup>26</sup>*

In other words, Udall and Overpeck claim that many previous climate models underestimate the effects of climate change. They provide evidence highlighting that these underestimates occurred because many previous climate models do not adequately account for megadroughts. A megadrought is a multi-decadal drought that has the potential to dramatically reduce water supplies in the Colorado River Basin. In recent years, a number of studies have explored this phenomenon more closely. In 2016, Ault *et al* published a paper which found the following:

*We find changes in the mean hydroclimate state, rather than its variability, determine megadrought risk in the American Southwest. Estimates of megadrought probabilities based on precipitation alone tend to underestimate risk. Furthermore, business-as-usual emissions of greenhouse gases will drive regional warming and drying, regardless of large precipitation uncertainties. We find regional temperature increases alone push megadrought risk above 70%, 90%, or 99% by the end of the century, even if precipitation increases moderately, does not change, or decreases, respectively. While each possibility is supported by some climate model simulations, the latter is the most common outcome for the American Southwest in Climate Model Intercomparison generation models.<sup>27</sup>*

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<sup>26</sup> Udall, B., & Overpeck, J., *The twenty-first century Colorado River hot drought and implications for the future Water Resources Research*, 53(3), 2404-2418 (2017).

<sup>27</sup> Ault, T. R., Mankin, J. S., Cook, B. I., & Smerdon, J. E., *Relative impacts of mitigation, temperature, and precipitation on 21st-century megadrought risk in the American Southwest*, *Science Advances*, 2(10), e1600873 (2016)

As shown above, Ault *et al* found that the climatological patterns associated with climate change in the Colorado River Basin (i.e. rising temperatures and declining precipitation), will increase the chance that a megadrought occurs in the next century to 99%, essentially a certainty. This will doubtlessly have severe consequences on water supplies in the CRB and is not accounted for in the BOR 2012 study.

Additionally, a paper published in April 2020 by Williams *et al* demonstrates how severe megadroughts can be. Specifically, Williams notes:

*We use hydrological modeling and new 1200-year tree-ring reconstructions of summer soil moisture to demonstrate that the 2000-2018 SWNA drought was the second driest 19-year period since 800 CE, exceeded only by a late-1500s megadrought. The megadrought-like trajectory of 2000-2018 soil moisture was driven by natural variability superimposed on drying due to anthropogenic warming. Anthropogenic trends in temperature, relative humidity, and precipitation estimated from 31 climate models account for 47% (model interquartiles of 35 to 105%) of the 2000-2018 drought severity, pushing an otherwise moderate drought onto a trajectory comparable to the worst SWNA megadroughts since 800 CE.*

This evidence provided in the Williams *et al* study emphasizes that climate change has already created one of the worst megadroughts in CRB history. The drought starting in 2000, which is still continuing, is the second worst drought in CRB since 800 CE, the same year Algebra was invented.<sup>28</sup> Second, Williams *et al* shows that the reason this drought became so prolific was because of climate change. As the effects of climate change intensify over the coming century, so too will the severity of droughts in the CRB.

Given all this, Udall and Overpeck estimate that the reductions in Colorado River flows will actually be in the 20% to 30% range. This is double what the BOR 2012 study estimated for natural flows at Lees Ferry by the mid-21<sup>st</sup> century.

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<sup>28</sup> *Al-Khwārizmī*, Encyclopedia Britannica, <https://www.britannica.com/biography/al-Khwarizmi>

Furthermore, Western Water Assessment published a report in April 2020 which analyzed over 800 peer-reviewed and published papers from scientists across the nation on the CRB's climate and hydrology.<sup>29</sup> On print page 429, the report provides a table which categorizes every major publication that estimates climate-change effected flows in the Colorado River. Out of all these papers, only three predict that the median change in natural flows at Lees Ferry will decrease, as a consequence of climate change, by an amount less than 9% (i.e. less than the BOR 2012 study predicts). Two of these three studies are by the BOR. All the other papers listed predict median decreases of 10% to 20%. It is clear that as an agency, the Bureau of Reclamation has consistently underestimated the impacts of climate change on Colorado River Basin flows, especially in comparison to the majority of the scientific literature presented.

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<sup>29</sup> Lukas, Jeff, and Elizabeth Payton, eds., *Colorado River Basin Climate and Hydrology: State of the Science*. Western Water Assessment, University of Colorado Boulder, DOI (2020) <https://doi.org/10.25810/3hcv-w477>

Methodology	Studies or assessments using these simulations	Synthesis of results of these studies for Upper Basin runoff in mid-21st century	Comments
CMIP3 GCM projections + BCSD statistical downscaling + hydrologic model	Christensen and Lettenmaier (2007); Reclamation (2011); Woodbury et al. (2012); CWCB (2012); Reclamation (2012e); Harding, Wood, and Prairie (2012); Ficklin, Stewart, and Maurer (2013)	Most (60–80%) simulations show reduced runoff; median change -10% (-25% to +10%)	All studies used the VIC model except Woodbury et al. (Sac-SMA and WEAP)
CMIP3 GCM projections + delta method downscaling + hydrologic model	Deems et al. (2013)	Median change -10% to -20%	Individual simulations not reported; study also examined effects of dust on snow

Table 1: Table from Page 429 of the WWA Report

Methodology	Studies or assessments using these simulations	Synthesis of results of these studies for Upper Basin runoff in mid-21st century	Comments
CMIP3 GCM projections + dynamical downscaling with RCMs; runoff directly from the RCMs	Gao et al. (2011)	Most (2 of 3) simulations show reduced runoff; changes -16% to +5%	Very small projection ensemble; study domain includes Lower Basin headwaters
CMIP3 GCM projections; runoff directly from the GCMs	Milly, Dunne, and Vecchia (2005); Seager et al. (2007)	Nearly all (~95%) simulations show reduced runoff; median change -10% to -20%	This method is less reliable for basin-scale runoff than other methods
CMIP5 GCM projections + BCSD statistical downscaling + hydrologic model	Reclamation (2016b; 2020)	About half of simulations show reduced runoff; median change 0% (-25% to +20%)	Outcomes are shifted wetter than other methods due to the BCSD bias-correction procedure's effects on precipitation
CMIP5 GCM projections + other statistical downscaling + hydrologic model	Alder and Hostetler (2015); Reclamation (2020)	Most (~70%) of simulations show reduced runoff; median change -5 to -10% (-25% to +10%)	Alder and Hostetler (2015) used a variant of BCSD lacking the procedure that leads to wettening; Reclamation (2020) used LOCA
CMIP5 GCM projections + observed runoff sensitivities to temperature and precipitation	Lehner et al. (2019)	All simulations show reduced runoff; median change -17% (-31% to -3%)	Future time period varies by GCM and corresponds to temperature increase of 2°C vs. 1950-2008
CMIP5 GCM projections; runoff changes directly from the GCMs	Seager et al. (2013)	Most (~80%) of simulations show reduced runoff; median change -10% (-30% to +10%)	Results are for the 2021-2040 period; for mid-century, the reductions would be more prevalent and larger
Generalized temperature change from GCMs + hydrologic models (or runoff sensitivity to temperature derived from hydrologic models)	McCabe and Wolock (2007); Udall and Overpeck (2017); Milly and Dunne (2020); Reclamation (2020)	All simulations show reduced runoff; median change -20% (-40% to -5%)	Results only reflect future changes in temperature, not changes in precipitation

Table 2: Continuation of Table 1 Above



All this evidence asserts that the Colorado River cannot support the Lake Powell Pipeline. The recent studies from the Western Water Assessment predict that this decrease in Colorado River flows will be somewhere closer to 20%, with other studies estimating water supply reductions to be as high as 30% or more. A more depleted Colorado River will only exacerbate the demand-supply imbalance. The Colorado River will become overdrawn simply if the status quo continues. Diverting additional water from the river, as the LPP proposes, will only accelerate this time frame. This means that additional diversions like the LPP will further stress the Colorado River and therefore further increase the likelihood that Utah overdraws their Colorado River allocation and must reduce its existing uses of Colorado River water in projects including but not limited to the Central Utah Project.

Utah's water managers should be working to reduce their Colorado River water dependence, so they can minimize the likelihood of a Compact violation. The LPP, if implemented, will do the opposite of this. It will pull more water out of the Colorado River and exacerbate the increasingly precarious position of the CRB. This will increase the likelihood of a compact violation, which will harm other Colorado River water users in Utah, in other Upper Basin states, and in all the Lower Basin states.

**e. The Colorado River Cannot Support the LPP.**

The Division of Water Resources' claim that Utah's reliable average annual supply of Colorado River water is 1.4 MAF.<sup>30</sup> They claim that this amount will only decrease slightly in the future due to climate change and that the Colorado River will, therefore, have ample water to support the LPP.

However, both the BOR's own studies and a suite of other more-recently published

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<sup>30</sup> *Why the LPP?*, WCWCD (May 21, 2020) <https://lpputah.org/why-the-lpp/>

papers show that the Colorado River is not a reliable source of water and will only become more insecure as the 21<sup>st</sup> century progresses.

The DWRe's claim that Utah has 1.4 MAF of reliable supply is misleading because the Colorado River Compact does not guarantee Utah the right to 1.4 MAF of water. It guarantees Utah a share or percentage of the River's flows and only after water deliveries to the Lower Colorado River Basin states and Mexico are provided. In other words, Utah's share in the Colorado River is similar to owning a share of a company and its potential profits. If the company doesn't generate profits, the shareholder receives no income. In claims that LPP water is secure, the Division has cited no peer-reviewed studies or documentation to prove this claim.

Utah's share of the Upper Colorado River Basin's water is 23%, with Colorado receiving 51.75%, New Mexico receiving 11.25% and Wyoming receiving 14%. The DWRe incorrectly assumes the Colorado River's average annual flow is 15 MAF. According to the USGS, the agency that measures the river's flow, the 30-year average annual volume is actually 12.4 MAF, not 15 MAF.<sup>31</sup> In 2020 a new 30-year average will be calculated, and current data indicates that the river's 30 year average will be reduced by roughly 14%, leading to a new annual average of flows will likely be 10.5 MAF. Even with the current volume of 12.4 MAF, the Upper Basin is left with approximately 3.4 MAF and Utah's share would be approximately 800,000 acre feet or a little more than half as much water as the Applicant regularly claims to Utah Legislators. A variety of Indian Tribes have additional water rights to the Colorado River which are also not being considered and will further reduce flows available to the LPP.

The Applicant claims that they currently use 880,000 acre-feet of Colorado River water.<sup>32</sup>

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<sup>31</sup> *Climatic Fluctuations, Drought and Flow in the Colorado River Basin*, USGS, 4

<sup>32</sup> *Why the LPP?*, WCWCD (May 21, 2020) <https://lpputah.org/why-the-lpp/>

If Utah does not decrease their Colorado River dependence, they will soon use more Colorado River water than is apportioned to them by the Colorado River Compact. In other words, climate change will deplete Utah's Colorado River supplies to the point where Utah will not have enough water for the LPP.

However, one need not rely on our word for it. Todd Stonely, the Assistant Director of Planning for the Utah Division of Water Resources, testified the following to the House Natural Resources, Agriculture, and Environment Committee on February 28, 2020:

*The Division of Water Rights did an analysis of what's remaining that could potentially be used a few years back. They estimated that just over 20,000 acre-feet may still be available.<sup>33</sup>*

The analysis he referenced was conducted in 2002. It used streamflow estimates relevant to that time, which would not have accounted for climate change. According to Stonely's testimony, the analysis found that if Utah diverted the full 80,000+ acre-feet requested by the LPP, just 20,000 acre-feet would remain in the state's Colorado River allocation. In other words, the LPP would push Utah to the point where it would be using nearly all its Colorado River allocation.

Per Stonely's testimony, the data supporting the 20,000 acre-foot estimate was gathered "a couple of years ago so that could have changed," not the least of which being the scientific community's understanding of climate change. Scientists now recognize that climate change will decrease water supplies in the CRB much more than previously predicted.<sup>34</sup> This means that Utah's 20,000 acre-foot margin will quickly disappear. Soon, Utah will take more water from the Colorado River than they are entitled to and will have to cut back on their water use. This will be

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<sup>33</sup> Todd Stonely to the House Natural Resources Committee on Feb 28, 2020. Minute 17:45.

<sup>34</sup> Udall, B., & Overpeck, J., *The twenty-first century Colorado River hot drought and implications for the future*, Water Resources Research, 53(3), 2404-2418 (2017).

a severe detriment to all Colorado River water users in Utah.

**f. The Division of Water Resources has no Studies Demonstrating the Security of Colorado River Water for the Lake Powell Pipeline.**

The LPP requires that Utah's share of the Colorado River be large enough throughout the operating lifetime of the pipeline to be used to its full capacity. If Utah's Colorado River water supply were to shrink, as numerous scientists and the BOR predict it will, then there may not be enough water to utilize the pipeline. In such a situation, the residents of Washington County would be stuck paying off the debt for a multi-billion-dollar water pipeline from which they are not receiving any water.

To avoid this catastrophe, it is necessary to rigorously demonstrate that the Colorado River can support the LPP before developing the project. However, the Utah Division of Water Resources has not conducted any official study (peer-reviewed or otherwise) which attempts to understand climate change's effects on Utah's water supplies. Furthermore, the agency has authored no evidence that shows that the Colorado River can support the Lake Powell Pipeline.

This is not just irresponsible planning by the DWRe but an example of how ill-prepared they are to deal with the effects of climate change. Their unwillingness to study and address the serious ramifications that climate change will have on Utah's water supply demonstrates a failure in leadership, especially when other similar water management agencies in other states have published multiple studies examining nearly every aspect of climate change's impact to their water supplies. Listed here are a few of the studies conducted or contracted by other water managers in the CRB. This is far from an exhaustive list. Colorado River Basin states, with the exception of Utah, have published many more peer-reviewed study and official reports than shown here. For example:

- Arizona Department of Water Resources. (2014). Arizona's Next Century: A Strategic Vision for Water Supply Sustainability.
- Arizona Department of Water Resources. (2019). Arizona Drought Preparedness Annual Report.
- Baker, E., Ekstrom, J., and Bedsworth, L. (2018) Climate information? Embedding climate futures within social temporalities of California water management. *Environmental Sociology*  
<https://doi.org/10.1080/23251042.2018.1455123>
- Colorado Water Conservation Board. (2019). Colorado River Availability Study Phase II Task 7: Climate Change Approach and Results.
- Ekstrom, J. A., Klasic, M. R., Fencl, A., Lubell, M., Baker, E., & Einterz, F. (2018). Drought Management and Climate Adaptation of Small, Self-Sufficient Drinking Water Systems in California.
- Ekstrom, JA, Bedsworth, L, and A Fencl. 2017. Gauging preparedness to managing drinking water quality for climate change in California. *Climatic Change* 140: 467. doi:10.1007/s10584- 016-1870-3  
<https://link.springer.com/article/10.1007/s10584-016-1870-3>
- Environmental Protection Agency. "Southern Nevada Water Authority Assesses Vulnerability to Climate Change." <https://www.epa.gov/arc-x/southern-nevada-water-authority-assesses-vulnerability-climate-change>
- Gordon, E., & Ojima, D. (2015). Colorado climate change vulnerability study. Report by the University of Colorado Boulder and Colorado State University to the Colorado Energy Office.

- Green Nysten, N., Kiparsky, M., Owen, D., Doremus, H., & Hanemann, M. (2018). Addressing Institutional Vulnerabilities in California's Drought Water Allocation, Part 1: Water Rights Administration and Oversight During Major Statewide Droughts, 1976–2016.
- Green Nysten, N., Kiparsky, M., Owen, D., Doremus, H., & Hanemann, M. (2018). Addressing Institutional Vulnerabilities in California's Drought Water Allocation, Part 2: Improving Water Rights Administration and Oversight for Future Droughts.
- Herman, J., Fefer, M., Dogan, M., Jenkins, M., Medellín-Azuara, J., & Lund, J. R. (2018). Advancing Hydro-economic Optimization to Identify Vulnerabilities and Adaptation Opportunities in California's Water System: A Report for California's Fourth Climate Change Assessment. California Natural Resources Agency.
- Lukas, J., Barsugli, J., Doesken, N., Rangwala, I., & Wolter, K. (2014). Climate change in Colorado: a synthesis to support water resources management and adaptation. University of Colorado, Boulder, Colorado.
- Schwarz, A., Ray, P., Wi, S., Brown, C., He, M., & Correa, M. (2018). Climate change risks faced by the California Central Valley water resource system. California's Fourth Climate Change Assessment. Publication number: CCCA4-EXT-2018-001 [https://www.energy.ca.gov/sites/default/files/2019-07/Water\\_CCCA4-EXT-2018-001.pdf](https://www.energy.ca.gov/sites/default/files/2019-07/Water_CCCA4-EXT-2018-001.pdf).
- Wang, J., Yin, H., Reyes, E., Smith, T., & Chung, F. (2018). Mean and Extreme Climate Change Impacts on the State Water Project. California's Fourth Climate Change Assessment. Publication Number: CCCA4-EXT-2018-004.

- Water Utility Climate Alliance. (2016). 2017-2021 Strategic Plan.

Despite having conducted no studies, the DWRe still claims that the Colorado River is a reliable source for the LPP. Climate change will decrease flows in the Colorado River somewhere between 9% and 30%, although recent studies suggest the true decrease is closer to the latter end of this range. These flow decreases will drive demand-supply imbalances, quickly drop elevations in Lake Mead and Lake Powell to critical levels, steadily increase the likelihood that the Upper Basin violate the 1922 Colorado River Compact by failing to supply the Lower Basin with 75 MAF over a 10-year period and deplete Utah's Colorado River allocation to the point where they will be overdrawing water.

Utah code section 73-3-8(1)(a)(i) requires sufficient unappropriated water for the proposed appropriation or change. In other words, Utah law says that there must be enough unused water in the Colorado River for the LPP. We respectfully submit that were the State Engineer to Approve this Water Right Change Application with a Junior priority date of 2020, it would violate the legislative intent and definition of Utah Code §73-3-8.

Far more senior water rights, including those perfected by the 1922 Colorado River Compact and those perfected by Tribes of the Colorado River Basin are already being impacted by climate change reductions in flows. Ample peer-reviewed studies, only a few of which are included in this protest, demonstrate that the Colorado River is not a reliable source for the Lake Powell Pipeline, particularly with a 2020 junior priority date. To proceed with approving this water right change application without presenting any credible or peer-reviewed sources demonstrating the reliability of the water supply to service the rights in question would be a reckless violation of the public welfare clause as substantial publicly-funded financial resources

are necessary to design, construct and operate the proposed Lake Powell Pipeline and its water right.

**IX. The Water Rights Change Application should be rejected because approval would be an impermissible deviation from the State Engineer's duty under Utah Code §§73-3-8(1)(a)(iii) and (iv) because the Applicant has failed to devise a physically and economically feasible plan to use this water right claim.**

Under Utah Code §73-3-8(1)(a), the State Engineer may approve a change application if the proposed application is physically and economically feasible and it would not be detrimental to the public welfare, and if the applicant has the financial ability to complete the proposed work. If an application does not meet these requirements, it must be rejected.

For the last 10 years, a group of PhD economists from several Utah academic institutions have been studying the financial obligations of the proposed Lake Powell Pipeline through a series of detailed economic analyses which have been shared with elected and appointed Utah officials, the public and the media. These PhD, tenured university economists represent the pinnacle of economic theory and practice and are highly-qualified in understanding public lending standards, public and commercial financing practices to pay for large capital improvement projects, like the Lake Powell Pipeline.

Their 96 pages of analyses document numerous problems with the economically-infeasible nature of the proposed Lake Powell Pipeline, which have been shared with the Applicant. Yet the Applicant has failed to even try to address these concerns, and brazenly refused to prepare any plan whatsoever to describe its financing ambitions for the Lake Powell Pipeline. Although several sections of Utah code clearly require a means to repay Utah taxpayers for the construction costs of the Lake Powell Pipeline with interest, the Applicant has shown a willful disinterest in ensuring that this costly project can be repaid.



**a. The Applicant has admitted their failure to prepare an economically feasible plan, as is required by Utah Code §73-3-8. The absence of such a plan is detrimental to the public welfare given that billions of Utah taxpayer dollars are at stake during this pandemic economy.**

On August 11, 2017 FERC requested: (1) an estimate of the cost that would be allocated to each District and how that cost would be allocated among existing and new water users, including likely impacts on user costs; and (2) an estimate of the financial feasibility of the project – including potential fiscal impacts on the State of Utah for funding the project. In response to FERC’s request, the Division of Water Resources claimed they had not analyzed LPP’s financial feasibility and will not provide financing details until as late as 90 days before construction of the LPP begins, *“We anticipate that financing details will be worked out well in advance of the 90 days prior to construction.”*

The Division of Water Resources has spent more than \$37 million of Utah taxpayer’s money studying the project over the last ~15 years, and yet they have no data to support their claim that the project is financially feasible and that it will not negatively impact Utah taxpayers. Utah Code §73-3-8 requires that the plan to utilize a water right be economically and physically feasible. Procrastination of a publicly-defensible plan until 90 days before construction is not in the public interest, nor does it represent sound financial management. The Applicant has failed to prepare a repayment plan which utilizes basic financial practices common in the municipal water supply industry. As shown below, it is likely the Applicant will not be successful in devising a feasible economic plan which avoids a default of the Lake Powell Pipeline loan.

The Applicant has failed to account for the reduction in water demand and the subsequent reduction in available revenues to finance the Lake Powell Pipeline. This failure is likely because the Division of Water Resources has no experience planning and building large municipal water projects on a scale as large as the Lake Powell Pipeline project. This massive

water project is beyond the scope and capacity of this agency and neither it nor the Washington County Water District has any demonstrable experience of financing multi-billion water projects over their operating histories. Although the Division of Water Resources has experience awarding relatively small grants to irrigation users for small canal and storage systems, the construction costs, engineering challenges and financial obstacles of the Lake Powell Pipeline represents the biggest-ever challenge in the history of this state agency, coming during the worst financial downturn since the Great Depression.

Just the \$1 billion 2008-era estimated cost of the Lake Powell Pipeline dwarfs all of the funds ever awarded by the Division and its Board when added together over its entire 60-year history, in just one proposed project. The State Engineer must examine a detailed economically-feasible plan to build and finance the Lake Powell Pipeline, as per Utah Code §73-3-8, which accounts for reduced revenue streams as a function of the current Coronavirus pandemic and the above failings in understanding the basics of water demand economics.

**b. Utah taxpayers and legislators are weighing whether the Lake Powell Pipeline is a feasible public project warranting public approval and the lack of a reliable water supply to service the Lake Powell Pipeline merits a rejection of the Application by the State Engineer.**

Given the likelihood that the water supply of the proposed Lake Powell Pipeline will be interrupted 1 out of every 4 or 5 consecutive years, as described in VII, it is incumbent upon the State Engineer to deny this water right change application.<sup>35</sup> This lack of available water supply exacerbates the repayment obligations by Utah taxpayers, particularly during the current pandemic economy.

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<sup>35</sup> *Colorado River Basin Water Supply and Demand Study, Technical Report B*, Bureau of Reclamation (2012) [https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/Technical%20Report%20B%20-%20Water%20Supply%20Assessment/TR-B\\_Water\\_Supply\\_Assessment\\_FINAL.pdf](https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/Technical%20Report%20B%20-%20Water%20Supply%20Assessment/TR-B_Water_Supply_Assessment_FINAL.pdf)

This water rights change application is only for the use of water with the proposed Lake Powell Pipeline in Washington County, a costly public works project slated to be paid for by the Utah taxpayer. Project costs vary, but range as high as \$3.2 billion in 2020, with additional costs expected to rise as more information becomes available in the current NEPA process, initiated in December 2019. Construction and initial financing costs for the Lake Powell Pipeline and its related public indebtedness through state bonding requirements could easily rise to \$4 billion or more, which in turn will become the principal on a subsequent interest-bearing loan to Washington County water users and taxpayers.

The Utah Lake Powell Pipeline Development Act (“LPPDA”) requires that all planning, financing, and construction costs for the Lake Powell Pipeline be repaid back to the Utah taxpayer with “a reasonable interest rate,” which by definition is a nonzero interest rate number.<sup>36</sup> The Applicant is contemplating a loan repayment window of between 50 and 90 years,<sup>37</sup> which by virtue of compounding represents a substantial increase in costs to Washington County water users and taxpayers over a more common 20 to 30-year water project financing loan commonly issued in public lending environments.

The reason the LPPDA requires repayment is to ensure that the project water is necessary to Utah residents. It was not created as an optional consideration, but rather as a vital economic test to ensure the LPP isn’t a waste of tax money. It is more than just good lending policy, it is good water supply policy because it is meant to ensure that the next cheapest cost of water supply is implemented before fanciful and unnecessary water schemes are concocted.

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<sup>36</sup> Utah Code §73-28-402(4)

<sup>37</sup> Thompson, Ronald. “RE: Lake Powell Pipeline Financing.” Received by Dennis Strong, August 14, 2008.

The water rights associated with this change application can only be used through the approval of the proposed Lake Powell Pipeline, a 140-mile-long pipeline which comes with significant economic, societal and environmental costs. If this water rights change application were approved, these water rights could only be used in Washington County through approval of the proposed Lake Powell Pipeline and may not be delivered to Washington County without the construction of this Pipeline. Therefore, the State Engineer must weigh the possible approval of this water rights change application by determining whether the proposed Lake Powell Pipeline is economically feasible, particularly given the unreliable water source over the Pipeline's short lifetime, as noted in Section VII.

**c. The Lake Powell Pipeline is not economically feasible because the financing plan proposed by the Applicant makes Lake Powell Pipeline water unaffordable, uncompetitive, and impractical.**

The Applicant is aware that recipients of Lake Powell Pipeline water in Washington County have noted their intention to not take all Lake Powell Pipeline water until the year 2054.

<sup>38</sup> Although the Applicant has implied there is a need for Pipeline water in the Washington County area, the largest water supplier inside Washington County, the Washington County Water District, has officially testified it intends to only take a small portion of water from the Pipeline after construction is completed and that it doesn't have the financial resources to pay for Pipeline water. <sup>39</sup>

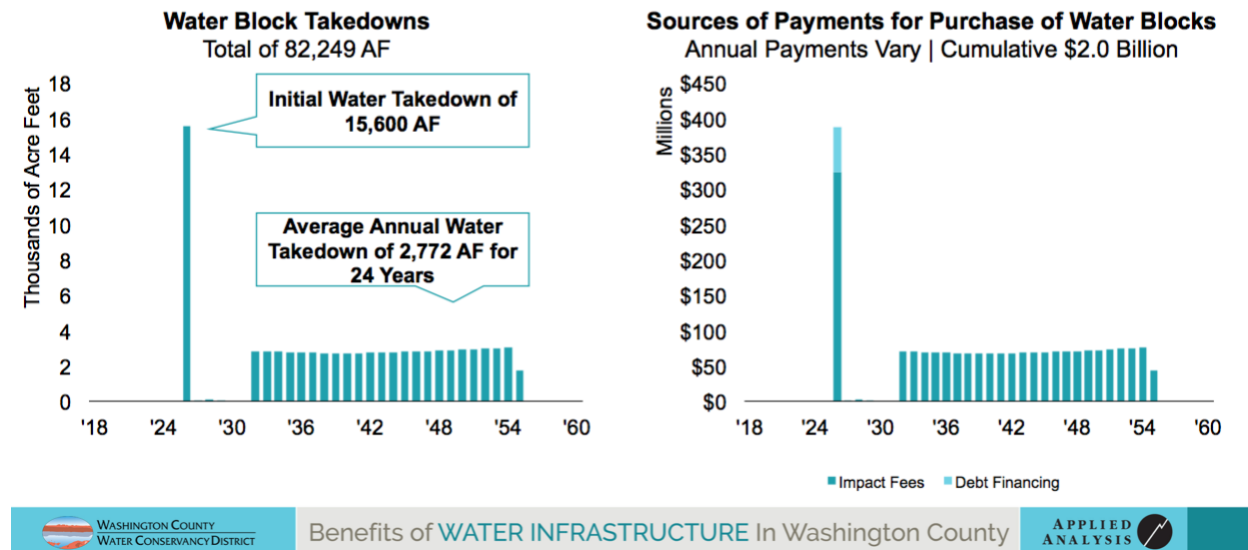
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<sup>38</sup> Strong, Dennis. "RE: Lake Powell Pipeline Financing." Received by Ronald Thompson, October 14, 2008.

<sup>39</sup> Thompson, Ronald. "RE: Lake Powell Pipeline Financing." Received by Dennis Strong, August 14, 2008.

In June 2018, this water supplier testified to the Executive Water Finance Committee and presented the following graphic,<sup>40</sup> referred to previously by the Applicant as far back as 2009 as the “Pay-As-You-Go” model.

## How Might This Look from WCWCD’s Perspective?



According to the Applicant, the WCWD would only pay the costs and interest associated with one small block of LPP water at a time. This scheme would leave the rest of the loan principal to collect interest without any repayment for decades. In essence, the scheme is akin to only paying the minimum payment on a credit card, and ignoring the compounding nature of the unpaid credit card debt.

A repayment model such as the proposed “Pay-As-You-Go,” where a majority of the

<sup>40</sup> Aguaro, Jeremy. (2018, June). The Economic and Fiscal Implications of Water Policy in Washington County, Utah. Slides presented at Executive Water Finance Board meeting, Salt Lake City, UT. Electronic copy of presentation: <https://gomb.utah.gov/wp-content/uploads/2019/04/WCWCD-Economic-and-Fiscal-Implications-Jeremy-Aguaro.pdf>

principal is deferred for many years, will create an exponentially increasing debt load. It is likely that the debt grows to such a scale where the LPP recipient is no longer able to make even the minimum annual payment and will be forced to default. In fact, the 2019 Legislative Audit modelled a similar scenario and found that WCWD would struggle to make payments under a deferred payment model with capitalizing interest. The Legislative Audit estimated that such a model would create an additional \$2.2 billion in debt. <sup>41</sup>

The only way a “Pay-As-You-Go” model could potentially work is if the State did not require that the LPP recipient pay capitalized interest. However, this would be an unjust policy which would require that all other taxpaying Utahns give a multi-billion-dollar subsidy to the WCWD. This scenario is akin to taking out a large loan to build a 20-bedroom mansion yet only wanting to make loan payments to the bank for the small percentage of square footage of the house for the three rooms a resident actually uses. A bank would never enter into such a lending agreement. Furthermore, Utah State law requires that interest be capitalized as the LPPDA requires that the entire cost of the project be repaid with interest. <sup>42</sup>

Worse yet, this scheme demonstrates that LPP water is not necessary for Washington County’s future, even with its population growth forecasts. In fact, this troubling proposal creates major problems for Washington County residents who will witness 360% - 600+% increases in their water rates, a doubling or quadrupling of their impact fees and a doubling of their property taxes, but receive just tiny portions of LPP water, <sup>43</sup> especially under the beginning stages of this “Pay-As-You-Go” model.

In a letter dated August 14, 2008, the then General Manager of the Washington County

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<sup>41</sup> Legislative Auditor General. (2019). A Performance Audit of the Repayment Feasibility of the Lake Powell Pipeline (Report No. 2019-05).

<sup>42</sup> Utah Code §73-28-402(4)

<sup>43</sup> Blattenberger et al. (2015). Lake Powell Pipeline Economic Feasibility Analysis for Washington County, UT.

Water District, Ron Thompson, outlined the WCWD's expectations for financing the LPP. He lists the elements of their arrangement, and conditions of financing for all parties involved.

Thompson states:

*I do not think it is realistic to think that the Districts can finance one-third of the costs of the Project. The Washington County Water Conservancy District is expecting to be able to make an initial down payment of up to \$200 million. It will be very difficult to come up with more money.<sup>44</sup>*

Two months later on August 14, 2008, the Director of the Division of Water Resources and the Applicant of this water right change application, Dennis Strong, responded to Thompson's opinion on the financing of the project in which Strong notes:

*You are right, this will not work. I do not believe either the districts or the Board [of Water Resources] will have the ability to fund 1/3.<sup>45</sup>*

This is a clear acknowledgement of an economically infeasible plan. Their own admission highlights the troubling reality that under current plans, Utah taxpayers will be effectively subsidizing the debt for the LPP over a 50 or even 90-year window. In turn, this will greatly increase the costs to Washington County water uses and taxpayers by virtue of the compounding nature of unpaid interest.

As part of its failure to prepare an economically feasible plan, the Applicant has demonstrated a complete inability to understand the scope and magnitude of the water rate economics it is effectively proposing, which will suppress the use of and need for the water rights associated with this water rights change application. This misunderstanding of the basics of water demand economics is clearly detrimental to the public welfare and merits the rejection of this water rights change application on its own merit.

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<sup>44</sup> Thompson, Ronald. "RE: Lake Powell Pipeline Financing." Received by Dennis Strong, August 14, 2008.

<sup>45</sup> Strong, Dennis. "RE: Lake Powell Pipeline Financing." Received by Ronald Thompson, October 14, 2008.

On June 13, 2018, a representative of the WCWD informed the Executive Water Finance Committee about the impact of its proposed water rate increases upon water demand.<sup>46</sup> One of the appointed members of the Executive Water Finance Committee is the Director of the Division of Water Resources, the Applicant of this water rights change application. During the presentation, it was clearly noted that the WCWD is planning on raising water rates in Washington County by 300% to pay for the Lake Powell Pipeline. This large increase in water rates is needed to pay for the large construction and financing costs of the proposed LPP. The slide presented during the presentation and reproduced below clearly indicates the Applicant’s knowledge of the Washington County Water District’s intention to raise water rates:<sup>47</sup>

### Water Rate Increases Planned in Washington County

Period	Wholesale Rate Increase
2020	\$0.50
2025	\$1.00
2030	\$1.50
2035	\$2.00
2040	\$2.50
2045	\$3.00
2050	\$3.00
2055	\$3.00
2060	\$3.00
<b>2018-2060</b>	<b>\$2.12</b>



**300% Water  
Rate Increases**

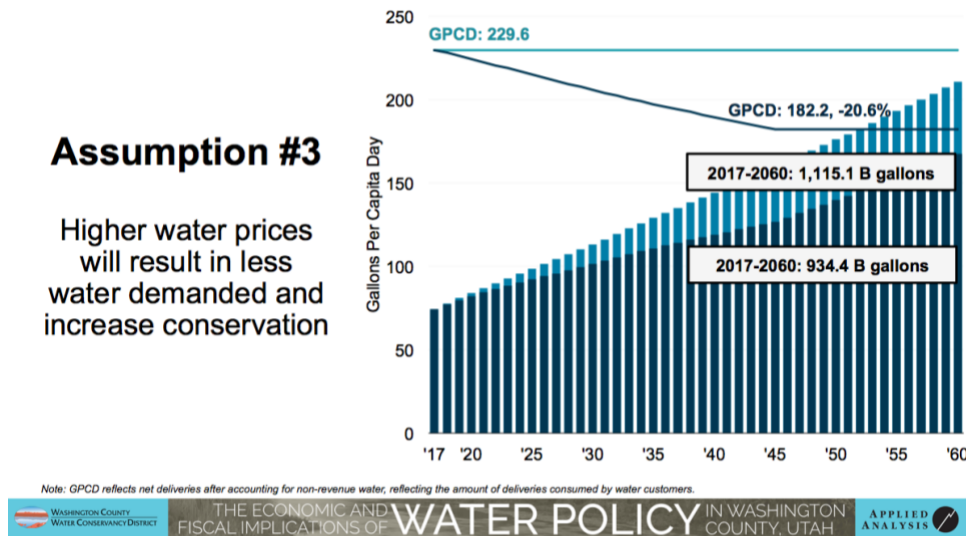



<sup>46</sup> Aguaro, Jeremy. (2018, June). The Economic and Fiscal Implications of Water Policy in Washington County, Utah. Slides presented at Executive Water Finance Board meeting, Salt Lake City, UT. Electronic copy of presentation: <https://gomb.utah.gov/wp-content/uploads/2019/04/WCWCD-Economic-and-Fiscal-Implications-Jeremy-Aguaro.pdf>

<sup>47</sup> *Id.*



During the same presentation to the Executive Water Finance Board, which included the presence of the Division of Water Resources Director, the water district presented the effects of the proposed water rate increase, at least as it understood them, in terms of reducing water demand.<sup>48</sup> The water district presented the following slide which notes a reduction in water demand of roughly 20.6% in the face of a 300% increase in water rates:



The Director of the Division of Water Resources was also presented the following slide during the same meeting which further demonstrates the Applicant’s failure to prepare an economically and physically feasible plan as part of this water right change application: <sup>49</sup>

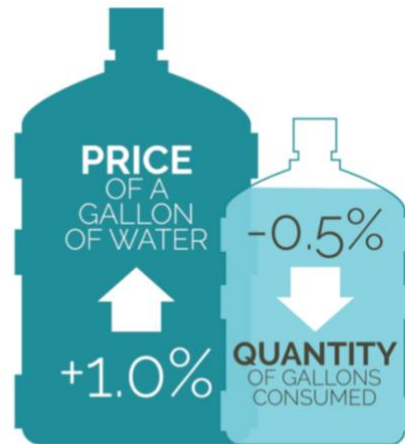
<sup>48</sup> *Id.*

<sup>49</sup> *Id.*

Price elasticity assumptions have been integrated into the WCWCD's supply-demand estimates since 2016

Assumptions designed to be conservative

Additional study is needed on the sustainability of consumption behavior changes



These slides and this committee presentation discussion and testimony represents the most modern possible understanding of the financing economics of the Lake Powell Pipeline and its related water rights change application. Taken together, this evidence demonstrates clearly that the Applicant has failed to prepare an economically feasible plan which is required to approve this water right change application.

The well-documented correlation in the field of economics between increased price and decreased use is known as elasticity of demand, yet the Applicant has failed to prepare a feasible plan and appears to be unfamiliar with the fundamental basics of market economics. Within the field of water supply economics, water suppliers across the planet are well aware of the fact that the price of water dictates how much water customers consume. This correlation is built into water rates by most water suppliers outside Utah to reduce water demand and save ratepayers from wasting money on unnecessary water spending for everything from increased culinary water treatment costs, increased operations and management, increased sewage treatment costs and increased costs for new water source acquisition.

Failing to calculate the correct elasticity correlation estimates and water rate revenue calculations is more than just unprofessional, it is financially irresponsible to a water agency's customers, financial viability and future bond ratings and borrowing costs. The intentional inaccurate forecasting and/or communicating erroneous future rate revenue can lead to increased indebtedness, the downgrading of bond ratings, staff termination and in some cases the conviction of financial fraud. For the Lake Powell Pipeline, it further demonstrates the Applicant has no plan to finance the costs of the project.

As noted in the 'Price of a Gallon of Water' slide, a 100% increase in water rates would translate into a 50% decrease (-- 0.5%) in water demand. However, the water district noted in the same committee meeting to the Director of the Division of Water Resources in a different slide that in the face of a 300% increase in water rates, the reduction in water demand would be just 20% (-- 0.2%). This is an erroneous claim which contradicts modern water demand and supply governance as practiced by literally thousands of U.S. water suppliers, and the presentation materials of the water district itself.

Both the Applicant and the Washington County Water District have failed to prepare an economically feasible and physically feasible plan to build and finance the Lake Powell Pipeline and its water deliveries. The Applicant has specifically failed to account for the impact of reducing water demand 50% as a function of increasing water prices by 300%. If WCWD increases water rates by 300%, demand will be reduced by 150% to roughly 152 gpcd, or gallons per capita day. The subsequent prediction of water rate revenue available to the WCWD as a function of these water rate increases must include the application of elasticity and the gpcd of 152. When this data is considered, it is overwhelmingly apparent that there will be no need for LPP water given the massive decrease in overall use.

Additionally, the reduction in water demand will greatly reduce available revenues necessary to make loan payments to the Utah taxpayer. This itself is detrimental to the public interest, which by definition must include financial sustainability and debt management.

In spite of their stated intention to raise water rates by 300%, the WCWD did not present the real reduction in water use which would occur under this massive increase in water rates. The reason for the water district’s failure to accurately account for reduced demand as part of their planned water rate increase is likely because reducing water demand would dramatically reduce the financial revenues needed to pay the Lake Powell Pipeline debt. The water district presented to the Executive Water Finance Committee the following slide in the same committee meeting: 50

**Sensitivity #3**  
What is the revenue generating capacity of WCWCD considering price elasticity and conservation?

**Water Rates**

Period	Adjusted GPCD	Total WCWCD Deliveries	Wholesale Rate Increase	Capital Yield
2020	265.0	8.98 B gallons	\$0.50	\$4.49 M
2025	253.9	11.2 B gallons	\$1.00	\$11.18 M
2030	243.4	13.2 B gallons	\$1.50	\$19.77 M
2035	233.0	15.2 B gallons	\$2.00	\$30.37 M
2040	223.7	17.0 B gallons	\$2.50	\$42.41 M
2045	215.3	18.7 B gallons	\$3.00	\$55.96 M
2050	215.3	21.4 B gallons	\$3.00	\$64.25 M
2055	215.3	24.3 B gallons	\$3.00	\$72.98 M
2060	215.3	27.4 B gallons	\$3.00	\$82.10 M
<b>2018-2060</b>	<b>232.0</b>	<b>730.4 B gallons</b>	<b>\$2.12</b>	<b>\$1,746.6 M</b>

Note: GPCD reflects net deliveries before accounting for non-revenue water, reflecting the amount of deliveries made by WCWCD. Wholesale Capital Charge per 1,000 gallons.

The slide above demonstrates, as the Applicant has seen repeatedly, that if the local water district ignores the elasticity of demand principles it claims to understand, the water district can raise \$1.746 billion in revenues over a 40-year period. But since the Legislative Auditor in 2019 estimated the initial construction cost of the Lake Powell Pipeline was at least \$2.2 billion,<sup>51</sup> the Applicant has not only failed to demonstrate that it can repay the principal costs of the Lake

<sup>50</sup> *Id.*

<sup>51</sup> Legislative Auditor General. (2019). A Performance Audit of the Repayment Feasibility of the Lake Powell Pipeline (Report No. 2019-05).

Powell Pipeline via an interest-free loan, but also that the Applicant cannot begin to repay the interest costs and the principal costs of the LPP loan as per the LPPDA either through a standard lending arrangement or through the implausible “Pay-As-You-Go” Scenario.

The failure of the Applicant to comprehend the basics of water demand economics and elasticity demonstrates that this plan is not economically feasible. When the “Pay-As-You-Go” financing scheme and its compounded interest is added to this picture, it further demonstrates that the Applicant has been unable to create a feasible financial plan to service the water rights change application and to serve the public interest. Utah taxpayers must be compensated for the construction costs under the LPPDA, as noted above, and the ballooning nature of compounding of interest from deferring principal payments until 2054 make repayment highly infeasible. Defaulting on this loan is highly likely given this failing repayment scheme proposed by the Applicant.

As part of this water rights change application, it is in the public interest to see a detailed explanation from the Applicant on how a long-term interest-free loan totaling at least \$2.2 billion in principal courtesy of the Utah taxpayer is beneficial to public welfare during this Coronavirus pandemic. This explanation should include specific references by the Applicant about how said financial resources would not be available to be used on public health needs to control or mitigate the spread of COVID-19 and how said financial resources would not be better spent supporting the recently unemployed and employers struggling to survive.

**d. The Lake Powell Pipeline is not economically feasible because the existing and abundant water supply of Washington County demonstrates there is no need for Lake Powell Pipeline water until after the year 2060.**

The Applicant is aware that Washington County has an abundance of water to serve its future growing population through the year 2060. In their 2011 newsletter to the public, the

WCWD clearly indicated to the public that the water supply of the WCWD was sufficient to provide a much larger population than currently live in Washington County. The WCWD wrote:

*Without the 69,000 AF from the Lake Powell Pipeline project, only **105,000 AF** [emphasis added] of water could be developed. This would supply Washington County with sufficient water until sometime in the early 2020s, and would serve a population of approximately 280,000 residents. (emphasis added)*

This water supply of 105,000 AF is consistent with other WCWD statements of its water supply. The WCWD submitted information to receive a competitive bond rating in their borrowing plans to the Fitch rating agency, which clearly indicates high volumes of water in the WCWD water supply. In their 2017 Fitch rating determination, Fitch wrote that:

*The [Washington County Water] district is operating a groundwater recharge program that currently provides access to 100,000 AF of stored water and will ultimately provide up to 300,000 AF.*

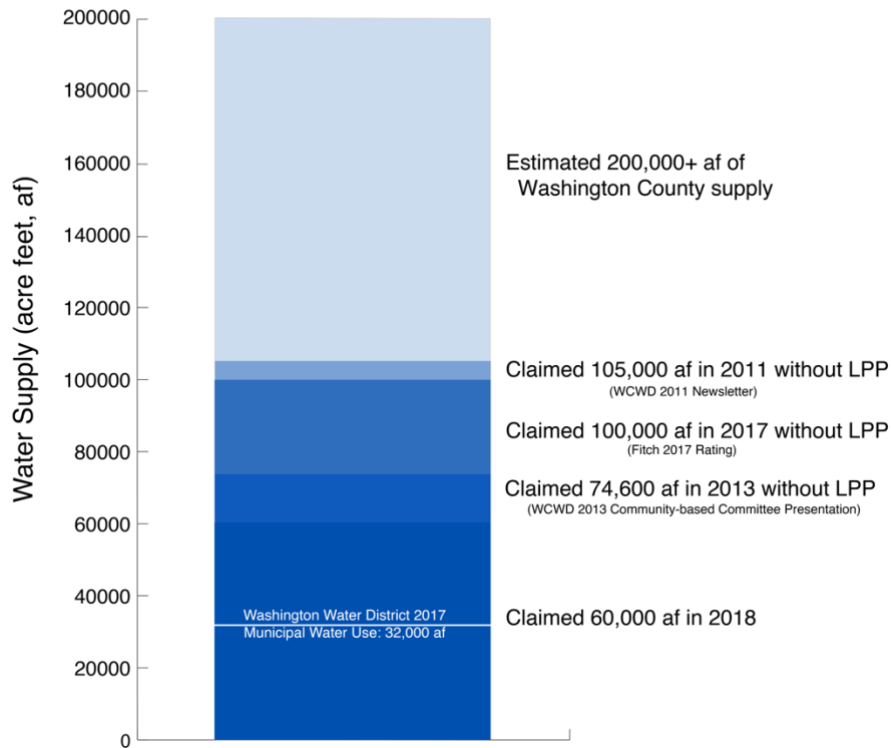
Two credible and separate sources of information – both originating from the WCWD – indicate that WCWD has a water supply of between 100,000 and 105,000 acre-feet of water. Given that one acre-foot of water is enough water to supply a family of 4-5 people’s needs for a year,<sup>52</sup> this revelation means that the current water supply of 100,000 or 105,000 AF for the WCWD is enough to provide for a population of 400,000 – 500,000 people’s annual water use. This means the water supply of the WCWD is enough to satisfy all population growth forecasted for the entire County. This calculation of water supply ignores the many other sources of existing water supplies, which are not owned or managed by the Washington County Water District.

In fact, the number of different claims made by the WCWD about the extent of their water supply is quite worrisome, given that it keeps changing depending upon who they are speaking to and what day it is:

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<sup>52</sup> Pitzer, Gary. “In water-stressed California and the southwest, an acre-foot of water goes a lot further than it used to.” Water Education Foundation, 5 October 2018. <https://www.watereducation.org/western-water/water-stressed-california-and-southwest-acre-foot-water-goes-lot-further-it-used>

## Washington County Water District's Contradictory Water Supply Claims



This revelation ignores the other water supplies that local cities currently possess outside of the water supply of the WCWD, as partially identified in the 2015 Performance Audit of the Legislative Auditor General. Furthermore, a substantial amount of water will accrue over time from better water demand reduction strategies such as phasing out property taxes, improving water efficiency methods, implementing water conservation programs, converting unused agricultural water and installing meters on secondary water users.

The Applicant knows that there are many other sources of water existing in and around the municipalities of the Washington County, not counted in this 105,000-acre-foot figure above, since they were pointed out in the 2015 Legislative Audit of the Division of Water Resources, which accepted all observations from this Audit as per the Division's letter accompanying the 2015 Audit.

Moreover, a comparison with the water use of other southwestern communities indicates the WCWD drastically overstated future water demand to Legislators. The table below should help to put the water demand in the WCWD’s graph above in perspective. The WCWD claims that 149,873 AF of water will be needed to provide water for ~500,000 residents in Washington County by the year 2060. However, this is roughly twice the amount of water than is currently needed to serve over 600,000 people in Albuquerque, New Mexico.

<b>City</b>	<b>Water Authority</b>	<b>Year</b>	<b>Water Usage (af)</b>	<b>Number of Users</b>	<b>GPCD</b>
Albuquerque, NM	Albuquerque Bernalillo County Water Authority	2015	86,319	606,780	<b>127</b>
Phoenix, AZ	City of Phoenix	2014	298,500	1,500,000	<b>178</b>
Tucson, AZ	Tucson Water	2016	87,160	722,000	<b>117</b>
Las Vegas, NV	Las Vegas Valley Water District	2016	319,027	1,400,000	<b>203</b>
Washington County, UT	Washington County Water Conservancy District	2010	50,380	138,530	<b>325</b>
			<b>Southwest Cities Average GPCD</b>		<b>156.25</b>

The very high per person water use in Washington County demonstrates that the region has not yet begun to implement meaningful water conservation efforts to reduce water use, which are a source of water for future residents. These conservation measures effectively eliminate the need for Lake Powell Pipeline water sources and costly water rate increases to local residents. Until the Applicant has exhausted these simple means of conservation, the State Engineer has merit to reject their water rights change application.



**X. The Application should be rejected because the consequences that flow from approving the Application would prove to be detrimental to the public welfare in violation of Utah Code §73-3-8(1)(a)(iii)(B).**

The approval of the Application would be a gross deviation from the State Engineer's duty to ensure that change applications are not detrimental to the public welfare because (a) it is likely that the loan may be defaulted on and taxpayers will not be repaid; (b) the proposed repayment plan represents an injurious impact to working residents in Washington County; (c) residents along the Wasatch Front risk losing water they are entitled to under the CUP; (d) there is too much risk associated with the LPP during the current pandemic economy; and (e) the LPP will irreversibly alter revered public lands and threaten critical habitat.

**a. It is likely that the Lake Powell Pipeline loan will be defaulted on by the Washington County Water District and Utah taxpayers will not be repaid for the multi-billion investment in the proposed Lake Powell Pipeline, which comes at the beginning of a historic economic recession when the need for public capital and sound public investments is absolutely critical to basic services.**

To finance the Lake Powell Pipeline, the State of Utah would act as a bank to pay for the Lake Powell Pipeline construction costs by issuing a series of bonds on the bond market.<sup>53</sup> The State of Utah has the best possible bond rating, AAA, and neither the Applicant nor the recipient of Lake Powell Pipeline could afford to pay for the exorbitant costs of the Lake Powell Pipeline without the State of Utah issuing bonds.<sup>54</sup> The State of Utah will bond for the construction costs, estimated by the 2019 Legislative Audit to be \$2.2 billion, to cover the construction and pre-construction costs of the LPP<sup>55</sup> and include the financing costs of paying bond investors their interest payments into the Lake Powell Pipeline loan. The State of Utah will then issue this LPP

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<sup>53</sup> Thompson, Ronald. "RE: Lake Powell Pipeline Financing." Received by Dennis Strong, August 14, 2008.

<sup>54</sup> <https://www.fitchratings.com/research/us-public-finance/fitch-affirms-utah-idr-at-aaa-rates-439mm-gos-aaa-outlook-stable-08-05-2020>

<sup>55</sup> Legislative Auditor General. (2019). A Performance Audit of the Repayment Feasibility of the Lake Powell Pipeline (Report No. 2019-05).

loan to the recipients of the LPP water, the WCWD, at a ‘reasonable’ interest rate determined by the Utah Board of Water Resources, effectively the Applicant of this application.<sup>56</sup>

The recipient of LPP water claim they can repay State of Utah by increasing impact fees, property taxes, and water rates.<sup>57</sup> But credible analyses by prominent Utah economists from leading Utah universities demonstrate the required rate increases would need to be massive to repay the full costs of bond issuances by the State of Utah, which in fact are so large these increases will suppress water demand significantly, obviate the need for Lake Powell Pipeline water and make it likely that repayment to the Utah taxpayers will not occur.<sup>58</sup>

The Applicant has failed to understand or failed to be concerned about this likely default, presumably because the Applicant doesn’t understand the foundational economic principle known as the price elasticity of demand, more commonly referred to as a downward sloping demand curve. This principle says that as the price of a good increases, its consumption decreases. This means that as WCWD raises property taxes, water rates, and impact fees to pay off the LPP debt load, they will simultaneously reduce the amount of water and home sales in Washington County, as the Applicant has been informed of repeatedly. This in turn will reduce WCWD’s revenues and their ability to repay the state taxpayer for the bonded debt. The economists found that such a scenario was very likely to occur in Washington County, leading them to conclude that it was unlikely that WCWD could generate enough revenues to make the minimum annual payments to the state for the LPP debt.<sup>59</sup> This observation that WCWD lacked the ability to repay the debt for the LPP loan back to the Utah taxpayer was the reason the

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<sup>56</sup> Utah Code §73-28-402(4)

<sup>57</sup> Legislative Auditor General. (2019). A Performance Audit of the Repayment Feasibility of the Lake Powell Pipeline (Report No. 2019-05).

<sup>58</sup> Blattenberger et al. (2015). Lake Powell Pipeline Economic Feasibility Analysis for Washington County, UT.

<sup>59</sup> *Id.*

Applicant and the WCWD concocted the Pay-As-You-Go financing scheme which effectively asks Utah taxpayers for billions of dollars in an interest-free loans.

Furthermore, the 2019 Legislative Audit found that WCWD's ability to repay the LPP debt hinged upon unhindered population growth and minimal economic downturn, particularly in the early years of the debt issuance. Specifically, the audit states:

*A recession in the early years of repayment would be especially challenging on WCWD's ability to make payments.*<sup>60</sup>

The current COVID-19 pandemic has created the worst economic downturn in United States history since the Great Depression.<sup>61</sup> It is difficult to estimate just how long the recession will last but some peer-reviewed papers are already predicting that the world economy will not normalize for many years.<sup>62</sup> This, in light of the findings of the 2019 Legislative Audit, brings into question WCWD's ability to repay LPP debt and the Applicant's failure to offer the public and the State Engineer a feasible economic plan to utilize this water right claim. It is plausible that population growth in Washington County slows as a result of the coronavirus pandemic, leading to decreased revenues from property taxes, impact fees, and water rates. This could also cause WCWD to default on LPP loan payments to Utah taxpayers.

Furthermore, an overwhelming collection of evidence from leading climate scientists and water management agencies, including the Bureau of Reclamation, shows that climate change is quickly depleting flows in the Colorado River.<sup>63</sup> This means it is likely that the LPP will not be able to take its full share of water from the Colorado River, if it is able to take any at all. In this

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<sup>60</sup> Legislative Auditor General, *A Performance Audit of the Repayment Feasibility of the Lake Powell Pipeline*, Report No. 2019-05 (2019).

<sup>61</sup> Fernandes, N, *Economic effects of coronavirus outbreak (COVID-19) on the world economy*, Available at SSRN 3557504 (2020).

<sup>62</sup> Guerrieri, V., Lorenzoni, G., Straub, L., & Werning, I, *Macroeconomic Implications of COVID-19: Can Negative Supply Shocks Cause Demand Shortages?* (No. w26918) National Bureau of Economic Research (2018)

<sup>63</sup> See Section VII(b)

event, WCWD would not be able to generate revenues from water rate increases associated with Lake Powell Pipeline water and would likely fail to meet the minimum annual payments to the state for the LPP debt.

If WCWD defaulted on their loan to the state, as the economists predict they will, the public interest could be harmed in a number of ways. (1) Utah's AAA bond rating – now one of just 9 states enjoying this rating – could be downgraded to a lesser grade, thereby raising the costs of borrowing for all public services by Utah. This would effectively increase the cost of every project the state needs to bond for and reduce the state's ability to borrow debt. In a special legislative session held in April 2020, the Utah Legislature voted to raise Utah's debt-borrowing ceiling, thereby increasing the chances of a future downgrading event as the pandemic continues to impact Utah's budget. Harming the state's financial health further could reduce Utah's ability to respond to future crises and will likely impede the recovery from COVID-19. It is also possible that Utahns would see any decrease in the state's financial health as a result of WCWD defaulting reflected in increased taxes or additional spending cuts to important public programs. (2) The state may be stuck repaying a large portion of the LPP debt, in essence incurring a new large cost. The financial implications of this are too numerous to list here but it would likely result in large tax increases and spending cuts, which would negatively affect other important areas of Utah's government like the education and healthcare systems.

**b. Approving this Application would be detrimental to the public welfare because the proposed repayment plan represents an injurious impact to working residents in Washington County. These rate increases could be easily avoided by implementing other water sources at substantially reduced costs, eliminating the need for draconian increases in water rates to working families.**

A group of university economists from the University of Utah, Brigham Young University, Utah State University and other institutions have produced a series of lengthy and

informative economic analyses documenting the problems of repaying Utah taxpayers for the costs of the Lake Powell Pipeline. Their elaborate research, which dates back to 2012, resulted in 96 pages of data and documentation. Their work was done pro bono and they have not been paid by the Utah Rivers Council, nor any of the many, many critics of the LPP to the best of our knowledge. Their findings are predicated on the basics of commercial lending practices, the sound economic principles and the observed practices of water suppliers across the U.S.

In October 2015, this large group of university PhD economists released a 41-page report based on a year of analysis, which found that the proposed \$61.8–\$131 million annual LPP debt would require an increase in wholesale water rates for the Washington County Water District of between 576–678%, and an increase in impact fees of between 123–138% for Washington County residents. This analysis was based on the LPP cost estimate of roughly \$1 billion, a figure now widely regarded as a hopeless underestimate of the full costs of the LPP. The LPP costs will likely rise above \$3 billion, and the 2019 Legislative Audit on the project found it will cost at least \$2.2 billion. It should be noted that the 2019 Legislative Audit found that water rates must increase 360%, but the Auditors failed to account for elasticity of demand, underestimating the impact of raising water rates 360%.

The new cost estimate of \$2.2 billion means that the increases stated above to current Washington County water rates, impact fees and property taxes have been greatly underestimated and are likely to be much higher. WCWD could be forced to raise water rates 600 - 800%, or the loan would go into default. The Applicant has no repayment plan, other than marketing pitches and quotes in the media, and the Applicant has failed to prepare any materials summarizing its intentions to repay this debt to Utah taxpayers.

The required water rate increases in Washington County to pay for the LPP are detrimental to the public welfare because these rate increases disproportionately impact low income residents. For many Washington County residents, the 500+ percent increase in water rates would be a breaking point, particularly during this pandemic economy. Many working and retired families are struggling to survive financially given the historic Coronavirus pandemic and the extremely high unemployment levels which may continue many years into the future. A 500+ percent increase in water rates could mean that a family is unable to pay their water bills, which is a basic human right. Low income communities should be worrying about their physical well-being and economic recovery, not shouldering the excessive burden of an unnecessary Lake Powell Pipeline.

Continuing to advance LPP and its dramatic increase in water rates and impact fees during our current economic turmoil is callous and cruel. Low income communities have been severely impacted by the economic collapse due to the Covid-19 pandemic. The State of Utah has already seen 176,706 residents seek government relief for layoffs, including over 7,400 people in Washington County. For the week of April 26<sup>th</sup> to May 2<sup>nd</sup>, unemployment claims in Utah were 701% higher than they were in 2019. Tourism-driven agencies and food service workers have been especially impacted. Now more than ever, low income residents are facing a terrifying uncertainty. Now is not the time to ask low income residents to come up with a 500 percent increase in water rates for a water project that they don't need.

The 120% impact fee increase also specifically targets low income communities. This large of an increase would ensure that Washington Counties impact fees would be the second highest in the state, just behind Summit County, adding an additional \$15,000 to building a new home. The 2019 Legislative Audit examining the Lake Powell Pipeline suggests that this number

could rise to as much as \$30,000 for new development. This massive increase in impact fees is fundamentally exclusive to low income families and creates yet another barrier preventing low income residents from owning their own homes in Washington County. This increase in impact fees will price out low income families and caters the future growth in Washington County towards wealthier residents.

**c. Residents along the Wasatch Front risk losing water that they are otherwise entitled to under the CUP.**

As mentioned in Section VII, Utah risks losing water that is typically allocated to the residents of the Wasatch Front if Lower Basin States do not receive the amount of water they are entitled to under the Colorado River Compact. Utah as a whole has roughly 3,282,115 residents.<sup>64</sup> The Wasatch Front is home to 80% of the total population of Utah, making it the most populous area of the state by far. It is averse to the public interest and welfare to risk losing the water that 80% of Utah's population depends on each day. The State Engineer should seriously consider what is at stake for Utah's population when making this decision. For this reason, we urge the State Engineer to reject this Application to protect the welfare of the residents of the Wasatch Front.

**d. The proposed Lake Powell Pipeline water right is injurious to the public welfare because there is too much risk associated with the LPP debt during this pandemic economy.**

Amid the novel coronavirus pandemic, the nation's economy has greatly retracted, and Utah faces a similar fate. Since the beginning of March 2020, nearly 200,000<sup>1</sup> Utahns have sought government relief for being laid off or furloughed. The State Legislature is looking at cutting up to \$3.8 billion<sup>2</sup> from its state budget in response to this recent economic downturn.

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<sup>64</sup> *Utah Population 2020*, World Population Review, <https://worldpopulationreview.com/states/utah-population/>

As one example of the array of impacts to Utah agencies, the Utah State Board of Education was directed by the Utah Legislature to prepare for budget cuts of between \$600 million and \$1.3 billion for fiscal year 2021<sup>2</sup>. Social service programs like Medicaid and CHIP, state funding for autism preschools, the Department of Human Services, and programs slated to help homeless and neglected youth are slated to have their budgets slashed in the coming weeks and months<sup>3</sup>. The state agencies will have to reduce the community services they are administering, which will be mirrored by cities and towns which must do the same to their constituents. These impacts will be felt by Utah residents, including those in Washington County.

As the impacts of the Covid-19 pandemic upon Utah’s economy are manifest, it is clear that spending \$2.2 Billion on the proposed LPP and its water right is not beneficial to public welfare.<sup>65</sup> The failure of the Applicant to create any kind of financial plan whatsoever – to repay Utah taxpayers for this spending during this pandemic economy is particularly worrisome and should be grounds by the State Engineer for rejecting this Application.

The State of Utah will be required to invest billions of dollars into communities, bolstering money spent on essential services and making sure that residents have access to healthcare. They should be helping workers who have lost their jobs. They should be providing for families who are facing unparalleled uncertainty.

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<sup>1</sup>Giottonini, Jerad. “Utah Lawmakers Advance Most Funding Cuts to Public Education.” *ABC4*, 27 May 2020.

<sup>2</sup>Semerad, Tony. “Utah Unemployment Claims Show 'Encouraging' Drop.” *Salt Lake Tribune* , 14AD. Utah Legislature, “Options for Adjusting Base Budgets by 2%, 5%, and 10% - Co-Chairs Proposal.” *Options for Adjusting Base Budgets by 2%, 5%, and 10% - Co-Chairs Proposal*, 2020.

<sup>3</sup> Legislative Auditor General. (2019). A Performance Audit of the Repayment Feasibility of the Lake Powell Pipeline (Report No. 2019-05).



The State should not risk adding more debt to a state budget that is already being paired down with surgical precision. It would be financially irresponsible for the State to risk investing in this project when so many other sectors are in dire straits. To truly advance public welfare, the State Engineer should deny this water rights change application.

**e. The Lake Powell Pipeline will irreversibly alter revered public lands and threaten critical habitat.**

The remote desert lands of Southern Utah and Northern Arizona that would be bisected by the Lake Powell Pipeline represent some of the most unique lands on the planet. The region is comprised of diverse ecosystems that support endangered species of flora and fauna found nowhere else on earth.

The Lake Powell Pipeline, and its multitude of pump stations, access roads and transmission lines would scar an untouched stretch of the Paria Canyon-Vermilion Cliffs Wilderness Area. Revered by recreationists for its unobstructed views and wild quality, the remote location hosts critically-endangered bird species such as the California Condor and Southwestern Willow Flycatcher.

Construction operations would severely hinder recovery efforts for several species and impact migratory birds. After construction, continued operation of pump stations, one of which is slated to operate directly adjacent to the Cockscomb Wilderness Study Area, would ensure permanent impacts from light, noise and air pollution.

The diversion of nearly 90,000 acre-feet of water in perpetuity from the Colorado River would result in reduced flows through the Grand Canyon and the trove of species inside this National Park which depend upon this aquatic ecosystem. Since the construction of Glen Canyon Dam, the Grand Canyon has borne the impacts of altered flows and decreased sediment, of which 90% remains trapped behind the dam upstream.

The Lake Powell Pipeline would threaten efforts to restore riverine habitat and endangered fish species on the Colorado River through experimental pulse flows and accelerate erosion and habitat loss in the Grand Canyon. Clearly, risking the future of one of our Nation's most revered National Parks is not beneficial to public welfare.

## **XI. Conclusion**

For the aforementioned reasons, the URC strongly urges the State Engineer to not approve this Application. There are a plethora of uncertainties surrounding this Application, all of which implicate the appropriateness of this water claim. Uncertainties aside, there are several tangible issues associated with the approval of the Application. We urge the State Engineer to consider the real-life consequences that flow from her decision. Thank you for your time and consideration.