

**BEFORE THE
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION**

_____)	
Utah Board of Water Resources)	Project No. P-12966-004
_____)	Docket No. EL18-56-000
Lake Powell Pipeline Project)	
_____)	Comments

**WESTERN RESOURCE ADVOCATES' COMMENTS ON THE ORIGINAL LICENSING
PROCEEDING FOR THE LAKE POWELL PIPELINE PROJECT**

Pursuant to 18 C.F.R. § 5.23, the “Notice of Application Accepted for Filing, Soliciting Motions to Intervene and Protests, Ready for Environmental Analysis, and Soliciting Comments, Recommendations, Terms and Conditions, and Prescriptions,”¹ as modified by the “Notice Suspending Procedural Schedule,”² and “Order Denying Petition for Declaratory Order on Jurisdiction,”³ Western Resource Advocates (WRA) hereby submits comments and recommendations relevant to the Federal Energy Regulatory Commission’s (FERC) and the Cooperating Agencies’ environmental analysis. Western Resource Advocates submitted a motion to intervene in the above-captioned docket on October 11, 2018.⁴

Western Resource Advocates is a nonprofit conservation organization dedicated to protecting the Interior West's land, air, and water. We promote river restoration and water conservation, advocate for a clean and sustainable energy future, and protect public lands for present and future generations. Western Resource Advocates engages with utilities, state and federal government agencies, and irrigators to find solutions to meet growing urban water demands while protecting stream flows for fish, wildlife, and recreation.

In light of FERC’s limited jurisdiction over the LPP, the Commission should hand off its lead agency role under NEPA to another agency with greater authority over the LPP and more experience evaluating

¹ eLibrary no. 20171211-3022 (Dec. 11, 2017).
² eLibrary no. 20180111-3085 (Jan. 11, 2018).
³ eLibrary no. 20180920-3054 (Sept. 20, 2018).
⁴ eLibrary no. 21181011-5133.

the environmental impacts of water supply pipelines. Nonetheless, should FERC move forward with preparing a draft environmental impact statement, the Commission must include a realistic No Action Alternative that properly accounts for current and future water demands, reasonable water conservation, reasonable reuse, and more agricultural water transfers. In addition, FERC must consider a reasonable range of alternatives, including a conservation alternative. FERC should also recognize that Arizona's Water Export Statute, A.R.S. § 45-292, as one of the required permit approvals for the LPP. Finally, because the LPP would move water from the Upper to the Lower Colorado River Basin, and bypass the Compact compliance location at Lee Ferry, FERC should consult with the other Basin States to ensure that permitting the LPP will not cause significant interstate conflict.

I. BACKGROUND

The Utah Board of Water Resources ("UBWR") submitted an application for a license under the Federal Power Act for the Lake Powell Pipeline Project ("Pipeline"), Federal Energy Regulatory Commission Project No. 12966, on April 30, 2016. The proposed Pipeline would be located in Washington and Kane Counties, Utah, and in Coconino and Mohave Counties, Arizona. Although the Pipeline, if approved, would be licensed to and constructed and operated by UBWR, the water delivered by the Pipeline would be used by the Washington County Water Conservancy District ("WCWCD") and the Kane County Water Conservancy District ("KCWCD") (collectively, the "Water Districts") for municipal and industrial water supply. Under the State of Utah's Lake Powell Pipeline Development Act, the State of Utah is the direct sponsor of the Pipeline. However, the Water Districts are the ultimate beneficiaries of the Pipeline and would be required to reimburse the State for the costs of developing the Pipeline.

The 140-mile proposed Pipeline would deliver water from Lake Powell, a federal reservoir in Arizona operated by the Bureau of Reclamation, to Sand Hollow Reservoir, near St. George, Utah for eventual distribution to the Water Districts' municipal and industrial water customers. To help cover the cover the costs of conveying this water, the Pipeline proposes to include a series of hydroelectric turbines

placed along the 89-mile downhill side of the Pipeline.⁵ To this end, the Pipeline also proposes to include a pumped storage development in Washington County, Utah. Much of the proposed Pipeline would be located on public lands managed by the Bureau of Land Management.⁶ UBWR plans to sell electricity generated by the Pipeline to regional transmission operators as an incidental purpose of the Pipeline.⁷

On December 11, 2017 the Federal Energy Regulatory Commission issued its Notice of Application Accepted for Filing, Soliciting Motion to Intervene and Protests, Ready for Environmental Analysis, and Soliciting Comments, Recommendations, Terms and Conditions, and Prescriptions (“NREA”).⁸ On December 27, 2017, UBWR petitioned the Commission urging the Commission to declare that the water delivery pipelines are part of the hydropower project and subject the Commission’s jurisdiction under the Federal Power Act.⁹ It concurrently moved for “the Commission to suspend the licensing proceeding immediately, and act expeditiously[.]”¹⁰ On January 9, 2018 WRA filed an Answer opposing UBWR’s motion for expedited action, and supporting UBWR’s motion for suspension of the procedural schedule.¹¹

On January 10, 2018 the Commission issued its Notice of Petition for Declaratory Order, and therein provided all interested parties to make comments and motions or petitions to intervene on or before February 12, 2018. On January 11, 2018 the Commission issued its Notice Suspending Procedural Schedule on the license application until after the Commission issues its decision on UWBR’s Petition for Declaratory Order. Pursuant to these instructions, WRA filed a motion to intervene and comments in Project No. P-12966-005.¹²

On September 20, 2018 the Commission issued its Order Denying Petition on Declaratory Order for

⁵ Application for Original License, Integrated Licensing Proposal (Public Filing) The Lake Powell Pipeline Project, FERC Project No. P-12966 at A-1 to -2 (April 30, 2016), eLibrary 20160502-5386.

⁶ *Id.*, Draft Plan of Development – Pipeline and Hydro Facilities at 1-4 (describing proposed facilities that would be on land administered by the Bureau of Land Management).

⁷ *See* Application at ES-7.

⁸ eLibrary 20171211-3022.

⁹ UBWR, “Petition for Declaratory Order on Jurisdiction, Motion for Expedited Action, and Motion for Suspension of Procedural Schedule,” eLibrary no. 20171227-5166 (Dec. 27, 2017), p. 1 (Petition).

¹⁰ *Id.* at 2.

¹¹ eLibrary 20180109-5125.

¹² eLibrary No. 20180212-5235.

Jurisdiction (“Jurisdictional Order”).¹³ In that Order, the Commission held that it would license only the hydroelectric generation facilities (“i.e., the generating facilities, primary transmission lines, and any necessary appurtenant structures, such as dams”¹⁴) contemplated as part of the proposed Lake Powell Pipeline project, but not the water conveyance system. The Commission also held that it “will not act as the ultimate decision maker for approving any portion of the overall project beyond the discrete hydropower facilities. In addition, the Commission will not be responsible for determining which alternative route for the water delivery pipeline should be chosen.”¹⁵ Finally, the Commission reinstated the comment and filing deadlines as they relate to the Commission’s licensing of the discrete hydroelectric facilities as contained in the Commission’s December 11, 2017 NREA.¹⁶

II. ANALYSIS

a. **FERC’s Limited Jurisdiction Over Only the Hydropower Components Demonstrates That FERC is Not the Proper Lead Agency for this Water Supply Project.**

FERC should reconsider its role as the lead agency preparing an environmental impact statement under the National Environmental Policy Act (NEPA).¹⁷ The Council on Environment Quality’s regulations implementing NEPA set forth the following factors for determining the lead agency designation:

- (1) The magnitude of the agency’s involvement.
- (2) Project approval/disapproval authority.
- (3) Expertise concerning the action’s environmental effects.
- (4) Duration of agency’s involvement.
- (5) Sequence of agency’s involvement.¹⁸

Most of these factors strongly favor the designation of an agency besides FERC as the lead agency under NEPA.

¹³ Federal Energy Regulatory commission “Order Denying Petition for Declaratory Order on Jurisdiction”, eLibrary No. 20180920-3043 (September 20, 2018).

¹⁴ *Id.* at ¶ 68.

¹⁵ *Id.* at ¶ 70.

¹⁶ *Id.* at 71.

¹⁷ 43 U.S.C. §§ 4321 *et seq.*

¹⁸ 40 C.F.R. § 1501.5(c).

The Commission has a limited approval or disapproval authority over the LPP. As FERC recently stated in its Jurisdictional Order, the Commission has jurisdiction over the discrete hydropower components of the Lake Powell Pipeline, but not the Pipeline itself.¹⁹ The Commission noted that it “will not act as the ultimate decision maker for approving any portion of the overall project beyond the discrete hydropower facilities. In addition, the Commission will not be responsible for determining which alternative route for the water delivery pipeline should be chosen.”²⁰

By contrast, most of the concern and controversy surrounding the LPP relates to the pipeline’s potential location, the applicants’ water supply and demand analyses, the potential impacts to the Colorado River, and other issues related to water supply management. The applicants concede that the LPP will be built primarily as a water supply pipeline and that the hydropower components’ purpose is to “help offset” the pipeline’s energy demands.²¹ It follows that selection of a non-pipeline alternative would likely obviate the applicants’ claimed need for the hydropower facilities considered in the PLP. Therefore, the incidental hydropower components are not the primary consideration for the agencies choosing between the LPP and alternatives.

FERC and the other permitting federal agencies should appoint a different and more appropriate lead agency to prepare an environmental impact statement for the LPP under NEPA. Although FERC has been involved as the planned lead agency for some time, the Commission’s findings in its recent Jurisdictional Order make this is an appropriate time to reconsider FERC’s role under NEPA as well. The federal agencies with jurisdiction over the pipeline as a whole have more comprehensive knowledge of the associated environmental issues and are better suited to being the lead agency for the NEPA process. Specifically, we urge FERC to hand off lead agency responsibilities to the Bureau of Reclamation, the Bureau of Land Management, the National Park Service, or the U.S. Army Corps of Engineers. Each of

¹⁹ Jurisdictional Order at ¶ 67.

²⁰ *Id.* at ¶ 70.

²¹ *See, e.g.*, UBWR’s Response to Additional Information Request Sch. B, Item 1 (Oct. 24, 2016), eLibrary No. 20161024-5067 (“The peaking and pumped storage facilities are intended to generate revenue to help offset the cost of constructing and operating the water supply pipeline”).

these agencies has broader permitting authority over the LPP or greater experience considering the potential environmental impacts of water supply pipelines.

b. The Final Application Fails to Present a Reasonable or Realistic No Action Alternative.

NEPA is the “basic national charter for protection of the environment.”²² “NEPA’s intent is to ‘focus[] the agency’s attention on the environmental consequences of a proposed project,’ [and] to ‘guarantee[] that the relevant information will be made available to the larger audience that may also play a role’ in forming and implementing the agency's decision.”²³

To fulfill these purposes, NEPA requires that federal agencies prepare a detailed environmental impact statement (“EIS”) before undertaking “major Federal actions significantly affecting the quality of the human environment.”²⁴ An EIS must include a rigorous analysis of alternatives to the proposed action that “sharply defin[es] the issues and provid[es] a clear basis for choice among options by the decisionmaker and the public.”²⁵ This alternatives analysis “is at the heart of the environmental impact statement.”²⁶ An EIS must also include a “no action” alternative.²⁷

The proposed alternatives in the Utah Board of Water Resources’ (UBWR or Board) *Final Study Report 22 Alternatives Development*²⁸ do not meet the basic requirements of NEPA. NEPA requires the Project Applicant to provide a rigorous analysis of alternatives.²⁹ However, UBWR fails to present a reasonable or realistic No Action Alternative or No Lake Powell Water Alternative for meeting Washington County Water Conservancy District’s (WCWCD) and the other relevant entities’ future water needs. Specifically, the Board offers only three limited alternative options:

²² 40 C.F.R. § 1500.1(a).

²³ *Davis v. Mineta*, 302 F.3d 1104, 1114 n.5 (10th Cir. 2002) (quoting *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349-50 (1989)) (alterations in original).

²⁴ 42 U.S.C. § 4332(2)(C).

²⁵ 40 C.F.R. 1502.14.

²⁶ *Id.*

²⁷ *Id.*

²⁸ Available at eLibrary No. 20160502-5386 (April 30, 2016).

²⁹ 40 C.F.R. 1502.14.

- **Advanced Treatment of Existing Supplies:** Treatment of Virgin River water supplies and wastewater reuse effluent by reverse osmosis (RO).
- **Water Conservation:** Eliminating residential outdoor irrigation with potable water.
- **Development of Local Supplies:** Conveying available groundwater from Kane County to Washington County by pipeline.

The Alternatives listed by UBWR are insufficient as described, and fail to recognize other viable options. In addition, the Board assumes unnecessarily large future water demands, which are based on weak conservation programs and poor data collection practices.³⁰ FERC should not accept UBWR's proposed alternatives because they are not reasonable or supported by administrative record, as required by NEPA.

i. Western Resource Advocates' update to the Local Waters Alternative

Western Resource Advocates presents the following Alternative, which is reasonable, cost-effective and represents the Least Environmentally Damaging Practicable Alternative. Specifically we propose the following Alternative Actions that will supplant the need for the Lake Powell Pipeline:

- **Advanced Treatment of Existing Supplies:** Treatment of Virgin River water supplies and wastewater reuse effluent by reverse osmosis (RO).
- **Water Conservation:** Water rates that encourage efficiency, land use policies to substantially increase water efficiency in new construction.
- **Development of Local Supplies:** Conveying available groundwater from Kane County to Washington County by pipeline. Transferring a more realistic volume of water from agricultural uses to municipal uses.
- **Water Data Management:** Universal metering of all culinary and secondary water deliveries, and improved tracking to inform water management and conservation efforts.

Western Resource Advocates presents here a realistic No Action Alternative based upon our *Local Waters Alternative to the Lake Powell Pipeline*³¹ that corrects the flaws of the Project Applicant's alternatives proposal. In addition, our Alternative would incur less environmental harm than the applicant's proposed LPP action. Our alternative shows how Washington County can pursue water conservation, water reuse, and conversion of agricultural water to Municipal and Industrial (M&I) uses to meet future water needs and avoid construction of a costly and environmentally damaging water supply pipeline.

³⁰ See *infra*.

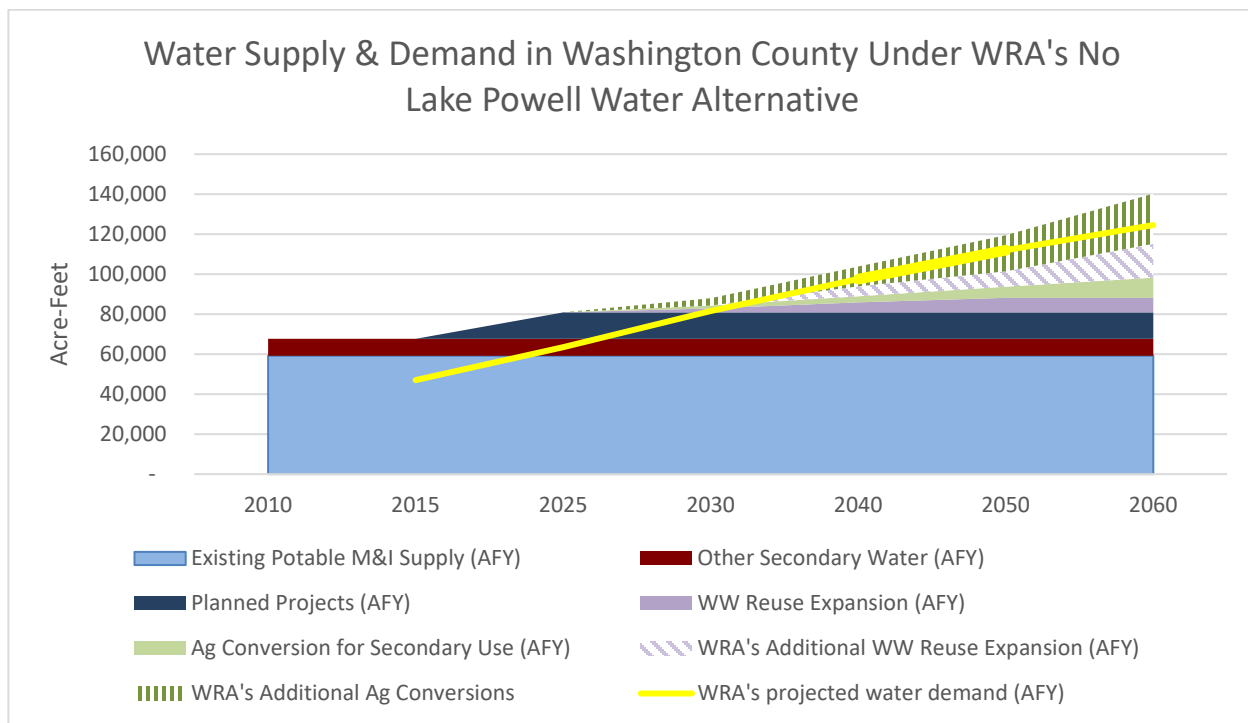
³¹ Amelia Nuding, Western Resource Advocates, *Local Waters Alternative to the Lake Powell Pipeline* (Mar. 13, 2013), eLibrary 20130314-5010.

In 2013 Western Resource Advocates submitted the *Local Waters Alternative* to FERC as a reasonable and realistic No Action Alternative to the LPP. Although the project applicants have since updated some of their data related to population growth, water supply, and water demand, the central conclusions of the *Local Waters Alternative* remain unchanged:

- The *Local Waters Alternative* (or a similar set of approaches) more than meets future water needs in Washington County;
- Implementation of reasonable and cost-effective conservation measures would substantially lower future water demand projections;
- Reuse and agricultural water transfers can provide significant amounts of new water supply to meet projected water needs;
- The *Local Waters Alternative* costs significantly less than the proposed LPP.

Figure 1 is a graphical summary of Western Resource Advocates’ No Action Alternative, as described in the *Local Waters Alternative*. Figure 1 has been updated with the latest data on population projections, water supplies and water demand, illustrating that WRA’s proposed solutions remain viable today.

Figure 1. A graphical summary of WRA’s Alternative to the Lake Powell Pipeline



Our analyses uses much of the same data provided by the project applicants, but also has some important differences, as explained here:

- WRA’s population projection match those used in the Final Study Reports 22 and 19.

- WRA uses most of same water supplies as reported by WCWCD in Final Study Report 22 Alternatives Development (Table 3-1): Existing potable M&I Supply, Planned Projects, Wastewater Reuse Expansion, Other Secondary Water, and Agricultural Conversion for secondary use.
- WRA does not include any water from the LPP, nor does it include UBWR’s water from “Additional Wastewater Reuse Expansion Beyond Existing Capacity.” Instead, WRA uses our own projected volume of reuse water, which is lower due to decreased supply from residents due to conservation.
- WRA adds in additional water resources from expanded agricultural water conversions, as would be expected from the significant population growth that would occur on agricultural lands, permanently changing the use of those lands.
- WRA uses the more recent and accurate 2015 water demand from the Division of Water Resources³² as the baseline for water demand, instead of the less accurate 2010 baseline provided by UBWR. We apply a 1% per capita conservation rate per year, which is explained further in section IIc.

ii. WRA’s Alternatives to the LPP are Less Expensive than the Proposed Project.

The Local Waters Alternative proposes cost-effective strategies to meet WCWCD’s reasonable future water needs, including:

- Improved tiered-rate structures that reflect the true cost of water rather than the currently low-water rates that are combined with property tax revenue for the district;
- New construction codes that ensure water-efficient new development is built using standard techniques like: soil amendment, efficient irrigation systems and native, low-water using plants;
- Full metering of all culinary and secondary water to more precisely track water usage and trends, and subsequently focus water efficiency program efforts where they will achieve the most significant savings for the dollars invested.

In contrast, UBWR’s Application presents a false choice between building an expensive water supply pipeline to support unreasonably high per capita water use rates, and the permanent elimination of outdoor watering with potable water supplies. This is not only a virtually unheard of conservation technique for long term water management, it ignores the less expensive and more commonly utilized conservation options described above.

The Local Waters Alternative concludes that the LPP would cost substantially more than the Alternatives. Figure 2, below, depicts the original conclusions of the Local Waters Alternative, which have not been updated since its release in 2013, but are still representative of the relative costs.

³² Utah Division of Water Resources, Utah’s Open Water Data, <https://dwre-utahdnr.opendata.arcgis.com/datasets/mnireport2015-counties> (last visited September 5, 2018).

Figure 2. The cost of the Local Waters Alternative is about 1/3 the cost of the Lake Powell Pipeline, with some infrastructure costs undetermined. All costs assume a 4.14% discount rate.

	<u>Local Waters Alternatives</u>	<u>Lake Powell Pipeline</u>
Conservation Costs	\$236.1 million	
Reuse	\$130.1 million	
Agriculture	\$34.4 million + infrastructure costs	
TOTAL COSTS	\$410.3 million + infrastructure costs	\$1,261.3 million

UBWR’s Application does not provide a direct cost comparison between the proposed Lake Powell Pipeline and all reasonable project alternatives, including the No Action Alternative. However, the Local Waters Alternative is viable, less environmentally damaging, and less expensive than the proposed Lake Powell Pipeline project. This plan realistically represents what the project beneficiaries would actually do in the event of the denial of a necessary permit. Therefore, the Local Waters Alternative should be used as the No Action Alternative.

c. Project Applicants Greatly Exaggerate Current and Future Water Demands.

FERC should not accept UBWR’s baseline current and future water demands. UBWR reports that WCWCD’s system-wide per-capita water demands were 325 gallons per person per day (gpcd) in 2010, and they will be 311 gpcd by 2020.³³ These figures have changed substantially since the draft reports. Moreover, recent data from the Division of Water Resources reports that per capita water demands in 2015 in Washington County were only 303 gpcd, lower than the water use figures used by the Project Applicants.³⁴

The Division of Water Resources notes that these data cannot be directly compared with data from previous years, due to numerous differences and improvements in data collection and reporting

³³ Final Study 19, Table 3-3, pg. 3-5, eLibrary 20160502-5386.

³⁴ Utah Division of Water Resources, Utah’s Open Water Data, [https://dwre-utahdnr.opendata.arcgis.com/datasets/mnireport2015-counties](https://dwre.utahdnr.opendata.arcgis.com/datasets/mnireport2015-counties) (last visited September 5, 2018).

methodologies. The improved data collection methodologies were largely a result of the findings of Legislative Auditor General’s 2015 report, which concluded that “[t]he Division does not have reliable local water use data.”³⁵ Therefore, FERC should use the more recent data from 2015 as their baseline per capita water demands, and adjust future projections accordingly. This adjustment would result in lower – and more accurate – projected future water demands.

UBWR’s future water needs projections are also unrealistically high, and severely underestimate the role that water conservation can play in reducing demand for water. Figure 3 below compares UBWR’s projected water demands with WRA’s projections. UBWR assumes that per capita water usage does not change between 2030 and 2050, yet fails to supply any justification for keeping water use rates static for two decades.

Figure 3. A comparison of anticipated per capita water use by WCWCD and Western Resource Advocates (data from Final Study 19, Table 3-3, page 3-5).

Year	WCWCD Per Capita Use with Conservation(gpcd)	Western Resource Advocates’ Per Capita Use with Conservation
2010	325	
2015		303
2020	311	288
2030	295	260
2040	295	235
2050	295	213
2060	285	192

It is inaccurate and inappropriate to assume that future water demands will not decline over a period of 20 or more years. Water demands will undoubtedly decline every year due to simple replacement of old, higher water-using fixtures (e.g. toilets, showerheads, faucets) with new, more-efficient models. Notably,

³⁵ OFFICE OF THE LEGISLATIVE AUDITOR GENERAL, STAT OF UTAH, A PERFORMANCE AUDIT OF PROJECTIONS OF UTAH’S WATER NEEDS. REPORT OF THE UTAH LEGISLATURE NO. 2015-01 (MAY 2015). pg ii.

the USGS has documented a national trend of declining per capita water use in the municipal sector since 2005.³⁶ And regionally, a 2011 Pacific Institute report documented 100 cities and water agencies in the Colorado River Basin, finding that “the majority of people receiving water from the Colorado River basin live in areas where per capita deliveries dropped an average of at least one percent per year from 1990 to 2008.”³⁷ Some of the water agencies that achieved per capita declines of 1% or more per year are located in Utah, namely Salt Lake City, Provo, West Jordan, Orem, Springville and Pleasant Grove, indicating that this trend is not unique to other states.³⁸ Therefore, the minimal reductions in per capita water use proposed by UBWR are unrealistic and unreasonable.

In conclusion, UBWR’s analysis of future water demands is unsupported and is greatly inconsistent with well-documented regional trends toward reduced per capita water requirements over time. As a result of UBWR’s incorrect baseline water use data, and unreasonable assumptions regarding water conservation and efficiency, future water demand projections are grossly inflated and unrealistic. FERC should not accept UBWR’s baseline and future water use analyses into the Commission’s draft EIS.

d. Uncertainty Regarding the Boundaries of Grand Staircase Escalante National Monument Prevents Accurate Environmental Analysis of the Proposed Pipeline and its Accompanying Hydroelectric Facilities at This Time.

The 140-mile proposed Pipeline would deliver water from Lake Powell, a federal reservoir in Arizona operated by the Bureau of Reclamation, to Sand Hollow Reservoir, near St. George, Utah for eventual distribution to municipal and industrial water customers. The proposed Pipeline also contemplates that facilities will be constructed near, and possibly within, the Boundaries of Grand Staircase Escalante National Monument.³⁹ However, the boundaries of Grand Staircase Escalante National Monument are

³⁶ United State Geological Survey. 2018. Summary of Estimated Water Use in the United State in 2015. <https://pubs.usgs.gov/fs/2018/3035/fs20183035.pdf>. Attached hereto as Exhibit “A”.

³⁷ Cohen, M. J. 2011. Municipal Deliveries of Colorado River Basin Water. Pacific Institute. pg. iii. http://www.pacinst.org/reports/co_river_municipal_deliveries/. Executive Summary is attached hereto as Exhibit “B”.

³⁸*Id.* at 31.

³⁹ Application for Original License, Integrated Licensing Proposal (Public Filing) The Lake Powell Pipeline Project, FERC Project No. P-12966 at Exhibit G (April 30, 2016), eLibrary 20160502-5386.

currently subject to federal litigation.⁴⁰ The unresolved question central to that lawsuit is whether President Trump violated the Antiquities Act when he reduced the previously established boundaries of Grand Staircase Escalante National Monument.

The lawsuit's claims have merit and the case may result in the restoration of the Monument's previous boundaries. The Antiquities Act of 1906 ("Act") delegates to the President the authority to "declare" historic landmarks, historic and prehistoric structures, and other "objects" of historic or scientific interest on Federal lands to be national monuments and to "reserve parcels of land as part of the national monuments."⁴¹ Through the Act, Congress sought to ensure lasting protection for the nation's historic, cultural, and scientific heritage.

In passing the Act, Congress was intentional in delineating the scope of the President's authority over national monuments. The clear text of the Act specifies the President's authority to create monuments and places limits on the purposes for which a monument may be established and the scope of a monument. It does not, however, give the President any authority to reduce, diminish, or modify monuments. This clear intent is supported by the Act's overriding protective purpose and Congress' goal of providing permanent protection to national treasures that are located on federal lands.

The Act authorizes the President to reserve as national monuments parcels of land which are "the smallest area compatible with the proper care and management of the objects to be protected."⁴² In placing this limit on monument designations, Congress gave the President broad authority to declare areas as monuments, conditioned upon this scope requirement. Thus, any monument that exceeds the "smallest area compatible" standard does not meet the Act's requirements. But this limitation does not provide a subsequent President the authority to second-guess the geographical boundaries required to properly protect the designated objects; rather, it simply limits the President's ability to determine the scope of national

⁴⁰ Consolidated Cases in the U.S. District Court for the District of Columbia, *The Wilderness Society, et al. v. Donald Trump et al.* Case No. 1:17-cv-02587 (TSC) & *Grand Staircase Escalante Partners et al. v. Donald Trump et al.*, 1:17-cv-02591 (TSC).

⁴¹ 54 U.S.C. § 320301.

⁴² 54 U.S.C. § 320301.

monuments in the first instance to the area necessary to protect the declared objects.

Since its passage in 1906, presidents have used the Act for precisely this purpose: to protect important “objects” by reserving parcels of land to provide enduring protection. Over the last century, some of the monuments created under the Antiquities Act have later become some of the nation’s most treasured national parks (Grand Canyon, Olympic, Zion, Bryce Canyon, and Glacier Bay national parks, among others), and many national monuments, such as Cascade-Siskiyou, Sonoran Desert, and Grand Staircase-Escalante National Monument are widely recognized for their irreplaceable natural features.

If the Federal Energy Regulatory Commission proceeds with an environmental analysis and permitting of the Lake Powell Pipeline at this time, the agency risks placing itself in the middle of the dispute over the status of Grand Staircase Escalante National Monument. This creates a high degree of uncertainty as to whether any of the environmental analysis work done during this uncertain time will be accurate, or may be relied upon to issue a Record of Decision or permit for the proposed pipeline. Grand Staircase Escalante National Monument encompassed nearly 1.7 million acres when proclaimed by President Clinton in 1996.⁴³ Through the Proclamation, President Clinton designated objects of historic and scientific interest and set aside the “smallest area compatible with the proper care and management” of those objects.⁴⁴

Subsequently, in 1998, Congress passed (and the President signed) two bills which implicitly ratified Grand Staircase Escalante National Monument’s designation and borders (“1998 Legislation”). First, Congress added lands to and removed lands from the 1996 Monument boundaries.⁴⁵ Second, Congress authorized the transfer of 176,699 acres of land and mineral interests from state to federal ownership, thereby expanding Grand Staircase Escalante National Monument’s footprint, in exchange for a monetary payment and a transfer of other federal lands outside of the Monument area to the State of Utah.⁴⁶ The lands

⁴³ Proclamation 6920, “Establishment of the Grand Staircase-Escalante National Monument,” 61 Fed. Reg. 50223, 50225 (Sept. 24, 1996).

⁴⁴ *Id.*; 54 U.S.C. § 320301.

⁴⁵ Act of November 6, 1998, Pub. L. No. 105-355, §§ 201–202, 112 Stat. 3247, 3252–53.

⁴⁶ Utah Schools and Lands Exchange Act, Pub. L. No. 105-335, § 2, 112 Stat. 3139, 3139 (Oct. 31, 1998).

transferred to federal ownership included lands administered by the Utah School and Institutional Trust Lands Administration (SITLA). As a result, through the 1998 Legislation, Congress confirmed Grand Staircase Escalante National Monument's boundaries by adjusting and expanding the Monument's footprint via Congressional land exchange.

In direct contravention of congressional ratification and recognition that the boundaries after the 1998 Legislation were the proper boundaries under the Act, on December 4, 2017, President Trump issued a proclamation shrinking the boundaries of the Monument.⁴⁷ Concluding without substantiation that the boundaries established by President Clinton were "greater than the smallest area compatible with the protection of the objects for which lands were reserved," President Trump shrunk the Monument into three distinct areas: Grand Staircase, Kaiparowits, and Escalante Canyons (the 2017 Units), thereby diminishing the Monument by nearly half.⁴⁸ The remaining three units cover only 58% of the Monument's original area and specifically exclude many objects designated by the original proclamation.⁴⁹ Contrary to the limited authority of the Antiquities Act (which does not include diminishing or shrinking a previously-proclaimed national monument) and Congress' ratification of the purpose and boundaries of the Monument, President Trump made the erroneous finding in the 2017 Proclamation that these three shrunken units "will ensure that the monument is no larger than necessary for the proper care and management of the objects."⁵⁰ While this matter is not yet resolved, its current litigation status suggests that no federal or state agency should be building infrastructure in or around the disputed boundaries of Grand Staircase Escalante National Monument.

The question of monument boundaries is even more complicated, and directly related to possible placement of Lake Powell Pipeline facilities. Notably, in the 1998 Utah Schools and Lands Exchange Act Congress explicitly validated the significance of the Monument objects and the importance of conserving,

⁴⁷ Proclamation 9682, "Modifying the Grand Staircase-Escalante National Monument," 82 Fed. Reg. 58089, 58093 (Dec. 8, 2017).

⁴⁸ *Id.* at 58091.

⁴⁹ *Id.* at 58093.

⁵⁰ *Id.*

inter alia, the “substantial . . . natural resources” including the “rare plant and animal communities” within the extent of the entire Monument.⁵¹ Moreover, it deemed Grand Staircase Escalante National Monument as one “of the most renowned conservation land units in the United States.”⁵² Congress also acknowledged that “[d]evelopment of surface and mineral resources on [...] lands within Grand Staircase Escalante National Monument could be incompatible with the preservation of these scientific and historic resources for which the Monument was established.”⁵³ This suggests that the development of pipeline facilities within the boundaries of Grand Staircase Escalante National Monument would also be incompatible with the preservation of its scientific and cultural resources. With the boundaries of the Monument in question, and therefore which resources are still entitled to the full protection of Monument status as stated in the 1998 Utah Schools and Lands Exchange Act, it would be imprudent for the Federal Energy Regulatory Commission to proceed with any environmental analysis at this time. Only after the dispute involving Grand Staircase Escalante National Monument’s Boundaries has been settled should the Federal Energy Regulatory Commission, or any federal agency, perform environmental analysis of the section of the proposed Lake Powell Pipeline that would traverse the Monument’s boundaries. There is a high likelihood that the outcome of the present litigation will greatly impact any licensing decisions made regarding the Lake Powell Pipeline and its proposed facilities that would traverse Grand Staircase Escalante National Monument.

e. FERC Must Consider Conservation Alternatives in Detail in the Draft Environmental Impact Statement.

Under NEPA,⁵⁴ federal agencies must consider a full range of alternatives to the proposed action in an environmental impact statement.⁵⁵ The alternatives analysis is the “heart” of a NEPA document, and the statute’s implementing regulations direct the Bureau to “[r]igorously explore and objectively evaluate

⁵¹ Utah Schools and Lands Exchange Act, Pub. L. No. 105-335, § 2, 112 Stat. 3139, 3139 (Oct. 31, 1998).

⁵² *Id.* at 3141.

⁵³ *Id.* at 3139.

⁵⁴ 42 U.S.C. §§ 4321 *et seq.*

⁵⁵ 42 U.S.C. § 4332(C)(iii).

all reasonable alternatives.”⁵⁶ A “viable but unexamined alternative renders [the] environmental impact statement inadequate.”⁵⁷ For example, in *New Mexico ex rel. Richardson v. Bureau of Land Management*, the Tenth Circuit remanded the environmental impact statement and record of decision for the Otero Mesa resource management plan amendment because BLM’s conservation alternative “was a far cry” from the most protective alternative allowable under law.⁵⁸ Accordingly, FERC has a duty to evaluate all reasonable action alternatives that will avoid impacts to the Colorado River, public lands, wildlife habitat, or other important natural values.

In the context of the LPP, a viable conservation action alternative could include a smaller-sized (*i.e.*, fewer acre-feet in capacity) water supply pipeline project that integrates many of the conservation actions in the Local Waters Alternative. Another potential option is a “conservation first” alternative that requires the implementation of conservation measures, and the attainment of water demand thresholds, prior to the construction of the LPP. These ideas are merely illustrative, and not necessarily exhaustive, of the possible action alternatives that FERC would be required to consider in the draft EIS.

f. The Local Waters Alternative Demonstrates that a Practicable No Action Alternative is Available and Must be Considered in the Draft EIS.

Due to the UBWR’s planned discharges of dredge and fill material, the Clean Water Act imposes a substantive limit to the Corps’ discretion here, even as a cooperating agency, such that it may only select the least environmentally damaging practicable alternative. Under Guidelines implementing Section 404(b)(1) of the Clean Water Act:

the Corps may not issue a [dredge or fill] permit if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, unless the alternative has other significant adverse environmental consequences. A practicable alternative is one that is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.⁵⁹

⁵⁶ 40 C.F.R. § 1502.14(a); *see also Utahns for Better Transp. v. U.S. Dept. of Transp.*, 305 F.3d 1152, 1166 (10th Cir. 2002).

⁵⁷ *Citizens for a Better Henderson v. Hodel*, 768 F.2d 1051, 1057 (9th Cir. 1985).

⁵⁸ 565 F.3d 683, 711 (2009).

⁵⁹ *Greater Yellowstone Coal. v. Flowers*, 359 F.3d 1257, 1269 (10th Cir. 2004) (internal quotations omitted; quoting 40 C.F.R. § 230.10(a)).

The purpose for severely constraining the Corps' discretion when considering dredge and fill applications is straightforward:

dredged or fill material should not be discharged into the aquatic ecosystem, unless it can be demonstrated that such a discharge will not have an unacceptable adverse impact either individually or in combination with known and/or probable impacts of other activities affecting the ecosystems of concern. . . . From a national perspective, the degradation or destruction of special aquatic sites, such as filling operations in wetlands, is considered to be among the most severe environmental impacts covered by these Guidelines. The guiding principle should be that degradation or destruction of special sites may represent an irreversible loss of valuable aquatic resources.⁶⁰

The Corps' burden under the Clean Water Act is especially steep where, as here, the preferred alternative does not appear to be "water dependent."⁶¹ In cases like this one,

[T]he presumption is that there are practicable alternatives that do not involve special aquatic sites and that these alternatives do have less adverse impact on the aquatic ecosystem. These presumptions hold unless clearly demonstrated otherwise. [The Tenth Circuit has] thus held that in such a case, the Corps may not issue a § 404 permit unless the applicant, with independent verification by the Corps, provides detailed, clear and convincing information *proving* that an alternative with less adverse impact is impracticable.⁶²

If the information in the record is insufficient to determine the existence of practicable alternatives, the dredge and fill permit must be denied.⁶³ Finally, EPA is authorized to veto any proposed dredge and fill activity that will, among other things, "have an unacceptable adverse impact to . . . fishery areas (including spawning and breeding areas), wildlife, or recreation areas."⁶⁴

Accordingly, FERC's failure to include a realistic and practicable No Action Alternative in the draft EIS, such as the Local Waters Alternative, would violate the Clean Water Act. FERC should not unquestioningly accept UBWR's unrealistic and draconian No Action Alternative that would simply end treated outdoor watering in WCWCD's service area. It is far more likely that in the event of a section 404 permit denial, WCSCD would pursue the proven water conservation measures in the Local Waters

⁶⁰ 40 C.F.R. § 230.1 (c), (d).

⁶¹ *Id.* at 230.10(a)(3).

⁶² *Greater Yellowstone Coal.*, 359 F.3d at 1269 (emphasis in original; internal quotations omitted; quoting 40 C.F.R. § 230.10(a)(3) and *Utahns for Better Transp.*, 305 F.3d at 1186-87).

⁶³ *Greater Yellowstone Coal.*, 359 P.3d at 1269.

⁶⁴ 33 U.S.C. § 1344(c).

Alternative, rather than take the extraordinary and unpopular step of ending all outdoor water use with treated water.

g. The Application Fails to List Arizona’s Water Export Statute, A.R.S. § 45-292, Among the Required State Permits for the LPP.

The Arizona Water Export Statute expressly prohibits transporting water from Arizona for consumptive use in another state without approval by the Director of the Arizona Department of Water Resources.⁶⁵ In the proposed LPP, the Utah Division of Water Resources plans to pump stored water from Lake Powell at a point in Arizona and transport that water via pipeline for consumptive use in Utah. Therefore, the plain terms of the Arizona Water Export Statute apply to the current plans for the Lake Powell Pipeline.

However, despite our previous comment on this issue regarding the PLP, there is still no mention of A.R.S. § 45-292 in the relevant section of the Application.⁶⁶ Under A.R.S. § 45-292, the Director must hold a formal administrative hearing on the application and consider statutory factors in determining whether to grant, condition, or deny the application to move water out of Arizona.⁶⁷ FERC should note this requirement for a permit to export water from Arizona in its evaluation of the LPP.

h. Exports of Water via Pipeline from the Upper Basin to the Lower Basin are Potentially Illegal Under the Colorado River Basin Compact of 1922.

The proposed LPP would divert water from Upper Basin pursuant to Utah’s entitlement under the Colorado River Compact for use in the part of Utah that is in the Lower Basin. This is potentially problematic because the Compact apportions 7.5 million acre feet each from the Colorado River to the

⁶⁵ A.R.S. § 45-292; *see also id.* at 45-101(3) (defining the “director” as the Director of the Arizona Department of Water Resources).

⁶⁶ *See* Application at ES-8 (Table 2-1).

⁶⁷ Article IX(a) of the Upper Colorado River Basin Compact (UCRBC) does not preempt Arizona’s ability to reject an application for the Lake Powell Pipeline. Both Arizona and Utah are signatories to the UCRBC. Article IX(a) only protects the consumptive interstate water projects of a “lower,” *i.e.* downstream, signatory state against the protectionist laws of an “upper”, *i.e.* upstream, signatory state. The Colorado River never re-enters Utah below Lake Powell in Arizona. Therefore, the proposed Lake Powell Pipeline is not protected by Article IX(a) of the UCRBC.

Upper and Lower Basins.⁶⁸ Notably, this apportionment is to the geographic regions in each basin and not directly to the states.⁶⁹ Certainly many basin states export Colorado River water out of the basin entirely. However, we are not aware of a precedent for moving water from the Upper Basin to the Lower Basin in a way that bypasses the Compact compliance location at Lee Ferry, Arizona. Given that the LPP would effectively reduce water available for consumptive use in the Upper Basin, and expand consumptive use in the Lower Basin beyond what is apparently contemplated in the Compact itself, there is a legitimate question about whether such an action comports with the Colorado River Compact. At a minimum, to avoid creating conflict within the basin, FERC should ensure that the other basin states agree with Utah’s apparent interpretation of the Colorado River Compact as allowing such Upper to Lower Basin transfers that bypass Lee Ferry.⁷⁰

i. The Cooperating Agencies Should Propose Conditions for the Proposed FPA Permit.

In light of the extensive potential impacts of the LPP to the Colorado River, public lands, and other natural values, we urge the cooperating agencies to propose permit conditions that will protect the natural environment. In the event that such conditions are proposed, Western Resource Advocates reserves its right to propose alternatives or potentially request a trial-type hearing at a later date.

III. CONCLUSION

Western Resource Advocates respectfully requests that FERC decline lead agency status for preparation of the draft EIS under NEPA. Nonetheless, should the agency proceed, the draft EIS should be prepared in a manner that is consistent with these comments. Finally, we urge the cooperating agencies to propose protective conditions that should apply to any eventual FPA permit.

Dated November 16, 2018

Respectfully submitted,

/s/ Ariel C. Calmes

⁶⁸ Colo. R. Compact, Art. III(a).

⁶⁹ *Id.* at Art. II(f), (g) (defining the “Upper Basin” and the “Lower Basin” as “those parts of the States . . . from which waters naturally drain into the Colorado River System . . .”)

⁷⁰ See Comment of the Colorado Water Conservation Board, *available at* FERC eLibrary 20110506-5150 (May 6, 2011).

Ariel C. Calmes
Staff Attorney
Western Resource Advocates
307 W 200 S Ste 2000
Salt Lake City, Utah 84101
385-235-6008
ariel.calmes@westernresources.org

DECLARATION OF SERVICE

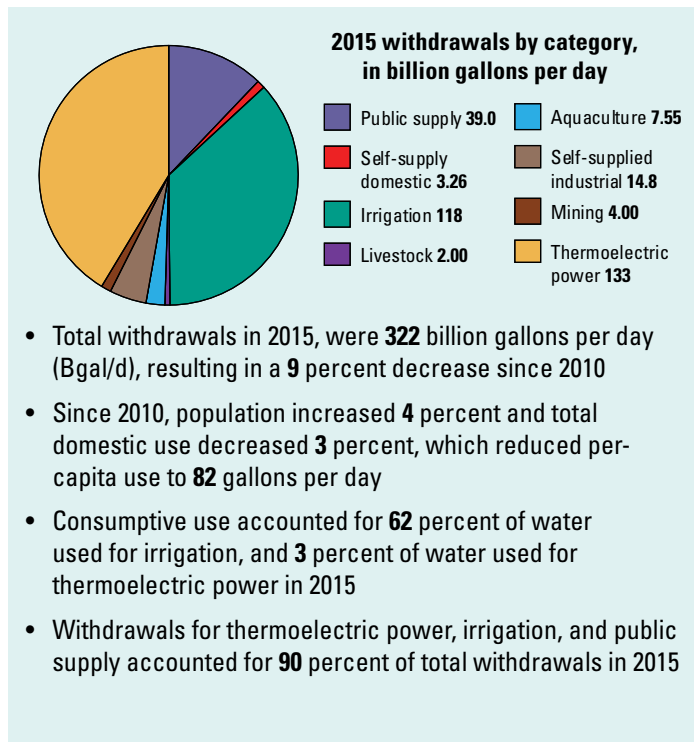
Utah Department of Water Resources, Division of Water Resources,
Lake Powell Pipeline Project (P-12966)

I, Ariel Calmes, hereby certify that on this 16th day of November, 2018, I have served a copy of the forgoing **Western Resource Advocates' Comments** electronically, or if no email address is provided, by first-class mail per Commission direction upon each person designated on the official Service List.

/s/ Ariel C. Calmes
Ariel C. Calmes
Staff Attorney
Western Resource Advocates
307 W 200 S Ste 2000
Salt Lake City, Utah 84101
385-235-6008
ariel.calmes@westernresources.org

EXHIBIT A

Summary of Estimated Water Use in the United States in 2015



A total of **322** Bgal/d of water withdrawals was reported for eight categories of use in the United States in 2015, which was 9 percent less than in 2010 (**354** Bgal/d), and continued a declining trend since 2005. The decline in total withdrawals in 2015 primarily was caused by significant decreases (**28.8** Bgal/d) in thermoelectric power, which accounted for **89** percent of the decrease in total withdrawals. Between 2010 and 2015, withdrawals decreased in all categories except irrigation (**2** percent increase), mining (**1** percent increase), and livestock (**no change**). Fresh surface-water withdrawals (**198** Bgal/d) were **14** percent less than in 2010, and fresh groundwater withdrawals (**82.3** Bgal/d) were about **8** percent more than in 2010. Saline surface-water withdrawals (**38.6** Bgal/d) were **14** percent less than in 2010, and saline groundwater withdrawals (**2.34** Bgal/d) were 5 percent more than in 2010. Total population in the United States in 2015 (**325** million) increased by **4** percent (**12.4** million) from 2010, which was similar to the increase between 2005 and 2010. For the first time since 1995, consumptive use for irrigation and thermoelectric power were reported. Consumptive use accounted for **62** percent (**73.2** Bgal/d) of water used for irrigation, and **3** percent (**4.31** Bgal/d) of water used for thermoelectric power in 2015.

Water Use by Category

Withdrawals for thermoelectric power, irrigation and public supply accounted for 90 percent of total withdrawals in the United States. Withdrawals by category and State, arranged from west to east (fig. 1) indicate the general geographical pattern of water use across the country. Thermoelectric-power withdrawals were prominent in the east and irrigation withdrawals were prominent in the west. Public-supply withdrawals are greatest in the states with the largest population centers.

Withdrawals for **public supply** were about 12 percent (39.0 Bgal/d) of total withdrawals, and 61 percent of public-supply withdrawals were from surface-water sources. Public-supply systems deliver water to domestic, industrial, commercial, and other users, and 60 percent of public-supply withdrawals provided 87 percent of the United States population (283 million) for domestic indoor and outdoor residential uses. Other residences are self-supplied from wells or other sources; these withdrawals were about 1 percent (3.26 Bgal/d) of total withdrawals and provided water to about 13 percent (42.5 million) of the United States population. Groundwater was used for 98 percent of the self-supplied domestic withdrawals.

Withdrawals for **irrigation** were 37 percent (118 Bgal/d) of total withdrawals, and 42 percent of freshwater withdrawals. Lands irrigated with sprinkler or micro-irrigation systems accounted for 63 percent of total irrigated lands. Surface water supplied about 52 percent of the total irrigation withdrawals. The 17 conterminous Western States accounted for 81 percent of total irrigation withdrawals, and 74 percent of the total irrigated lands in the United States.

Withdrawals for **livestock** and **aquaculture** combined were 3 percent of the total withdrawals for all categories in 2015. Total withdrawals for livestock were 2.00 Bgal/d and 62 percent was from groundwater. Total withdrawals for aquaculture were 7.55 Bgal/d and 79 percent were from surface water.

Self-supplied industrial withdrawals were almost 5 percent (14.8 Bgal/d) of total withdrawals, and surface water provided 82 percent. Withdrawals for **mining** were about 1 percent (4.00 Bgal/d) of total withdrawals, and groundwater supplied 72 percent, mostly (65 percent) from saline water.

Water used for **thermoelectric power** accounted for 41 percent of total withdrawals (133 Bgal/d), and surface water supplied almost all withdrawals; 72 percent of the surface-water withdrawals were freshwater. Powerplants that used once-through cooling systems accounted for 96 percent of all thermoelectric-power withdrawals. More than 25 percent of thermoelectric-power withdrawals and power production was in Texas, Florida, Illinois, and Michigan.

Water Use Trends, 1950-2015

Every 5 years since 1950, the U.S. Geological Survey (USGS) has compiled and estimated water-use information in cooperation with State, Federal, and local agencies, making it possible to evaluate water-use trends through time. Total withdrawals steadily increased from 1950 (180 Bgal/d) to the peak in 1980 (430 Bgal/d), declined in 1985 (397 Bgal/d), and then remained fairly steady until 2005 (410 Bgal/d). The sharp decline in 2010 (354 Bgal/d) has continued through 2015 (322 Bgal/d). Total withdrawals for 2015 were lower than 1970, and were about the same as 1965 (310 Bgal/d). Thermoelectric-power withdrawals increased from 1950 to 1980, then fluctuated slightly through 2005, and since 2005 have declined sharply because of increased efficiency and closures of plants with once-through cooling systems. Irrigation withdrawals steadily increased from 1950 to 1980, when they peaked (150 Bgal/d), then remained steady through 2005 (127 Bgal/d), declined in 2010 (116 Bgal/d) and slightly increased in 2015 (118 Bgal/d). The trend toward using more efficient irrigation systems continued with 10 percent more irrigated lands using sprinkler systems (including micro-irrigation) in 2015 than in 2010; lands using surface (flood) irrigation systems decreased by 11 percent. Although population within the United States has steadily increased since 1950, public-supply withdrawals have varied. Public-supply withdrawals gradually increased from 1950 (14 Bgal/d), to a peak in 2005 (44.4 Bgal/d), decreased for the first time in 2010 (42.0 Bgal/d), and have continued to decrease at 7 percent in 2015 (39.0 Bgal/d). Less water was used for domestic purposes in 2015 than in 2010, which resulted in a decrease of the total domestic per-capita use rate from 88 gallons per capita per day (GPCD) in 2010, to 82 GPCD in 2015. Trends for combined categories of industrial, mining, aquaculture, livestock, and commercial (reported from 1985 to 1995), show that total combined withdrawals were steady from 1950 to 1985, then

decreased in 1985, mostly because of large decreases in industrial withdrawals between 1980 and 1985. This decreasing trend has continued until 2015, even though livestock, mining, and aquaculture uses have increased over time.

Importance of Water-Use Data for the United States

The most recent USGS publication of water-use data that is part of the series of reports that began in 1950, and is the basis of this summary, is USGS Circular 1441, "Estimated use of water in the United States in 2015" (Dieter and others, 2018) along with a data release (Dieter and others, 2017). Federal, State, and local agencies have a key role in the collection and dissemination of water-use data. By compiling and publishing water-use estimates for the Nation, the USGS provides water-resource planners with the information needed to address issues related to water-resource allocation and environmental effects at National, regional, and State levels. Water-use data also is a key component of the water-budget approach for the National Water Census (<http://water.usgs.gov/watercensus>), which is a primary effort of the USGS Water Availability and Use Science Program (<https://www.usgs.gov/science/mission-areas/water/water-availability-and-use-science-program>) that includes research to improve methods of collection and estimation of water-use data.

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By Molly A. Maupin

For More Information

For more information concerning this publication, contact:
 USGS National Water-Use Science Project Team
wu-info@usgs.gov
 Or visit the USGS Water-Use Web site at:
<http://water.usgs.gov/watuse>

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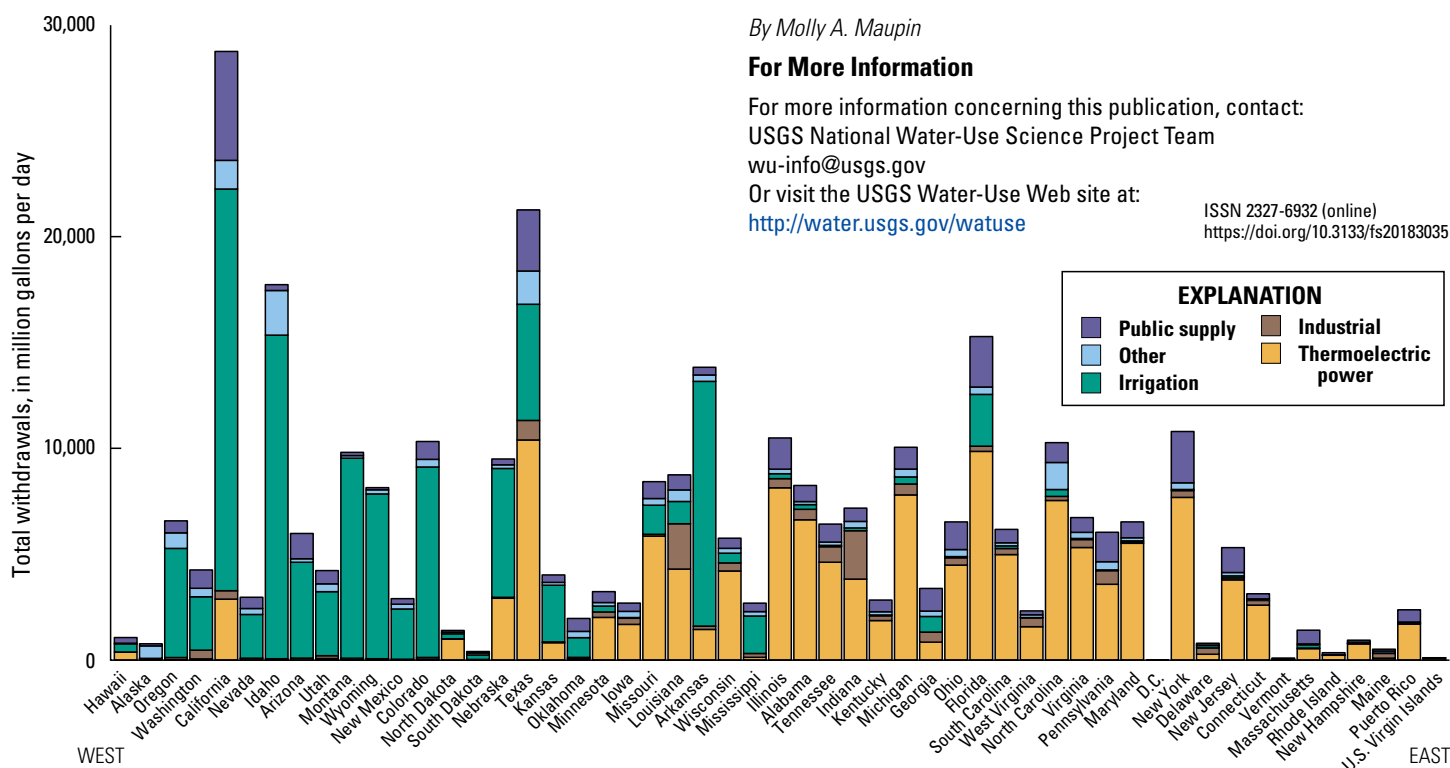


Figure 1. Withdrawals by category in 2015. States are arranged geographically from west to east. Units are in million gallons per day (Mgal/d); 1 billion gallon per day is equal to 1,000 Mgal/d.

EXHIBIT B

Municipal Deliveries of Colorado River Basin Water

Author

Michael J. Cohen

Research Assistant

Jenifer C. Martin

Editors

Nancy Ross

Paula Luu



Pacific Institute

654 13th Street, Preservation Park

Oakland, California 94612

www.pacinst.org

Phone: 510.251.1600

Facsimile: 510.251.2203

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Cover Photo: Aerial view of the Whitsett Pumping Plant, Courtesy © The Metropolitan Water District of Southern California

Note – this 6/27/2011 revision corrects population data for the City of Westminster and water delivery data for Denver Water.

About the Pacific Institute

The Pacific Institute is one of the world's leading independent nonprofits conducting research and education to create a healthier planet and sustainable communities. Based in Oakland, California, with an office in Boulder, Colorado, we conduct interdisciplinary research and partner with stakeholders to produce solutions that advance environmental protection, economic development, and social equity—in California, nationally, and internationally. We work to change policy and find real-world solutions to problems like water shortages, habitat destruction, global warming, and environmental injustice. Since our founding in 1987, the Pacific Institute has become a locus for independent, innovative thinking that cuts across traditional areas of study, helping us make connections and bring opposing groups together. The result is effective, actionable solutions addressing issues in the fields of freshwater resources, climate change, environmental justice, and globalization. More information about the Institute and our staff, directors, funders, and programs can be found at www.pacinst.org.

This report is available online at no charge at http://www.pacinst.org/reports/co_river_municipal_deliveries/. Also posted at this website is the spreadsheet compiling water use and population data and calculating per capita use rates. The spreadsheet also lists the sources for the data used in this report.

About the Author

Michael Cohen is a senior research associate at the Pacific Institute and is based in Boulder, Colorado. He is the lead author of several Institute reports and the co-author of several journal articles on water and the environment in the border region.

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Executive Summary

The iconic Colorado River supplies water to millions of people in fast-growing cities in the Colorado River's watershed, such as Las Vegas, Mexicali, Phoenix, and St. George, Utah (see [Figure ES-1](#) at the end of the Executive Summary). Tens of millions of people outside the watershed, from Denver to Albuquerque and from Salt Lake City to Los Angeles, San Diego, and Tijuana, also receive water exported from the basin to meet at least some of their residential and commercial water needs. More than half of the people receiving water from the basin live in southern California. In fact, about 70 percent of the people that receive water from the basin do not actually live in the basin. This study reports population and water delivery data and trends for 100 cities and water agencies that use Colorado River basin water, compiling such information for the first time in one location.

These municipal deliveries – which include deliveries to the residential, commercial, industrial, and institutional sectors, as well as some landscape irrigation, but do not include deliveries to agriculture, energy producers, or mining – comprise only about 15 percent of total Colorado River use (agriculture uses more than 70 percent). However, municipal deliveries are the fastest-growing sector, driving demands for additional water supplies, placing pressure on a river system that is over-allocated and facing a supply-demand imbalance, as well as the prospect of long-term declines in run-off due to climate change.

The number of people relying at least in part on water from the Colorado River basin increased by roughly 10 million people from 1990 to 2008, to a total of almost 35 million. Much of this increase occurred in areas experiencing extraordinary population growth: several cities in Arizona and Utah more than tripled in population between 1990 and 2008. The Las Vegas metropolitan area added upwards of a million people, more than doubling in size. Tijuana also roughly doubled in size, adding more than 800,000 people reliant on Colorado River water for an estimated 90 percent of their water supply.

Total water deliveries by these 100 agencies increased from about 6.1 million acre-feet in 1990 to about 6.7 million acre-feet in 2008. The volume of Colorado River basin water deliveries by these agencies also increased by about 0.6 million acre-feet over this period, from 2.8 million acre-feet to 3.4 million acre-feet, rising from 46 percent to 51 percent of total deliveries. The agencies delivering water in southern California actually delivered four percent less water in 2008 than they had in 1990, despite delivering water to almost 3.6 million more people. In fact, 28 water agencies in five different states delivered less water in 2008 than they had in 1990, despite population growth in their service areas.

Almost every one of the water agencies included in the study experienced declines in per capita deliveries from 1990 to 2008. People and business are demanding less water than they did in 1990. This report does not attempt to determine the causes of these declines, but it does quantify these changes over time, giving a picture of trends for municipal water providers. The majority of people receiving water from the Colorado River basin live in areas where per capita deliveries dropped an average of at least one percent per year from 1990 to 2008, generating substantial long-term declines. Many of these areas showed substantial reductions in per capita deliveries

from delivery rates that were already much lower than average for the 100 agencies; it was not just the high per-capita-use agencies that demonstrated large reductions in per capita deliveries. Because of these substantial per capita declines, municipal water deliveries were roughly two million acre-feet lower than they would have been had per capita deliveries remained constant from 1990 to 2008.

Nine agencies' per capita deliveries actually increased from 1990 to 2008, though these agencies provide water to only about two percent of the total population receiving water from the basin. If the water agencies in this study had all experienced per capita declines of at least one percent, total deliveries would have increased by about 300,000 acre-feet, only half as much as the actual increase in municipal deliveries by these agencies. While small in comparison with the two million acre-foot reduction already achieved, 300,000 acre-feet is still a sizeable volume of deliveries that could have been avoided if the agencies with less than one percent average annual per capita reductions had been more efficient.

Total municipal water deliveries by agencies delivering water from the Colorado River basin increased by more than 600,000 acre-feet between 1990 and 2008, taking water from a basin that faces a future challenged by diminished supply and continued population growth. Yet the water delivery trends of many of these water agencies offer a route forward, where growth can be accommodated within existing supplies and total demands on the basin actually decline over time. The large number of water agencies from many parts of the Colorado River basin states and Mexico that have already achieved substantial declines in per capita deliveries demonstrate what increased water efficiency and conservation can accomplish and should encourage the less successful agencies to promote conservation and efficiency more aggressively in their own service areas.

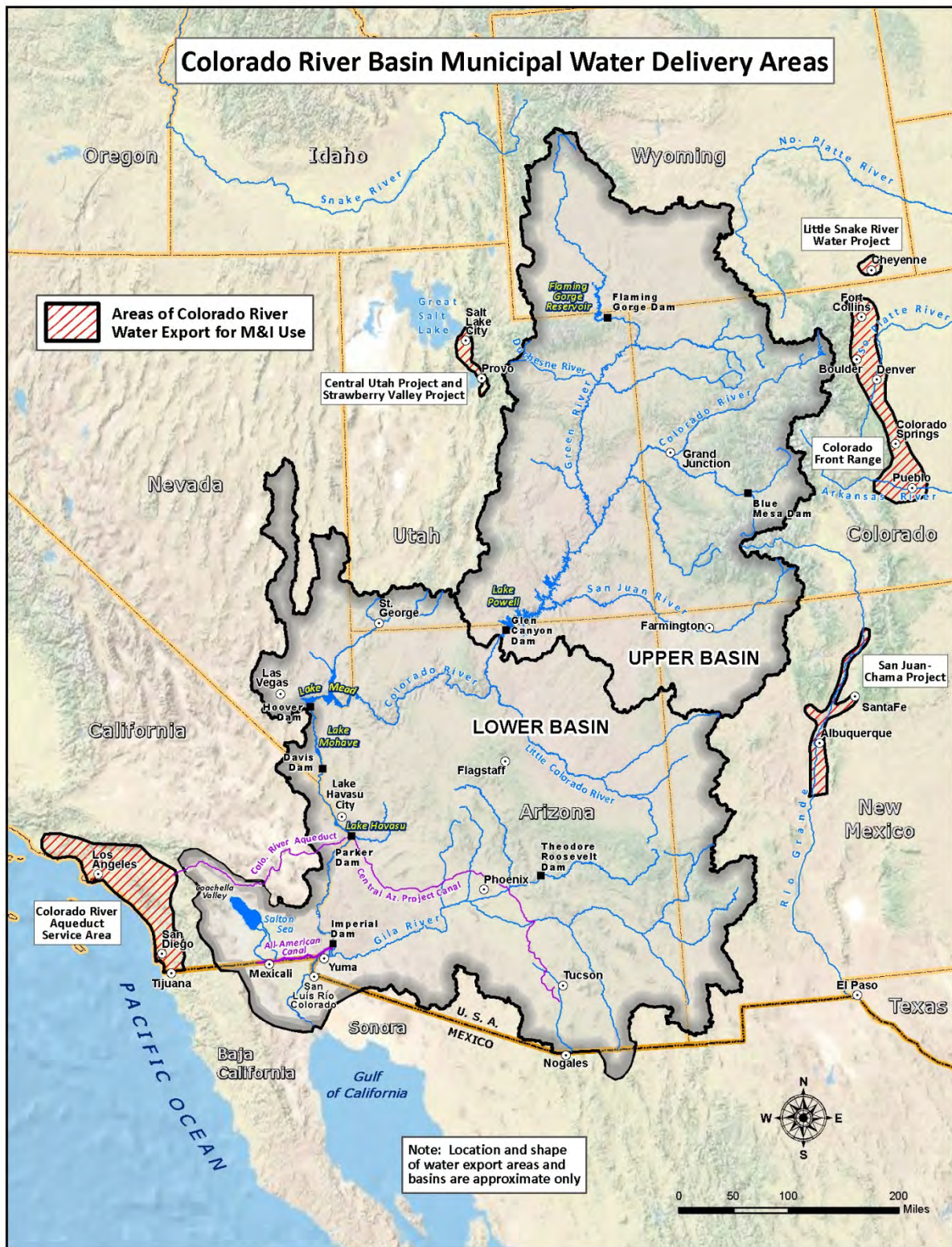


Figure ES-1. The Colorado River Basin and Service Areas of Agencies Delivering Colorado River water¹