



# Situation Assessment Report: Power Customer Perspectives on Drought and Energy

**WESTERN AREA POWER ADMINISTRATION  
IN PARTNERSHIP WITH BUREAU OF RECLAMATION**

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## 1.0 Background

The Department of Energy's (DOE) Western Area Power Administration (WAPA) and the Department of Interior's (DOI) Bureau of Reclamation (Reclamation) are engaging their partners and customers throughout the Colorado River Storage Project (CRSP) and Desert Southwest (DSW) regions on how to manage current challenges of drought and the resulting impacts on the delivery of power. The current hydrologic state of the Colorado River Basin is presenting unprecedented challenges. Lake Powell and Lake Mead have dropped to the lowest levels on record. WAPA and its power customers are struggling with how to manage a decreasing hydropower supply and increasing rates.

In response to these conditions, WAPA partnered with the John S. McCain National Center for Environmental Conflict Resolution<sup>1</sup> (National Center) to assist them in gathering customer experiences and ideas for short and long-term strategies for managing hydropower and related energy challenges. The National Center was established to enhance collaboration and resolve conflicts concerning environmental, public lands, and natural resources issues that involve a Federal interest.

In June 2022, the National Center worked with WAPA's CRSP and DSW offices to form a joint agency Steering Committee of WAPA CRSP and DSW staff and personnel from Reclamation's Lower and Upper Colorado River Basins. This Steering Committee worked together to:

1. Develop the questions for National Center's interviews with CRSP and DSW customers.
2. Identify a diverse group of CRSP and DSW customers that represent the various types of power entities across the Upper and Lower Basin states.
3. Plan "Drought and Energy Dialogue Sessions" (dialogue sessions) for the agencies to engage with customers on key issues and consider alternatives for future scenario planning.<sup>2</sup>

### 1.1 Overview

The following Situation Assessment report shares experiences, perspectives, and ideas that were collected from interviews with a diverse group of CRSP and DSW customers who receive some amount of hydropower or transmission, or both, from WAPA and Reclamation's facilities. These assessment interviews sought to:

- Explore both short-term and long-term solutions.
- Learn more about customer interests and concerns.
- Promote outside the box thinking.
- Better understand drought communication challenges and barriers.
- Design effective dialogue sessions that enable customers and agency representatives to engage in a two-way dialogue.

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<sup>1</sup> The National Center is a program within Morris K. Udall and Stewart L. Udall Foundation (Udall Foundation). The Udall Foundation is an independent Federal agency established by Congress in 1992. To learn more about the Udall Foundation or the National Center's collaborative services and trainings, visit the website: <https://udall.gov/OurPrograms/Institute/Institute.aspx>.

<sup>2</sup> There were two in-person dialogue sessions that occurred in Phoenix on November 2, 2022, and in Lakewood on November 9, 2022. There is a third virtual session schedule for January 5, 2023.

## 1.2 Methods

To help the Federal hydropower agencies assess what different types of power customers are experiencing, the National Center conducted interviews with a variety of customers from the CRSP and DSW Regions. A representative sample of WAPA and Reclamation's diverse power customer base was selected by the joint agency Steering Committee to participate in conversational interviews with the National Center staff. The types of customers interviewed include COOPs, priority use power customers, municipalities, State agencies, trade groups, Tribal utilities<sup>3</sup>, and water districts. A full list of the 27 customer entities is included as [Appendix A](#). WAPA has hundreds of CRSP and DSW customers, and it is not possible to capture the opinions of all entities. This assessment is meant to shed light on themes that may resonate with many customers; it is not intended to represent all interests and concerns shared by WAPA's diverse customers.

The National Center worked collaboratively with the agency Steering Committee to develop a list of guiding questions to ask power customers. The questions focused on current impacts of the drought on customers, understanding their priorities regarding hydropower, transmission, and replacement power; insights regarding management and communication by the Federal hydropower agencies, and suggestions for the dialogue sessions with the agencies. A copy of the interview questionnaire can be found in [Appendix B](#). \*This summary report provides insights gleaned from these interviews without attribution to specific individuals or entities.

## 1.3 Results of the Assessment

Preliminary findings from the assessment interviews were shared with WAPA and Reclamation to plan and design dialogue sessions with customers in November 2022. The agencies wanted to begin these conversations with customers to help inform their strategic planning and to share insights with colleagues and leadership in WAPA, DOE, DOI, Bureau of Reclamation, and with members of Congress. WAPA's customers also requested that these meeting be held before the next rate setting process formally begins. More broadly, there was a sense of urgency to organize these sessions as soon as possible because both agencies and customers are functioning in a state of emergency. As a result of this suggested timeline, the National Center finished conducting the assessment interviews in late October 2022 and used insights from those interviews to plan two in-person dialogue sessions in early November. Special focus was given to customers preferred topics and format for the dialogue sessions (e.g., breakout groups). Many indicated a preference for in-person engagement. The National Center also sent a survey to all CRSP and DSW power customers asking them their meeting preferences. This data helped inform the decision to hold in-person sessions in Arizona and Colorado in Fall 2022, and a third virtual session on January 5, 2023, for those unable to attend the first two meetings. The first dialogue session occurred at WAPA's DSW facility in Phoenix, AZ on November 2<sup>nd</sup>, and the second session occurred at WAPA's headquarters in Lakewood, CO on November 9<sup>th</sup>. The National Center produced a summary report from the two in-person sessions that will be made available on the WAPA website along with a summary report of the January 5, 2023, virtual dialogue session.

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<sup>3</sup> The National Center reached out to a number of customers that were unavailable or difficult to reach. The National Center experienced some cases where the Native Nations and Tribal utilities were very busy. WAPA also many not have had the appropriate points of contacts due to changes within Tribal administrations. WAPA would welcome any direct input on the subject matter of this situation assessment from these entities.

To help frame the discussion at the first two in-person sessions in November 2022, the National Center gave a high-level presentation on preliminary results and findings from the situation assessment interviews. The PowerPoint presentation was shared as an Appendix to the dialogue summary report.

## 2.0 Summary of emerging themes

Each Federal hydropower utility customer interviewed provided unique perspectives on how the drought is impacting their respective entities, their own customers, and their communities. Certain discussion topics were brought up more frequently than others throughout the interview process and resulted in the key themes shared in this report. Key themes include:

- unique nature of hydropower
- affordable power is critical
- keep transmission available and flexible
- mixed views on joining regional transmission organizations
- considerations for replacement power
- funding operations and maintenance
- financial options to support the drought
- drought communication and education
- communities facing unique drought challenges

These topics are outlined below and are supported by bullet points summarizing the perspectives shared.

### 2.1 Unique nature of hydropower: a firm and renewable energy source

Hydropower is extremely important to the majority of WAPA customers interviewed. They place a high value on hydropower because it is clean, firm, and reliable energy source. The drought has led to an alarming decrease in available hydropower yet the regional demand for power continues to grow as more customers get connected to the grid. Customers need to replace lost hydropower with energy on the market (by way of WAPA<sup>4</sup> or through their own devices) and this can be very costly. Market prices for replacement power are high and often prohibitively expensive for customers. The firm load of hydropower, that historically could be called upon by the Federal agencies at any time, makes the renewable resource unique as it provides grid stability. As the reliability of hydropower diminishes it becomes less valuable to some customers, but a no less desirable to most customers' energy portfolios. The following comments speak to why hydropower is so important and why the possibility of losing it is so concerning:

- Benefits/perks of hydropower:
  - It can be scheduled at any time.
  - It is important because of the capacity associated with it.
  - It is flexible and plays an important role in grid stability.

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<sup>4</sup> "WAPA purchases power in the energy marketplace when hydropower is insufficient to fulfill WAPA's contractual obligations to customers, most of whom are utilities serving millions of people in rural and traditionally underserved communities in the West." Source: Lisa Meiman (8/26/2022) *WAPA successfully executes BIL funding for purchase power*. WAPA Newsroom.

<https://www.wapa.gov/newsroom/NewsFeatures/2022/Pages/infrastructure-law-purchase-power-funding.aspx>

- Fear that customers won't have a reliable energy source during extreme weather events without a reliable energy source like hydropower.
  - Hoover and Glen Canyon provides "black start" capability for the grid if there is a massive outage.
    - A customer underscored the importance of black start capability that comes from hydropower and framed it as a national security issue.
- Hydropower helps meet clean energy objectives:
  - Some entities have set clean energy goals (in part fueled by a demand from their customer base). Hydropower is an excellent clean and firm energy source for utilities to have in their portfolios.
  - As hydropower diminishes, some utilities are likely to turn back to non-renewables to ensure they always have power available.
  - Some customers believe alternative energy sources, like solar and wind, are not an apples-to-apples trade for hydropower due to their intermittent nature or their need to be complimented by battery storage. Others expressed concerns that not moving to battery storage is a nod to maintaining dependency on non-renewables.
    - **Interviewee quote:** "There are folks who believe we are just around the corner with electrical storage but I'm not sure that is true—we're still really not there. Batteries also use rare minerals and are expensive."
    - **Interviewee quote:** "With regard to vulnerability, when I hear the word intermittent, I know they have a bias towards fossil fuels because intermittent sources can be smoothed out with batteries etc."

### 2.1.1 Affordable power is critical

- Replacing hydropower is expensive:
  - For some entities, hydropower is the least expensive and often the most valuable resource in their portfolio.
    - **Interviewee quote:** "The big deal is that CA ISP is 5-6x more expensive than what we get Hoover. Every MW we lose from Hoover we pay a lot more... We require firm and clean energy and if we don't have a firm load it becomes expensive. The major loss is trying to make that up in combination of other renewable sources."
  - Other customers expressed that given rising rates, Federal hydropower is becoming too expensive to hold onto and they may have to turn to other energy sources.
  - Some of WAPA's customers serve some of the most vulnerable populations in the United States, so they place a high value on affordable energy (e.g., Tribal utilities).
    - **Interviewee Quote:** "As a not-for-profit enterprise <name redacted> must pass along increased power purchase costs to its customers. There are no shareholders to absorb these costs."
- The decreased supply of power is impacting energy prices:
  - Hydropower helps balance the market. When you take hydropower off the market, the market responds with less efficient energy and energy prices become prohibitively expensive.

- Power plants have been shutting down but have not been replaced by cleaner technology. There is a depreciated supply of power on the market driving up prices.
  - **Interviewee Quote:** “With all the retirement of coal and other resources, losing even 1% of clean hydro generation is not ideal.”
- Customers are watching resources continuously decrease and they must figure out how to replace them in a political climate that emphasizes renewables.
- A customer suggested DSW and CRSP could take a more robust approach to trading in the real time market -- investing in personnel, additional software, and hardware.
  - **Interviewee Quote:** “EIM – Energy imbalance market – may drive them there. This would have to be supported by other customers due to rate impact.”
- Entities are at risk of going bankrupt or being unable to grow with increasing customer demand and lack of affordable power supply to meet that demand.
  - **Interviewee Quote:** “Power on the market is very expensive. For a small distribution utility, you could wipe out our budget in a few days by buying energy on the market.”
  - **Interviewee Quote:** “We were lucky because of a mild summer (in AZ). Not a sustainable solution to lean on the market. There must be a restructuring of contracts or the hydro system. We use it as a peaking resource. Using it as a baseload resource is a recipe for real problems. Message needs to be that baseload needs to be built. The contract structure doesn’t disincentivize that, it allows it.”

## 2.2 Keep transmission available and flexible

The WAPA transmission system is highly valuable to power customers. As Federal hydropower supply decreases, power customers are concerned about their access to available transmission capacity. Many would like to keep the capacity that is allocated in their contracts and potentially use it for other energy sources. In an era of drought, many customers are hoping WAPA can be flexible and help reimagine how to best utilize this prized asset. Building new transmission lines is expensive (especially through the desert), some customers encouraged the agencies to explore new replacement power projects that would tap into the existing WAPA transmission system. The following list of comments speaks to the importance of transmission to customers along with their ideas and concerns about the future of what WAPA may offer:

- Interest in using transmission system to deliver replacement power:
  - Customers asked:
    - What other resources could be transmitted to replace lost hydropower?
    - How could that work (contractually)?
    - How can the agencies ensure the affordability of the transmission service?
    - Is it possible for WAPA to expand transmission capacity?
  - For some utilities, the relationship with WAPA becomes less valuable or non-existent overtime if hydropower goes away and the customer can’t use transmission for other sources of renewable energy.
  - Customer suggestion that Reclamation help secure adjacent land for renewable project development near WAPA’s transmission system. They believe the permitting process may be quicker through a Federal agency run project.

- **Interviewee quote:** “Develop a diverse portfolio of replacement resources (solar, wind, pumped hydroelectric, battery storage, and traditional thermal) either directly by WAPA or in partnership with, or through its customers. Those projects can utilize some of the WAPA transmission capacity left idle by reduced hydropower production. The Inflation Reduction Act provides tax credits that can help fund these projects.”
- **Interviewee quote:** We would still have to pay our transmission even if we didn’t use the hydropower, so all customers should think about contributing to that transmission in other ways.
- **Interviewee quote:** The transformation of the grid is a real challenge. One of the challenges is capturing from the WAPA perspective how the CRSP and DSW tie into other areas like RMR (Rocky Mt. Region). As a small market utility, we don’t want to be an afterthought.

### 2.2.1 Mixed views on joining Regional Transmission Organizations (RTOs)

- Potential pros and cons to joining an RTO:
  - Some think WAPA’s transmission may be better utilized if they were a part of an RTO and that joining RTOs is key for securing reliability in the region. RTOs can be critical tool for replacing power.
    - **Interviewee Quote:** “WAPA joining an organized market could help with the delivery in a more organized or efficient fashion. An important step for optimizing the delivery but understand that there is a lot of concern about process and concerns about equity for customers.”
  - Others believe that joining SPP has led to unpredictable higher costs and less transmission availability.
    - **Interviewee Quote:** “Don’t look into transferring CRSP into SPP, don’t use drought problem to justify moving into the SPP. Don’t want to use this to justify something that will create a new set of problems.”
    - **Interviewee Quote:** “The impact of the drought is made worse by the power price and transmission limits resulting from WAPA’s decision to join the Southwest Power Pool (SPP)... Traditional utility operation enabled WAPA to control its resources and transmission, providing greater predictability and lower costs. Turning over resources to a centralized market removes that individual control, and reliance on markets for power results in unpredictable costs.”
  - WAPA customers have footprints in both the California Independent System Operator (CAISO) and SPP. There was a suggestion from a customer to explore joining both markets.
    - **Interviewee Quote:** “As far as ability to be a part of two different markets, we ask that any decisions made shouldn’t obligate DSW customers who are part of CAISO market to pay SPP tariffs.”
  - RTO markets have methods to recover revenue, but they are risky and complex and joining these has some people very nervous.
- Request for more dialogue on what it would mean to join an RTO:
  - There was some discussion that customers outside of a particular RTO service area should not bare any associated costs with joining that RTO (i.e., customers should only pay for the services they are using.)
  - Customers seek more discussion and transparency around joining SPP.



## 2.3 Replacement power: exploring new energy projects

As a result of this extended drought, WAPA and Reclamation are seeking to understand whether customers are interested in them exploring replacing hydropower with alternative renewable energy sources. Some interviewees expressed concern about the agencies expanding their missions or their abilities to develop new projects effectively. Other customers who rely more heavily on their contractual relationships with WAPA think the agencies should pursue new renewable options. A number of utilities are already developing or looking at developing new energy projects to help replace their lost hydropower. Below are some key customer interests and concerns around replacement power:

- Interest in replacement power projects:
  - The following alternative energy projects were suggested as potentially attractive for the agencies to develop:
    - solar, wind, pump storage projects, traditional thermal energy, de-salinization, battery storage, and nuclear energy.
  - Replacing hydropower with other clean energy sources allows water to be freed up for other purposes.
  - A group of customers spoke to the solar and battery project near the Glen Canyon Dam at the Navajo generation site. Suggestion to put that energy under the contracts or as a separate product. This could be a cost-based resource.
  - Customers who are less dependent on CRSP and DSW Federal hydropower recognized how beneficial alternative energy development could be to smaller customers who cannot develop these projects on their own.
  - **Interviewee Quote:** “Alternative replacement energy supplies that can be priced at levels similar to the traditional cost of hydropower should be a key objective...this can be procured from projects developed by WAPA and/or by its customers and utilize WAPA transmission to deliver the energy. Certain projects, like pumped hydro storage, would be best built by customers/private developers, and then possibly turned over to the Bureau for operation with the dams.”
  - **Interviewee Quote:** Having the agencies build replacement power for smaller customers makes sense. If rates get too high, some large utilities Coop customers would likely give up that hydro power.... If WAPA were building projects on a least cost basis offering to customers new power sources, it should be a voluntary option as it might not be a preferred option.”
  - There might also be more hydropower options to tap into (installing hydropower on more dams).
  - Some want the agencies to seek more water sources for hydropower. Suggestion to explore moving water into the Colorado basins, developing groundwater wells, and replacement water supplies.
  - Some interviewees are interested in the agencies exploring natural gas peaking plants.
  - An interviewee expressed the agencies have a tendency to overdesign and engineer. It could be helpful to come together and figure out what is needed and the most strategic way to design a project that meets that need.

- Some customers expressed that using hydropower as a base load resource sends false signals to the market. They would like WAPA to revisit the contract structure to help discourage this.
- **Interviewee Quote:** “There is a lot of exposure that comes with shifting purchasing power to variable peaks and rate prices (i.e., \$35 vs \$1800) .... There are ways to opt not to buy power during certain hours and offset by an hour or two – energy curtailment programs to shift around high markets, like what BPA is doing in the NW.”
- Opposition to replacement power projects:
  - Some customers feel that either their utility or an outside developer is more equipped than the agencies to develop replacement power projects.
  - Belief that WAPA should stick to its mission.
  - Customers would like the option to choose whether to participate in any future energy project or not (i.e., be charged or not).
    - Contracts would need to be renegotiated.
- Replacement power questions:
  - Are there any regulatory shortcuts if a State and WAPA partnered on a project?
  - What are the ways to streamline projects that might avoid large delays?
  - How can the private sector support these efforts?
  - Can an alternative energy project be executed through a Power Purchase Agreement (PPA)?
  - Can agencies consider getting developers to build the project and then hand it over to the agencies to manage?
  - Are there things WAPA can do to help encourage additional generation resources to help offset hydropower?
  - Can the agencies utilize the Colorado river to take advantage of peaking hydro in a different way like using the Cascade system as a battery in the CA State Water project?

## 2.4 Concerns about funding operations and maintenance

Many WAPA power customers expressed concern that their fixed costs continue to remain unchanged while the amount of hydropower they receive diminishes. There was particular concern about paying for these costs in a scenario with no hydropower being produced. Several customers voiced support for Senator Kelly’s bill, Senate Bill 4232, which alleviates the financial burden of these fees for Arizona communities when hydropower is unavailable. The following reflects a variety of customer concerns and potential financial solutions:

- Footing the bill for environmental studies:
  - Multiple customers expressed concerns that they are continuing to finance environmental studies during an extended drought. They believe these costs should be shared by other users and beneficiaries (ex: recreational lake users) or covered in part by the Federal hydropower agencies.
  - Power customers are paying for multispecies mitigation, endangered species protections, and other costs that get wrapped into hydropower. Some customers requested these fixed costs be separated out as power supply diminishes.

- It was suggested that there is a tug-a-war between environmental interests and power needs. In a normal year, a customer said s/he understands paying these costs, but when minimum water deliveries cannot be made it's harder to rationalize paying for environmental studies.
  - As the drought worsens so will this tension.
- Impacts of bypassing generation on hydropower customers:
  - A recurrent theme among customers interviewed was the uncertainty of the bypassing of generators address problems of invasive fish and to preserve the humpback chub (*Gila cypha*).
  - A customer expressed concern that this type of endeavor is not sustainable during a period of drought.
  - There was some expressed frustration about financing activities that reduce generation.
  - Concern was expressed with how communication was handled with bypass work. A customer shared that they were caught “flat footed” by the news to bypass the generators. They heard this from another source rather than Reclamation directly.
  - **Interviewee quote:** “We are concerned about bypassing the dam during extreme drought conditions, it has only been two or three weeks since California requested energy.”
  - **Interviewee quote:** It’s hard to think about bypass when the water flow is so low.”
- Potential financing avenues:
  - Opinion that the Federal government should pay for the operational maintenance of the dams.
  - Customer encouraged Reclamation to support offsetting experimental flows with their newly appropriate funding.
  - Multiple suggestions to consider a cost-sharing approach between WAPA and power customers for a defined duration of time to help sustain operations and maintenance. As a result, customers could eventually get a discount on power.

## 2.5 Financial options to support customers through the drought

Aridification and loss of hydropower has resulted in financial challenges for several power customers. Many entities interviewed requested the agencies explore the possibility of attaining appropriated funding to help utilities and communities keep the lights on during these challenging times. Some customers do not have a clear understanding of what avenues and authorities WAPA and Reclamation have to seek out such external funding. Below is a list of questions and suggestions raised throughout the assessment interviews:

- Possible funding suggestions and requests:
  - WAPA could take some money and buy down their debt to reduce costs (some of the money can be paid down through the Inflation Reduction Act).
  - Multiple customers expressed the need for congressional assistance if hydropower generation goes to zero or becomes marginal. Many communities cannot afford to supplement that lost hydropower with energy purchased on the market.
    - Smaller utilities may particularly be hard hit.
  - There was an interest in having WAPA explore a rate stabilization fund.

- Currently WAPA sets rates informed by Reclamation costs. Suggestion for WAPA and Reclamation to have different “books” which may lend WAPA more creativity with their rate setting process.
- Suggestion for a guaranteed minimum funding level that could kick in when sales don’t meet revenue needed.
- Several customers would like the agencies to explore how to get emergency non-reimbursable funding.
  - **Interviewee quote:** “The communities that contract for power pay the majority of river operating costs, environmental permits and cost, and the Agencies general program costs. Like the Vortex in Texas, if the hydro generation goes to zero or becomes marginal, then it could financially bankrupt many communities along the Colorado River to pay for the Federal Power Projects while purchasing replacement power without some Congressional Assistance. The Agencies need to inform Congress of the potential need to support these customers through the projects now, so if needed it can be executed.”
- What constraint do agencies have—Customer Questions:
  - Can Federal agencies defer projects?
  - Can they make changes to their cost allocations?
  - Do they have to have congressional directives?
  - Are there things they can do within their directives that result in a cost mitigation?
  - Can Federal agencies let people go?
  - Can they receive grant money?
  - Can Reclamation channel some of their recently appropriated funding to support hydropower customers?

## 2.6 Drought communication: ring the bell on the current state of hydrology and educate people on the drought-water-power nexus

Customers interviewed spoke about the need to create greater awareness and understanding of how the drought impacts the energy sector. Many feel the public and policymakers at the State and Federal levels lack understanding of how water shortages impacts the power supply that many communities and businesses need. Communities are not making the connection between drought and rate increases. There was an expressed need for an effective communication strategy to help policymakers and all relevant parties understand the interconnectivity between drought, energy, and the value of lost hydropower. Customers also provided feedback on how the agencies are currently communicating with them on drought related issues. Below is a bulleted list of some opinions that were shared:

- Communicating drought urgency:
  - A customer suggested the importance of agencies communicating that water levels are not returning to normal.
    - Request to make additional efforts to “ring the bell” on the state of the drought and highlight communities to be hardest hit by the drought.
  - Customers would like to see agencies lead education on the connection between water and power.
    - People are not making that connection (e.g., people are not connecting a rate increase to the drought.)

- Customer suggestion that the agencies develop a communication strategy with messaging for policymakers and the populations/stakeholders who are served by WAPA and its customers.
  - **Interviewee Quote:** “If I could rule the world, I wish people would have a better understanding of the water-power nexus and impacts of water on power customers.”
  - **Interviewee Quote:** “Help the dialogue shift from political to survival.”
- Customer-agency communication:
  - Many interviewees applauded the agencies efforts to communicate the current state of the drought to power customers.
  - Customers applauded WAPA for not automatically buying energy on behalf of all customers and consulting customers about what their needs are.
    - **Interviewee Quote:** “I can call anyone (from the agencies) and ask a question. We ask their traders, and they give us advice. They couldn’t be better as far as communicating with us.”
  - A number of interviewees said education and communication about the drought and its impacts needed to happen earlier.
  - A few interviewees expressed that smaller entities often represented by Trade Groups, Coops, or Municipal entities and Native Nations hear the information “second hand,” and would prefer the agencies communicate with them directly.
  - A few customers request more long-term forecasting projects from Reclamation.
    - There were requests for a five-year outlook, sensitivity analysis, more information on the “water side”, and a series of “what if” scenarios.
    - Longer term projections help power customers better strategize.
  - Customers would like to be consulted on matters before agencies make decisions.
  - Discuss how the relationship between WAPA and preference customers can sustain value and remain equitable as hydropower diminishes.
  - Customer request to ensure more effective communication when a water release is changed so power customers can better plan their purchases.
- Potential communication strategies:
  - Discuss and design a “Plan B” option for when hydropower is no longer available.
  - Consider exploring the possibility of mandatory water restrictions or bans.
  - Share future strategic planning and what that means for each utility and the CRSP/DSW regions.
  - Relay the needs of the energy industry and put together an energy policy and be honest about the capacity of renewables.
  - Development of operational criteria on how to deal with the ebbs and flows (wet and dry cycles).
  - Play a stronger mediating role between balancing lower and upper basin interests.
    - There is a perceived divide between Upper and Lower basin, and the feeling that everyone is trying to advocate for what’s in their best interest.
  - Discuss how the “chains” can come off agencies so they can help lobby for these issues rather than relying on customers.

## 2.7 Communities facing unique drought challenges

WAPA has a diverse customer base who are all having to manage and adjust to the current drought conditions. Throughout the interviews, there were some groups that were highlighted as facing uniquely challenging circumstances. Highlighting these communities is not intended to discount the challenges many customers are facing in the basin or imply one group is struggling more than the other, Furthermore, given that small sample pool of interviewees, particularly Tribal nations, this text is not meant to speak for these communities' interests at large, rather the intent is to outline the challenges and concerns heard. Below is a summary list of those points:

- Tribal utilities and Native Nations concerns:
  - Tribal utilities interviewed would like to have more hydropower as these communities prefer renewable energy and hydropower is a relatively low-cost energy source.
  - Various entities have applied to develop hydro pumping projects on Tribal land. Benefits to Tribes may include employment for members of the nation and decentralization of the power grid. However, if the project uses ground water it may not be a sufficient development project as the water supply is so limited.
  - Representatives emphasized that costs can be higher for Tribes because of their remote nature.
  - A customer shared that a large percentage of their population lives below the poverty line and some families still do not have running water or electricity.
    - As efforts are made to bring these families online the utilities electric needs become greater. This gets passed on to their customers.
  - A Tribal representative requested more information and regular communication from WAPA on the impacts of changing conditions and impacts on power generation. Tribes would like to know how the water allocation cuts that Reclamation is asking for will impact hydropower and others, and how Tribes might be involved in any decisions.
    - **Interviewee Quote:** Regular communication with Tribes is important because there is a revolving door of leadership at Federal and Tribal government levels.
    - **Interviewee Quote:** “Reclamation must continue to hold monthly meetings/calls to not only communicate drought status, but also possible responses. The communications should include group discussions with all water and power users, so ideas and feedback can be shared.”
  - An interviewee said it is hard for Native Nations to prioritize water and power concerns. Water challenges are not just energy related but have impacts on food supply. The water challenges help form the energy challenges on Tribal lands. This makes it challenging to prioritize one over another.
  - **Interviewee Quote:** “With respect to water needs, most of the <name redacted> is a high desert plain.... The water aquifer is very deep, making it impractical if not impossible for individual households to drill a water well deep enough to reach the water. As a result, providing water service requires power to move water to the homes and move the waste into a septic tank or to a wastewater treatment plant.”

- Reduced water supply impacts on communities:
  - Loss of water due to Drought Contingency Plan. As a result, the agricultural community will now pump groundwater to replace that loss and additional energy will need to be purchased on the market. (Hydropower is not able to supplement that energy, given the current conditions).
    - **Interviewee Quote:** “Arizona communities are dealing with reduced water supplies as Arizona takes the majority of the physical water reductions on the Colorado. Therefore, many of the Arizona communities are heavily impacted by the drought for power impacts, water impacts and developing replacement ground water during a drought.”
  - A customer expressed that Arizona is cutting water use for conservation purposes and would like to see other states follow suit.
  - Suggestion that decisions surrounding the reduction of agricultural water use be worked out farmer by farmer.
    - A customer flagged that if water prices get too high, farmers can’t grow their crops.
  - A customer expressed their concern with paying farmers “not to farm” in Arizona. While this may save water, it will have rippling economic impacts on the rural economy (e.g., farmers are not taking their equipment to get fixed, and the mechanic is now suffering from a loss of business).
  - There was a request to discuss an agriculture water strategy.
  - **Interviewee Quote:** “We have to get serious about this, allowing water levels to drop is unreasonable for Arizona.”
  - **Interviewee Quote:** “We have this problem in Arizona, there is a disconnect between water and power side. People are not understanding or choosing to understand the interrelation between power and water.”
  - Drought conditions will worsen impacts of haboobs (giant desert windstorms) as there are less crops in the ground to hold dirt in place.
  - A customer expressed fear in the potential monetization of the Colorado River (by Tribal nations or priority counties). If these groups started monetizing and charging high rates for water, then prices may become unaffordable for certain farmers.

### 3.0 Recommendations to agencies

In response to the insights shared by Federal hydropower customers, the National Center has compiled a list of recommendations for WAPA and Reclamation to consider<sup>5</sup>.

- Explore whether it would be possible to provide additional workshops on the impacts of: (i) joining RTOs; (ii) exploring alternative energy projects<sup>6</sup> and how to align them with WAPA transmission; and (iii) the operations and maintenance of the dams<sup>7</sup>.

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<sup>5</sup> The National Center already used the feedback provided by customers to develop dialogue sessions. The preliminary data illustrated that a majority of the interviewees were willing and eager to come to the table and discuss drought and energy with WAPA and Reclamation.

<sup>6</sup> It may also be beneficial for WAPA to engage with customers further on options available for additional and affordable firm resources.

<sup>7</sup> Multiple customers expressed concerns about bypassing the dams. It may be useful to discuss why this decision was made and provide further context to the customers as an effort to strengthen trust with the Federal power customer base.

- It's important that customers (not just representatives or consultants) are included in ongoing discussions.
- Keep customers informed and engaged regarding decision-making processes, so they can “come to the table” with the agencies and contribute to solutions.
  - Communicate to customers the various ways the agencies may be limited by their missions or jurisdictions, so there is a clearer understanding of the possible scope of their actions.
- Proactively engage with smaller utilities and with Native Nations and their utilities.
  - Some customers, including Tribal representatives, stated they are receiving updates through larger counterpart organizations (e.g., COOPs) but would also like direct communication on hydropower data from the agencies on a more regular basis.
  - **Interviewee Quote:** Can't assume we really know how things are shifting at the rate level, and at the generation level. We need to hear how the agencies think tribes will be impacted...”
  - WAPA should consider one-on-one site visits as resources allow. There is recognition that WAPA used to do this and it was valuable.
  - There is an expressed interest in agencies offering a political voice to smaller entities who may have trouble representing their interests to a broader audience.
- Lead education efforts on the connection between water and power.
  - Engage with customers and strategically align on how to effectively communicate the power side of the drought crisis to policymakers and stakeholders. People are not making that connection. For example, people do not always connect a rate increase to drought impacts.
- Develop a communication strategy with messaging for policymakers and the populations/stakeholders who are served by WAPA and its customers.
  - It's important that WAPA and Reclamation continue to coordinate closely. A united message and voice helps build legitimacy and trust within their customer base.
- Consider further efforts to help unite the basin and ensure unity of efforts.
  - A suggestion might include exploring an operational shortage criterion to help manage a decreasing water supply. This might help prevent conflict between states.
- If the Federal government is looking to prioritize cleaner energy sources, it may be advantageous to help customers navigate how to make their portfolio greener.
  - Customers indicated that as they are losing hydropower, a firm resource, they are exploring non-renewable energy sources. Further discussion on available options may result in a win-win solution.



## Appendix A: List of Assessment Interviewees

- Arizona Electric Power Cooperative (AEP CO)
- Arizona Municipal Power Users Association (AMP UA)
- Arizona Power Authority
- City of Farmington
- City of Mesa
- City of St. George
- Colorado River Commission of Nevada (CRC)
- Colorado River Energy Distributors Association (CREDA)
- Colorado Springs Utility
- Gila River Indian Community Utility Authority (GRICUA)
- Grand Canyon State Electric Cooperative Association
- Heber Light & Power
- Holy Cross
- Irrigation and Electrical Districts Association of Arizona (IEDA)
- KR Saline & Associates
- Los Angeles Department of Water and Power (LADWP)
- Metropolitan Water District of Southern California
- Navajo Nation, Division of Natural Resources (Water Resources)
- Navajo Tribal Utility Authority (NTUA)
- Page Utility Enterprises (City of Page)
- Provo River Water Users Association
- Tri-State Generation and Transmission
- Utah Associated Municipal Power Systems (UAMPS)
- Utah Municipal Power Agency (UMPA)
- Wellton-Mohawk Irrigation and Drainage District
- Wyoming Municipal Power Agency
- Yuma County Water Users Association

## Appendix B: Guiding Questions

1. What *current interests or priorities* can you share with us today regarding energy and hydropower needs?
2. *What specific challenges and concerns can you share* with WAPA and Reclamation about power delivery in this current drought environment?
3. Is there any specific information you can share with the agencies regarding how current and proposed *water and power* management for the Colorado River Basin(s) will impact your energy uses/consumption moving forward?
  - a. How are you (your community) preparing for and/or addressing potential changes related to drought and power supply? Are there any actions/steps you can share?
4. Do you feel that WAPA and Reclamation have kept you adequately informed of the impacts of the drought on its hydropower resource? Please elaborate on why or why not.
  - a. How can Reclamation and WAPA better communicate drought-related impacts to hydropower?
5. As hydropower diminishes, is it becoming a smaller but more valuable portion of your energy portfolio or a less relevant one? Please elaborate.
6. Are there other power-related services that federal hydropower operations (the Federal agencies) could provide that would be valuable during an extended drought?
7. Do you have any ideas or suggestions about how hydropower operations could be funded during the drought? (i.e., ideas or suggestions about how projects could be funded during drought outside of a typical cost-based rate structure?)
8. *The agencies are jointly planning several in-person or virtual dialogue workshops in late 2022 or early 2023 between their staff and their customers from the Upper and Lower Colorado River Basin. The dialogue sessions are intended to support multi-directional communication among WAPA, its partners, and customers to better understand current conditions, customer interests, needs, and concerns, and to consider alternatives for future scenario planning. The dialogues will support structured discussions among participants, allow for an exchange of information, and provide an opportunity for WAPA and Reclamation to hear directly from customers. To help the agencies prepare for these engagements, please share:*
  - a. Any specific **topics or objectives** you would like to see addressed in the dialogue sessions?
  - b. What **outcomes** would you hope for from the proposed dialogue engagements?
  - c. Any **concerns** you have about the proposed engagements with WAPA and Reclamation?
9. The format and participants for the dialogue engagements have not been determined. Do you have any suggestions for design, format, or location to maximize participation and likelihood of a successful engagement?
  - a. Do you foresee any barriers for you or others to participate? Please elaborate.
  - b. What would help remove those barriers?
  - c. Are there any stakeholder/customers you feel must be part of these working meetings?
10. Is there **anyone** else you think we should talk with to get a full picture for this assessment?  
[\*Provide general list of who we've spoken with or scheduled with.]
11. Is there **anything** we haven't covered that you think is important to mention for this customer assessment or for the proposed dialogue engagements?