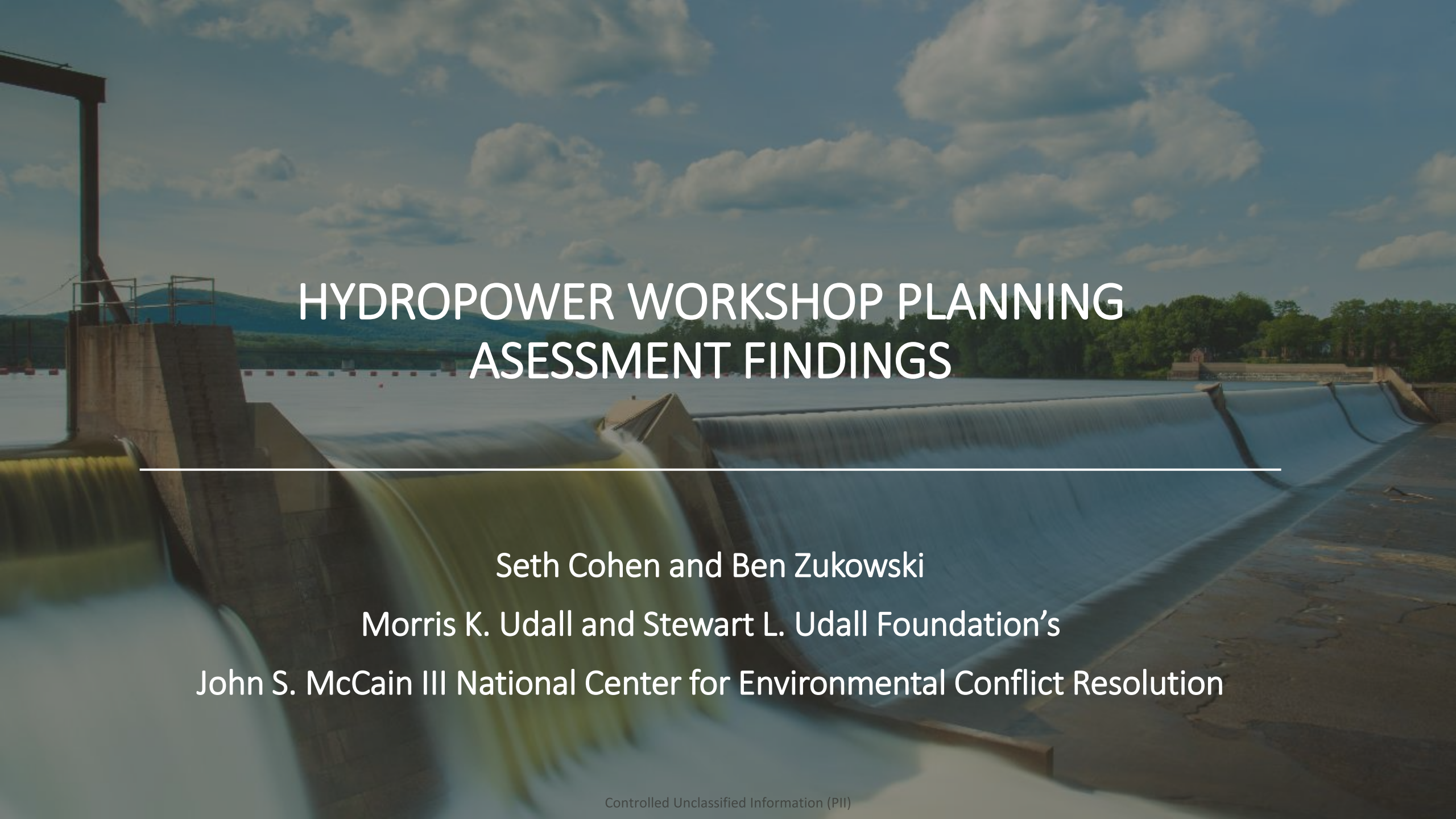

HYDROPOWER WORKSHOP PLANNING ASESSMENT FINDINGS

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USBR OBJECTIVES AND DESIRED OUTCOMES:

- Provide baseline information on Hydropower to create shared understanding of the resource.
- Visit the hydropower assumptions that went into the 2016 LTEMP EIS.
- Discuss proposed performance metric for monitoring metrics document.
- Identify opportunities to improve upon Glen Canyon Dam (GCD) flow parameters (ex. daily fluctuations, ramp rates, and monthly patterns), identified in LTEMP consistent with improvement and long-term sustainability of downstream resources.
- Identify potential experimental hydrographs at GCD to maintain or increase electric energy generation, load following capability, and ramp rate capability, and minimize emissions and costs to the greatest extent practicable, consistent with improvement and long-term sustainability of downstream resources.'

ADDITIONAL OBJECTIVES/DESIRED OUTCOMES

- Identify, coordinate, and collaborate on monitoring and research opportunities associated with hydropower and energy objectives when conducting LTEMP flow experiments.
- Identify opportunities to improve upon Glen Canyon Dam (GCD) flow experiments identified in LTEMP or other flow experiments that may be developed during current and future workplans.
- Develop a plan for 4G (the hydropower monitoring and research in the tri-annual workplan).

ASSESSMENT WITH AMWG TWG STAKEHOLDERS

Spoke with approximately 32 individuals

- DOI and Management agencies (6)
- State agencies (9)
- Hydropower groups (7)
- Tribal Nations (7)
- Public Stakeholder groups (3)

- Interviewees knowledge of how hydropower works at GCD and within the larger CRSP system varies widely, but non hydropower experts tended to give themselves an average rating of 3 and several said 1-2 rating on a scale of 1-5.

QUESTIONS TO INTERVIEWEES

- Please share your basic level of understanding on hydropower operations. What kind of information would be helpful?
- What is your interpretation of the Hydropower resource goal? Where can the program improve on the goal?
- What *specific interests or priorities* do you have for the proposed workshop? What do you want to take away?
- *What specific challenges do you feel must be addressed in the workshop?*
- Any thoughts on desired outcomes and next steps?
- *Do you have any concerns about the workshop*? What might make it more successful?

DESIRED CONTENT: HOW IT ALL WORKS

- How hydropower (generation and transmission) works at GCD and within CRSP.
  - CRSP Act and what it means…
  - Why is Hydropower there? What is Federal Hydropower? Who produces it? Who are the users/beneficiaries?
  - What is load following capability, ramp rate capability etc.?
  - How is hydropower accounted for in the LTEMP?

DESIRED CONTENT: PROVIDE CONTEXT ON GOALS

- Review the fundamental goals/objectives of Hydropower for GCD and within GCDAMP.
  - "Use LTEMP to guide conversation“
- Clarify where hydropower goal fits in relation to the program and the other goals.
  - “How do you balance hydropower needs with mandates for other goals/metrics? ”
- Show or determine how "we" measure success for Hydropower goal in the program in relation to other program goals.

DESIRED CONTENT: BASIN FUND

- **Basin Fund: Explain how it works and decision making in its management.**
  - What are projected replacement costs?
  - Why does it need to be at a certain monetary level?
  - What do long run projections look like?
  - How does money flow from rate payers to energy distributors, utilities, federal agencies, treasury and back?
  - How would a decrease in funds could affect the program?
  - How much flexibility within requirements of maintaining hydropower to continue support existing or new flow experiment?
  - “How does basin fund relate to grid operations?”

DESIRED CONTENT: MODELS AND ALIGNMENT

- **Review the benefits and tradeoffs of WAPA GTMAX model and GCMRC model (screening tool).**
  - Where have WAPA and GCRMC made progress working together?
  - What are appropriate uses of models?
  - How can they both be utilized?
  - How so they help us manage new flows and estimates of revenues?
    - Re: Experimentation with the models – “How do you work with low and high flows. Look at flexibility in the system. Review the models from GCRMC/USGS and How could this be best used. During normal flows what happens if you runs the system/generation in different ways.”

CONTENT: EXPERIMENTS

- Stakeholders interviewed want to understand the real costs/losses to hydropower from specific experiment(s).
  - “Show why costs are not the only consideration for generating hydropower.”
  - "Costs are more of a policy decision than a technical one.“
- Discuss Tradeoffs of Experiments and hydro generation
  - “At what point you not do an experiment because it impacts Hydropower operations and power generation?”
  - Some expressed concern about the idea of a hydropower "experiment", saying "it's not an "experiment."

CHALLENGES AND OPPORTUNITIES

- Show a matrix or chart of different scenarios and locate where there can be win-wins for competing interests proposed.
- Explore innovative solutions and technologies, including those that are not constrained by cost
- Explore a new paradigm beyond idea that hydropower pays for everything. What other options are there for long-term operations?
- Show how Hydropower/transmission impacts or benefits Tribal communities

OTHER CHALLENGES & OPPORTUNITIES

- Future scenario planning: Discuss how we (Reclamation/WAPA and the program) will adjust for aridification etc. How will Hydropower be impacted?
  - Connect the workshop to the LTEMP Post 2026 Operations.

- Discuss program/management challenges with the Grand Canyon Protection act (1992) and other legislation / policy directives (Colorado River Storage Project Act, 1956). Law of the River?
  - How does it all tie into decision making for hydropower?

- Several asked to consider program issues broader than just hydropower (communication, inclusion, different forms of knowledge, and decision-making)

INPUT ON WORKSHOP DESIGN AND FORMAT:

- Pre and/or post-informational session(s) may be useful to facilitate information sharing and presentations (these were noted that they could be virtual)
- Print a packet of information on past meetings and decisions related to Hydropower
- In-person participation was greatly preferred w/hybrid option for a few. Concern: One day may not be enough time.
  - location near a major airport is preferred.
  - Hydropower site visit could be useful

DESIRED OUTCOMES & NEXT STEPS ON HYDROPOWER

- Clarity on the models and path forward
- Members fully understand Basin Fund
- Agency coordination and transparency
- Improved communication and trust among AMWG/TWG members
- Build on any decisions and strategies in upcoming meetings
- Document workshop discussions and next steps
- Concerns about the current administration's affect on meaningful work being done, on hydropower, on GCDAMP. Impact on the Federal agencies.
  - Plan for impacts and communicate them

OTHER AGENDA IDEAS?

- What's missing for Hydropower Workshop Discussion?
- Too much? Too little? Etc.

SCHEDULING CONSIDERATIONS

THANK YOU

QUESTIONS?