



Western
Area Power
Administration

The Total Value of Hydropower

Technical Working Group April 23, 2018



S. Clayton Palmer
CRSP

Non Market Value of Hydropower and Developed Water Project

- Initiated in 2012 to be included the DOI EIS on the operation of Glen Canyon Dam
- Reclamation's The Principles and Guidelines (P&Gs) states:
 - *“The conceptual basis for evaluating the benefits from [a water project's] water supply is society's willingness to pay for the increase in the value of goods and services attributable to the water supply”*
- The scope of evaluations for benefits and costs of federal decisions is the national view
 - Economic – not financial – analyses are required



Research Completed

- WAPA partnered with
 - University of Oklahoma Center for Energy, Environment and Society (CESS)
 - Sandia National Laboratory
- Reports/Analysis prepared:
 - *Market and Non-Market Values of Water Resources and Non-Market Values of Hydropower Associated With Glen Canyon Dam: A Theoretical Framework and Literature Review, 2015*
 - *Estimating Non-Use Values for Alternative Operations of the Glen Canyon Dam: An Inclusive Value Approach, 2016*
 - *Measuring Non-Market Values for Hydropower Production and Water Storage on the Colorado River, 2017*



Scientific Conclusions

The scientific evidence indicates:

- A meaningful proportion of survey respondents place a positive value on less restrictive hydropower operations at GCD

This implies that:

- A non market value exists for hydropower at Glen Canyon Dam
- The total economic value of hydropower includes a non market component
- GCD hydropower has dimensions of value beyond its value as a source of electricity



Study Limitations

- The reports by Loomis & Sandia focused on the theory and concepts of non market values and hydropower
- The quantitative work by CESS scientists focused on application of these concepts to explore the dimensions of value associated with modifying GCD operations
- The scope of the research did not include the quantification of non market hydropower values for the wide array of information needs of the GCD AMP as related to hydropower values
 - The evaluation was limited to the proposed change in GCD operations to the preferred alternative of the LTEMP EIS





Additional Research is Needed

- A broader-scoped scientific effort might provide a “template” for applying new research to practical applications and to assist decision makers
- A proposed GCD operational experiment should attempt to quantify the change in total value of hydropower
 - This would be extremely helpful for evaluating proposed GCD experiments
- This broader-scoped science may also be adaptable to assist stakeholders, water project managers and decision makers working in other water and hydropower systems

