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TESTIMONY
BEFORE THE WATER AND POWER SUBCOMMITTEE
OF THE
NATURAL RESOURCES COMMITTEE
UNITED STATES HOUSE OF REPRESENTATIVES

"KEEPING HYDROPOWER AFFORDABLE AND RELIABLE: THE PROTECTION OF EXISTING HYDROPOWER INVESTMENTS AND THE PROMOTION OF NEW DEVELOPMENT"

SEPTEMBER 19, 2013

Mr. Chairman, members of the Subcommittee, I am Leslie James, Executive Director of the Colorado River Energy Distributors Association (CREDA). I am pleased to have been asked to talk with you today regarding the Colorado River Storage Project (CRSP), and opportunities and challenges associated with keeping hydropower affordable and reliable. CREDA offers the following viewpoints:

- Federal hydropower is a valuable clean, renewable resource that faces a number of challenges today. Those challenges include the need to balance competing interests, including requirements of the Endangered Species Act (ESA) and other federal law, to maintain the affordability of the resource, and to deal with hydrological challenges like the current drought affecting the Colorado River.

- Opportunities exist to expand hydropower resources and federal generating agencies should be encouraged to maximize production from these resources…but those must be considered cautiously in light of potential ESA and legal requirements, and there must be a balance between costs and impacts.

- A critical element to keeping hydropower affordable is the transmission system that is operated by Western Area Power Administration (Western) to deliver the power to customers. This system was built for the delivery of Federal power and current efforts to expand this system to accommodate other uses must be paid for by those beneficiaries benefitting from the expanded system. Recent efforts by the Department of Energy which appear to force existing customers to fund speculative policy ventures by the Department will impact hydropower generation costs as well as transmission costs, thus further increasing costs to federal power customers.

- Federal agencies should be encouraged to work with power customers on critical issues such as transmission upgrades and expansions, and to mitigate rate impacts and work collaboratively to develop regional solutions to regional issues. Any new initiatives being considered must be justified on a business case basis and must comport with the statutory authorities of the agencies.

BACKGROUND

CREDA members (customers) have entered into long-term, cost-based contracts with Western, a power marketing administration of the Department of Energy, for purchase of federal hydropower resources of the CRSP. These contracts provide for rate adjustments in order to ensure repayment of the federal investment in the CRSP. Our purpose today is to provide some background on the facilities of the CRSP, and to describe environmental and drought-related impacts on both the federal facilities and CRSP customers, both in terms of opportunities and challenges. First, a description of CREDA and its membership.

CREDA is a non-profit organization representing consumer-owned electric systems that purchase federal hydropower and resources of the CRSP. CREDA was established in 1978, and serves as the "voice" of CRSP customer members in dealing with resource availability and affordability issues. CREDA represents its members in working with Reclamation (as the generating agency of the CRSP) and Western (as the marketing agency of the CRSP). CREDA members are all non-profit organizations, serving over four million electric consumers in the six western states of Arizona, Colorado, Nevada, New Mexico, Utah and Wyoming. CREDA members purchase over 85% of the CRSP power resource. Attached is a listing of current CREDA members.

CRSP customers have been ensuring repayment of the federal investment for over 40 years, by entering into long-term contracts to purchase the CRSP resource and by paying all of the federal investment in generation and transmission facilities (with interest), all power-related operation and maintenance costs, and environmental costs. In addition, the CRSP customers are paying over 95% of the cost of the irrigation features of the CRSP (because it has been determined by Reclamation that those cost are beyond the ability of the irrigators to pay). It is important to note that the cost-based nature of the CRSP rate includes costs beyond simply those associated with generation of the hydropower resource. These “non-power” costs include the cost of the Glen Canyon Adaptive Management Program (AMP) and the Upper Basin Endangered Fish Recovery Implementation Program (RIP). More detail on these costs will be provided below. Next, a description of the CRSP.

The CRSP was authorized in the Colorado River Storage Project Act of 1956 (P.L. 485, 84th Cong., 70 Stat. 50), as a multi-purpose federal project that provides flood control, water storage for irrigation, municipal and industrial purposes, in addition to the generation of electricity. This testimony will focus on the major generation features of the CRSP, although there are several irrigation projects included in the Project. The CRSP power features include five dams and associated generators, substations, and transmission lines.

I. THE CRSP FACILITIES AND ENVIRONMENTAL IMPACTS

GLEN CANYON DAM

Glen Canyon Dam is located near Page, Arizona and is by far the largest of the CRSP projects. Glen Canyon Dam began operation in 1964. The water stored behind the dam is the key to full development by the Upper Colorado River Basin states of their Colorado River Compact share of Colorado River water. The Glen Canyon power plant consists of eight generators for a total of about 1300 MW, which is more than 76% of total CRSP generation. The ability of Reclamation to generate, and Western to market, the total generating capability of Glen Canyon Dam has been impacted over a period of many years, by various processes and laws. In 1978 Reclamation began evaluating the possibility of upgrading the eight generating units at Glen Canyon. This was possible primarily due to design characteristics of the generators and improved insulating materials. This upgrade was completed, and the generation was increased from about 1000 MW to 1300 MW. To fully utilize the unit upgrades would require the maximum release of water from Glen Canyon to be increased from 31,500 cubic feet per second (cfs) to about 33,200 cfs. Reclamation also studied the possibility of adding new units on the outlet works to provide additional peaking capacity. The possibility of increasing maximum releases from Glen Canyon raised concerns with downstream users. After discussion with stakeholders, the Secretary of the Interior initiated the first phase of the Glen Canyon Environmental Studies.

In 1982, Reclamation began Phase 1 of the Glen Canyon Environmental Studies. These studies were primarily to analyze the impacts of raising the maximum release from 31,500 cfs to 33,200 cfs on the transport of sediment downstream from the dam, recreation (including fishing and rafting), endangered species (including the humpback chub in the lower Colorado River), and the riparian habitat along the river banks. The studies proceeded during the early 1980's and were concluded in 1987. The general conclusion of the Glen Canyon Environmental Studies Phase 1 was that the dam had blocked much of the sediment coming down the Colorado River and therefore beaches were not being replenished with sand. Many questioned the results of the Glen Canyon Environmental Studies Phase 1 because the process did not, in all cases, follow good scientific practice. For instance, the impact on power and water economics was not fully explored.

After reviewing the Glen Canyon Environmental Studies Phase 1 and a review by the National Academy of Science, the Secretary of the Interior determined that the Glen Canyon Environmental Studies should be continued to address the economic impacts, particularly as they relate to power, and also to collect additional data to substantiate some of the conclusions in the Phase 1 report. The Glen Canyon Environmental Studies Phase 2 was initiated in 1989. Reclamation decided to hire a Senior Scientist to assist with the development of the Phase 2 studies to assure an appropriate scientific process. Reclamation and the Senior Scientist developed Phase 2 studies, which included a series of interim operating criteria and test flows to evaluate the impact of different operating conditions and to develop response curves for various conditions. Many interested parties, including water, power, recreation, environment, and Native American interests participated in the process.

In July 1989, the Secretary of the Interior announced the start of an environmental impact statement (EIS) on the operation of the Glen Canyon Dam. No specific Federal action was identified for study. Meetings were held to seek input into alternatives that should be considered, and Reclamation determined the nine alternatives (including a "no action" alternative) to be studied. In 1992, the Grand Canyon Protection Act (106 Stat. 4672) was signed into law. Section 1804 of the Act required completion of the EIS within two years. The EIS was completed and the Record of Decision (ROD) signed in October 1996. The result was that Glen Canyon operations were changed to reflect a revised flow regime; approximately one-third of the generating capacity was lost. The cost of the Glen Canyon EIS was approximately $104 million, and was funded by power revenues collected from the CRSP customers. To date, over $193 million has been spent on Glen studies, and paid by CRSP power revenues. The GCPA says that CRSP power revenues MAY be used to fund the Adaptive Management Program (emphasis

supplied). It is not a mandate, but a permissive use of power revenues, which will be addressed in more detail below.

In 1991, the Department of the Interior estimated the expense from lost generation due to the changes in Glen Canyon Dam operation to be $44.2 million annually (adjusted for inflation). Given what has occurred in the energy markets and hydrologic conditions (drought) since that time, the actual cost was higher. A recent study prepared by Argonne National Labs for Western (the "post-ROD study"), has concluded the average annual cost has been approximately $50 million.

In April of 2000, it was determined that due to hydrologic conditions and requirements of a 1994 USFWS biological opinion, a low flow summer experiment would be undertaken. The experiment included high spike flows in May and September, with low flat flows (8,000 cfs) all summer. The series of steady flows were used to evaluate the effects of aquatic habitat stability and water temperatures on native fish growth and survival, with a special focus on the endangered humpback chub. The low, flat flows and hydrology, along with western energy market prices, had a severe impact on power generation, requiring CRSP customers and Western to purchase replacement power to meet their resource needs. The cost incurred by Western (and to be recovered from CRSP customers) for this replacement power was $26 million, just for that summer. The cost of the experiment alone was over $3.5 million, funded by CRSP power revenues. These figures do NOT include additional costs to CRSP customers who had to purchase or supplement their CRSP resource with purchases from the energy market due to reductions occurring from other actions. A final report on the responses of key resources from that experiment was issued in August 2011 (USGS Open File Report 2011-1220), 11 years later, which found in part that "The target resource, humpback chub and other native fishes, did not respond in a strongly positive or strongly negative manner..".

In July 2011, then Interior Secretary Salazar announced the beginning of another environmental impact statement process. The Long-Term Experimental and Management Program (LTEMP) EIS has been scoped, analytical models are being developed, and a cooperating agency process has begun, under the guidance of two co-lead agencies, the Reclamation and the National Park Service. Three CREDA members are participating as cooperating agencies in the process. In May of 2012, Reclamation issued two Finding of No Significant Impact (FONSIs) on two environmental assessments undertaken in the previous two years. The Protocol for High-Flow Experimentation and the Non-Native Fish Control FONSIs provide environmental compliance for a 10-year period. In addition, the USFWS has issued a "clean" (non-jeopardy) biological opinion on the current operations of Glen Canyon Dam, which opinion has been recognized by the 9th Circuit Court of Appeals. Given that the endangered humpback chub population continues to improve and increased over 50% since 2000, CREDA suggests that current operations have a positive effect on this endangered species, and is concerned that many of the alternatives being considered for changed operations under the LTEMP will further restrict this clean, renewable hydropower resource beyond the one-third loss of capacity that has been realized since the 1996 ROD and could impact the recovery of the humpback chub. **Should this multi-year, multi-million dollar EIS proceed, opportunities for enhancing Glen Canyon Dam's hydropower resource and restoring some of its lost capacity should be seriously considered, while recognizing the status and improvement of the endangered humpback chub.**

ADAPTIVE MANAGEMENT PROGRAM

CREDA participates on the Federal Advisory Committee charged with making recommendations to the Secretary of the Interior as to operations of Glen Canyon Dam pursuant to the 1996 Record of Decision and underlying laws. Funding for the program (Adaptive Management Program) is through CRSP power revenues. Proposed funding for next year's program is approximately $10 million. On October 27, 2000, President Clinton signed the FY 2001 Energy and Water Development Appropriations Act, which includes language (section 204) capping the amount of CRSP power revenues that can be used for the Adaptive Management Program at $7,850,000, subject to inflation. Without this cap, the annual program costs would have continued to increase more rapidly, with power revenues being the primary funding source. The 2001 Act requires the program to seek appropriated dollars for program costs in excess of the power revenue cap. CREDA supports other sources of funding for this program. CREDA also participates on the Technical Work Group, to ensure that good science and efforts to maximize power generation are considered. Science findings over the past 15 years have indicated that some of the premises behind the 1996 EIS/ROD may have resulted in different or inconclusive resource impacts and that the current flow restrictions may not be beneficial to downstream resources (primarily humpback chub and sediment). It is imperative that these science findings become incorporated into recommendations to the Secretary

of the Interior to implement flow changes and management actions to benefit the downstream resources and to maximize power production.

CRSP customers have paid, and continue to pay, the majority of costs at Glen Canyon, even while the Glen Canyon power capacity has been depleted by about one-third, and there are significant operating constraints on the remaining available capability, as required by the 1996 ROD. CREDA is optimistic, however, that this "lost" capability may become available to the CRSP customers through the implementation of the results of the many years of monitoring, research and experimentation.

FLAMING GORGE DAM

Flaming Gorge Dam is on the Green River, a major tributary of the Colorado River, and is located near Vernal, Utah. Flaming Gorge has three units producing about 152 MW of generation. In 1992, the USFWS issued a Biological Opinion on the operation of Flaming Gorge Dam. The estimated impacts to power generation since implementation of the Biological Opinion are approximately $2 million per year. Approximately 26 MW have been lost to date due to changed operations to benefit endangered fish. The Record of Decision on the operation of Flaming Gorge Dam was signed in February 2006. The cost of the EIS was approximately $1.6 million. Two CREDA members from Utah participated as cooperating agencies through the process.

ASPINALL UNIT

The Aspinall Unit includes three dams and generating plants along the Gunnison River near Gunnison, Colorado. Blue Mesa is the first dam on the river and has two units producing about 97 MW. Morrow Point is the second dam in the series and has two generators producing a total of 146 MW. Crystal is the final dam and has one 32 MW generator. Morrow Point and Crystal Reservoirs allow some regulation of the river flow so that releases from Crystal can be used to regulate downstream flows as necessary. Since the early 1990's as part of the Upper Colorado River Endangered Fish Recovery Implementation Program, or RIP, studies have been undertaken to determine fish needs in this region. In November 2004, Reclamation held the first Cooperating Agency meeting in connection with their work on an EIS on the operation of the Aspinall Unit. One of CREDA's members, Platte River Power Authority (Colorado), was a cooperating agency in the process. Following a multi-year hiatus due to the filing by the National Park Service to quantify water rights in the Black Canyon of the Gunnison, as well as a mediated settlement of that litigation, the final Record of Decision (ROD) was issued in on May 3, 2012. Depending on each year's hydrologic condition, the Unit will be operated in accordance with the ROD to provide an operation that provides flows for endangered fish as well as meeting downstream water rights. Western has estimated that depending on the hydrologic condition, negative impacts to hydropower production could range from $1.8 million to $5 million per year.

UPPER COLORADO RIVER ENDANGERED FISH RECOVERY IMPLEMENTATION PROGRAM (RIP)

The RIP was established through cooperative agreements among States and federal agencies in 1988 for a 15-year period to help recover four endangered fish in the Upper Colorado Basin. Power revenues currently fund about 60% of the base research / study program. Authorizing legislation was passed in October 2000, which authorized a $100 million capital improvements program. CREDA testified in support of this legislation in both House and Senate hearings. The legislation provides matching funds for the capital program so that, in the event State funding for the program ceases, so too does power revenue funding. .

The legislation requires CRSP power revenue funding for monitoring and research (currently $7.7 million per year). In addition, the Upper Basin States and CRSP power revenues each contributed $17 million toward capital features. The legislation recognized that changes in operation of Flaming Gorge and Aspinall generation as a result of the Biological Opinions cost CRSP customers $15 million. Since 2000, $89.7 million has been funded by CRSP power revenues for monitoring and research activities in this program. CREDA's ongoing concern is that endangered fish recovery should be achieved through the capital features of the RIP, not relying solely on dam operations. Current concerns of the program focus on the need for States to implement additional non-native fish

control measures. As the science and monitoring progresses, CREDA believes that flow recommendations should be revisited, and that additional hydropower flexibility may be regained as a result.

II. THE CRSP FACILITIES AND DROUGHT IMPACTS

The Colorado River Basin is in a drought situation, with Reclamation planning to operate Glen Canyon Dam at a minimum release level of 7.48MAF in 2014. This is the lowest level of releases since the Dam was closed in 1963. Lake Powell is at one of its lowest levels at 3589 feet, which is 114 feet from full pool. If the next water year is also a 7.48MAF release year, operations could approach minimum power generation level. If minimum power generation level is reached, there will be little CRSP generation available to the CRSP customers. This will have significant economic consequences for the CRSP customers and the customers they serve, as well as for a number of other non-power programs that are funded with CRSP power revenues. CRSP rates will have to be set to recover o&m and capital repayment, even though generation will be greatly reduced.

THE UPPER COLORADO BASIN FUND

The Basin Fund is a revolving fund maintained by CRSP power revenues. The Basin Fund is the source of CRSP project repayment, including: repayment of the capital investment with interest, operation, maintenance and replacement expense, 95% of the irrigation investment, Bureau and Western employee salaries. In addition, the Fund has been the source of funding for other "non-power" programs:

*$33,030,880 for the Colorado River Salinity Control Program;
*$193,499,143 for the Glen Canyon Adaptive Management Program;
*$89,704,049 for the Upper Colorado River Basin and San Juan Basin Endangered Fish Recovery Programs.

The programs listed above total about $20 million per year from the Basin Fund.

In addition, due to reduced generation levels from the CRSP resource, Western has had to purchase power on the open market to meet its contractual requirements. This year alone, they are estimating $50 million from the Upper Colorado Basin Fund for replacement power. As historical background, following six years of drought, and in order to maintain a sufficient Basin Fund level, in October 2002 the CRSP rate was increased 17%. Then, in October 2003, Western reduced energy deliveries to its customers by 26%. Each customer has had to "make up" the shortfall on its own. Western is also beginning a rate increase process, estimated to increase the CRSP rate 24%.

Since 1998, the Basin Fund has been at risk of deficiency due to reduced generation levels, market price conditions and expenditures for environmental testing. CRSP customers have experienced increased rates and reduced energy deliveries. In the event generation ceases at Glen Canyon Dam, the CRSP rate would have to increase fourfold, which would also be approximately double the cost of energy that could be procured on the open market. CREDA is working with Western to develop strategies to mitigate rate impacts and operational impacts during drought conditions.

CREDA members, all non-profit entities, have no option other than to pass those costs on to their consumers. For most, if not all, CRSP customers, particularly the 57 Native American customers who became CRSP customers in October 1, 2004, this cost would be prohibitive, and would defeat any potential benefit the CRSP resource may provide to those customers.

NON-POWER RELATED PROGRAMS SHOULD BE FUNDED BY APPROPRATIONS, NOT CRSP CUSTOMERS

CREDA is concerned that, when generation is ceased or close to being ceased at Glen Canyon Dam, an effort will be made to require CRSP power users to fund the non-power programs described above. This would, in effect, be a subsidy from the electric consumers in six Western states to all the parties that benefit from the Salinity Control, Adaptive Management and Endangered Species Recovery programs on the river.

Instead, **the non-power programs should seek appropriations from Congress to fund activities when the Basin Fund is depleted.** Further, the Basin Fund should be limited to "the basics", namely, those costs that are mandated by law to be repaid by the Fund. The Glen Canyon Adaptive Management Program authorizes, but does not mandate, the use of CRSP power revenues for program funding. The Endangered Fish Recovery Programs legislation requires Reclamation and Western to seek appropriations in times of financial need.

From a public policy standpoint, these programs are intended to benefit the environment, which is in the public interest, and therefore should be funded by appropriations. Providing appropriations for these programs would assist in maintaining the Basin Fund's solvency.

III. CRSP RATES AND WORK PROGRAM/DOE INITIATIVES

When the federal reclamation projects were begun, they were designed, constructed, operated, and maintained by Reclamation. Reclamation also owned the transmission system and marketed the power from the projects. When Western was formed under the Department of Energy Organization Act in 1977, the design, construction, operation, and maintenance functions remained with Reclamation and the transmission system and marketing responsibilities were moved to Western. Construction and capital projects are funded through the federal Treasury at the interest rate determined by Congress or at the time construction starts. These projects go through a budgeting process associated with the federal budget, and money is appropriated for these projects with congressional approval. As revenues are collected from the sale of federal power to the preference customers, there is a priority assigned to payment of obligations. The priority of repayment of the projects is that O&M expenses for Western and Reclamation are paid first and then repayment of the highest interest loans is made to the federal Treasury. The components associated with the power features are paid first, including the appropriate interest, and then the power revenues are used to pay the irrigation projects at no interest.

Each year Western compiles a "power repayment study" which estimates expenses of both Reclamation and Western, and is the basis for the CRSP rate. After Western has completed the power repayment study and if a rate adjustment is necessary, a public process is begun. This process includes a notice in the Federal Register that a rate adjustment is necessary, public information and comment meetings, and then the proposed rate is filed with the Federal Energy Regulatory Commission (FERC) for review. The rate can be put into effect on an interim basis while FERC reviews the rate, and if FERC concurs, the rate becomes final. FERC may also choose to remand (or send back) the rate.

In 1992, CREDA, Reclamation and Western entered into a contractual arrangement that provides CREDA the ability to review agency work plans and through a defined process, provide customer input and perspective to the agencies. The agreement also provides for dispute resolution, so that in the event the customers are unable to reach agreement with the agenc(ies) over specific line items within the work plans, there is a process by which their views can be expressed at the Administrator/Commissioner level. The process has resulted in better communication and collaboration; it has permitted the customers who ultimately are responsible for "paying the bills" to be involved in a collaborative process, rather than having to rely solely on the FERC or litigation as an alternative. CREDA views this arrangement as a model, particularly since it is embodied in a contractual arrangement and outlines a defined schedule, process and dispute resolution opportunity.

Since March, 2012, when then Energy Secretary Steven Chu issued the "Chu Memo" containing potential initiatives that could have had significant economic and operational impact to the customers of the Western Area Power Administration, the preference customers have been concerned about **DOE driven initiatives associated with the federal transmission system, which system was designed and constructed to deliver the federal hydropower resource from the Reclamation and Corps projects to preference customers. Western's core mission is to deliver power over its transmission system from the federal generating agencies to these customers**. In addition, Western has sold excess transmission capacity in its transmission system to other users to maximize the use of the transmission infrastructure and help keep the rates affordable. These activities have led to Western developing operations control centers and significant technical capabilities in the operations, maintenance, and construction of high voltage transmission facilities. The focus has always been as an operating entity, not a policy development or research organization like the Department of Energy. In addition, Western is not a utility and has no load-growth responsibility to provide for new generation or transmission to serve the growing loads of its

customers or other utilities. Over the years Western has continuously replaced facilities, upgraded transmission lines in partnership with its preference customers and as a result has a highly reliable transmission delivery system.

From a preference customer's perspective, it is important to understand the diversity of Western's system not only geographically, but also operationally. Western is a unique system due to its broad geographic scope and the different statutes authorizing each project. For example, the Flood Control Act of 1944 is the underlying statute authorizing the projects within the Pick-Sloan Missouri River Basin (North Dakota, South Dakota, Nebraska, Montana, Wyoming, Colorado, Kansas, Iowa, and Minnesota) whereas the Colorado River Storage Project Act of 1956 is the underlying statute for Bureau of Reclamation power projects in the Colorado River Basin states of Colorado, Utah, Wyoming, Nevada, Arizona and New Mexico. Given these differences, it is not surprising that, historically, Western has focused on working on a regional basis with its customers on infrastructure and power marketing issues while centralizing common organizational functions such as procurement, accounting, and legal support at its headquarters in Lakewood, CO. This hybrid approach has worked, and should be allowed to continue to work**. CREDA is concerned that there may be an increasing movement toward centralization and mission expansion, which we believe could lead to cost increases and inefficiencies in delivering federal hydropower because each Western project is unique and must operate under the statutory authorities authorized by Congress and within the environment it has established over many years with neighboring entities.**

CREDA thanks the Subcommittee for the opportunity of providing this information and appearing today.

COLORADO RIVER ENERGY DISTRIBUTORS ASSOCIATION (CREDA) MEMBERSHIP

ARIZONA

Arizona Municipal Power Users Association
Arizona Power Authority
Arizona Power Pooling Association
Irrigation and Electrical Districts Association of Arizona
Navajo Tribal Utility Authority
(also New Mexico, Utah)
Salt River Project

COLORADO

Colorado Springs Utilities
Intermountain Rural Electric Association
Platte River Power Authority
Tri-State Generation and Transmission Association, Inc.
(also Nebraska, Wyoming and New Mexico)
Yampa Valley Electric Association, Inc.

NEVADA

Colorado River Commission of Nevada
Silver State Energy Association

NEW MEXICO

City of Truth or Consequences
Farmington Electric Utility System
Los Alamos County

UTAH

City of Provo
City of St. George
South Utah Valley Electric Association
Utah Associated Municipal Power System
Utah Municipal Power Agency

WYOMING

Wyoming Municipal Power Agency