In The Beginning……..

1902 and 1939 Reclamation Acts
1956  Colorado River Storage Project (CRSP) Act
1977  DOE Organization Act (WAPA)
1978  CREDA
Colorado River Storage Project
Mainstem Units

Wyoming

Utah

Colorado

Green River

Colorado River

Morrow Point Dam

Blue Mesa Dam

Wayne N. Aspinall Unit

Glen Canyon Dam

Navajo Dam

San Juan River

Arezona

New Mexico
Without CRSP, There Would Be No CREDA!
Who Gets CRSP Power?

- Cooperatives: 32.2%
- Native American tribes: 12.1%
- State Agencies: 6%
- Irrigation Districts: 4.6%
- Federal Agencies: 2.4%
- Other: 0.9%
- Municipalities: 42%
Who are CREDA Members?

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

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

**NEBRASKA**
- Municipal Energy Agency of Nebraska

**NON-PROFIT**

**Preference Customer**

**CRSP Customer (contract with WAPA)**

**Public Power/Local**
Who are CREDA Members? (cont’d)

NEVADA
- Colorado River Commission of Nevada
- Silver State Energy Association

NEW MEXICO
- Farmington Electric Utility System
- Los Alamos County
- Tri-State Generation & Transmission Cooperative

UTAH
- City of Provo
- City of St. George
- South Utah Valley Electric Service District
- Utah Associated Municipal Power System
- Utah Municipal Power Agency

WYOMING
- Wyoming Municipal Power Agency

• Obligation to Serve – over 4.5 million people

• Resource Planning

• Own Renewables (Hydro, Wind, Solar, Biomass, Nuclear and Small Modular Nuclear)
CREDA’s Mission

“To preserve and enhance the availability, affordability, and value of Colorado River Storage Project (CRSP) facilities while promoting responsible stewardship of the Colorado River System.”

CREDA 2019 Strategic Plan
“...the complex set of interests Reclamation must balance in operating the Dam. Those interests include not only the endangered species below the Dam, but also tribes in the region, the seven Colorado River basin states, large municipalities that depend on water and power from Glen Canyon Dam, agricultural interests, Grand Canyon National Park, and national energy needs at a time when clean energy production is becoming increasingly important.”

What CREDA Does

* **Engages WAPA and Reclamation**, who are responsible for generating and marketing CRSP resources, on rate and resource issues *(affordability and availability)*

* **Represents members in and provides outside expertise to environmental and industry programs** (such as GCDAMP, RIP, DHS Dams Sector): biological, rate and economics, utility, and legal expertise *(stewardship)*

* **Maintains a strong working relationship** with Congress and other regional and national organizations (APPA, NWRA, NRECA, Midwest)
From Dam to Home

Wholesale Power From GCD to NTUA for Delivery to its Retail Customers
Availability and Affordability Challenges for CREDA and GCDAMP

- Drought Contingency Planning
- Long-Term Experimental and Management (LTEMP) EIS/ROD Implementation
- Non-Power/Environmental Program Participation (AMP, RIP and Salinity)
- Agency Policy/Regulatory Decisions (Local/Regional/National)
- 3 “Cs” – Court, Congress, and CRSP Regional Market and Technology Changes (Law/Politics/Hydrology/Science)
GCD has obligations to the electrical grid

GCD can provide black start capability in the event of an emergency

Intermittent resources are expanding (but they are STILL intermittent!)

Technology is changing how and when people use electricity (aka: FLEXIBILITY and TIMING IS EVERYTHING)

Carbon-free resources increasingly important
“Traditional” Demand Curves

Seasonal Daily Power Demand

- Blue line represents Winter
- Orange line represents Summer

Demand (MW) vs. Time of Day

0:00 to 21:00
Glen Canyon Dam Challenges
Pre-ROD and Post-ROD (‘96)

Figure 2.8 Glen Canyon Releases over a Single Day Prior to More Stringent Operating Restrictions (July 20, 1989, is shown)

Figure 2.10 Glen Canyon Releases over a Single Day under ROD Restrictions (Normal Condition) (July 19, 1999, is shown)
It’s All About Supply and Demand, and CURVES ARE CHANGING

Intermittent Resource and New Technology Challenges
What Do These Curves Mean for CREDA Members/CRSP Customers?

**Availability and Affordability**

*When CRSP Resource Curves ≠ Contract/Customer Curves, WAPA/Customers Must Purchase Power*

*Increased $*

*Likely Not Carbon-Free*

*Market Price Curves/Volatility*

*Regional Market Participants Have Differing Objectives*

*Serve Customers/Communities*

*Serve Shareholders/Investors*

*Commodity v. Grid Security/Reliability*

*Many CRSP Customers are Economically Disadvantaged*
“Power DFC Objectives

- Ensure continued delivery to existing customers.
- Ensure sufficient production to provide revenue support.
- Maximize capacity and energy while seeking to achieve a balance with CRE resource objectives.
- Maximize operational flexibility consistent with AMP goals and objectives.
- Maintain operational flexibility for regional system reliability and emergency operating criteria for safety and human health situations.”

Source: AMWG presentation, July 26, 2010. (emphasis added)
Thank you!
BUT WAIT, THERE’S MORE!

ADDITIONAL RESOURCES/AMWG PRESENTATIONS

*8/08/13  Lynn Jeka  “Who is CRSP”
*8/27/15  Lynn Jeka  “CRSP”
*2/24/16  Don Ostler  “History/Basin Fund”
*2/14/18  Ted Rampton  “UAMPS/AMWG”

Leslie James
CREDA
480-477-8646
Website: creda.cc
ceda@creda.cc