

# **SMALL HYDRO UPDATE AND RECOMMENDATIONS FOR 2014 COLORADO LEGISLATURE**

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**Colorado Legislature Meeting**  
**Denver, CO**  
**October 7, 2013 DRAFT IN PROGRESS**



# Key Message: Small Hydro Job Growth Opportunity

- Local jobs created in project construction
- Ongoing revenue from electricity sales for farmers, ranchers, towns, water districts, etc.



# Items for Discussion

- About COSHA
- Current Status of Hydro in CO
- Opportunity to Create Jobs
- CO Hydropower History
- Recent CO Small Hydro Achievements in Federal and State Policy
- New Federal Small Hydro Permitting Legislation
- CO Small Hydro Projects Currently Under Construction
- Suggestions for 2014 Legislation
- Contact Information



“Congress finally found an energy source everyone likes – hydropower ”  
*Washington Post*, August 2, 2013



# Colorado Small Hydro Association

- Volunteer, sponsor-supported organization promoting development of small hydro in Colorado
- Annual conference to highlight statewide progress
  - 2013 conference held July 23<sup>rd</sup> in Denver
- 2013 conference sponsors, cosponsors and partners

## SPONSORS



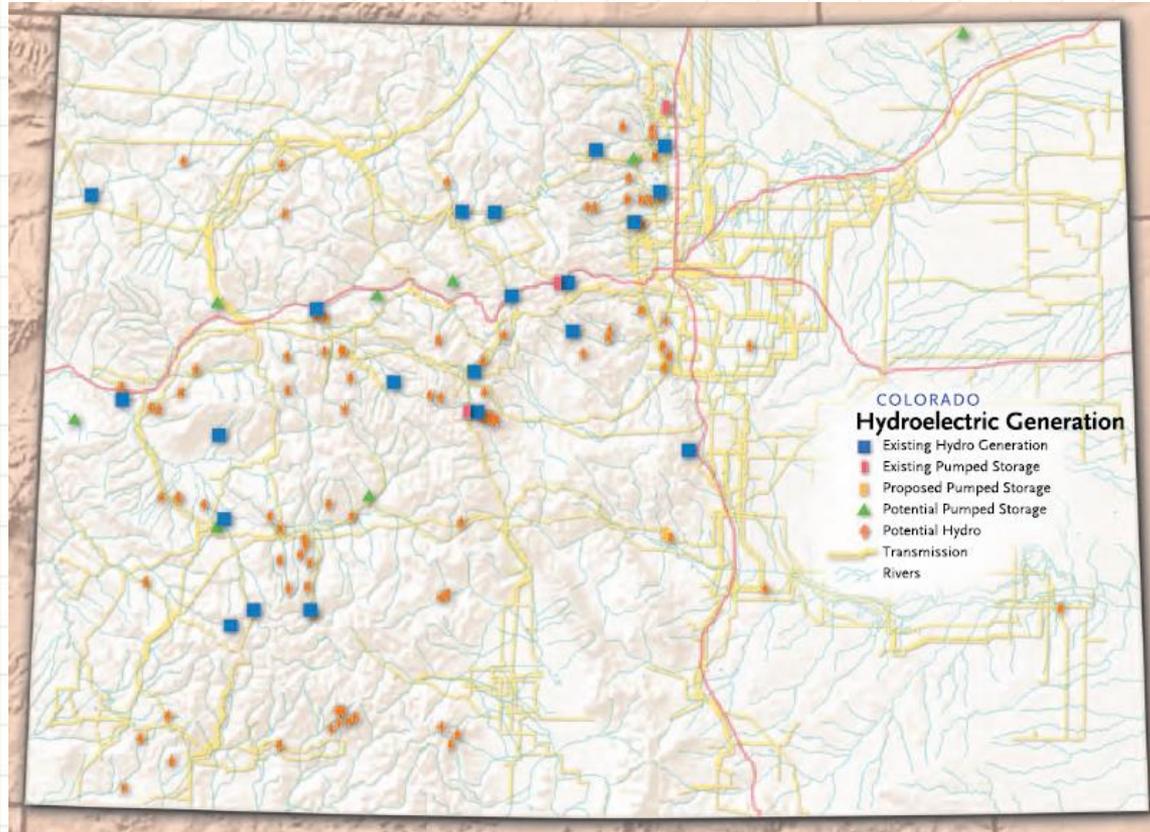
## COSPONSORS



## PARTNERS



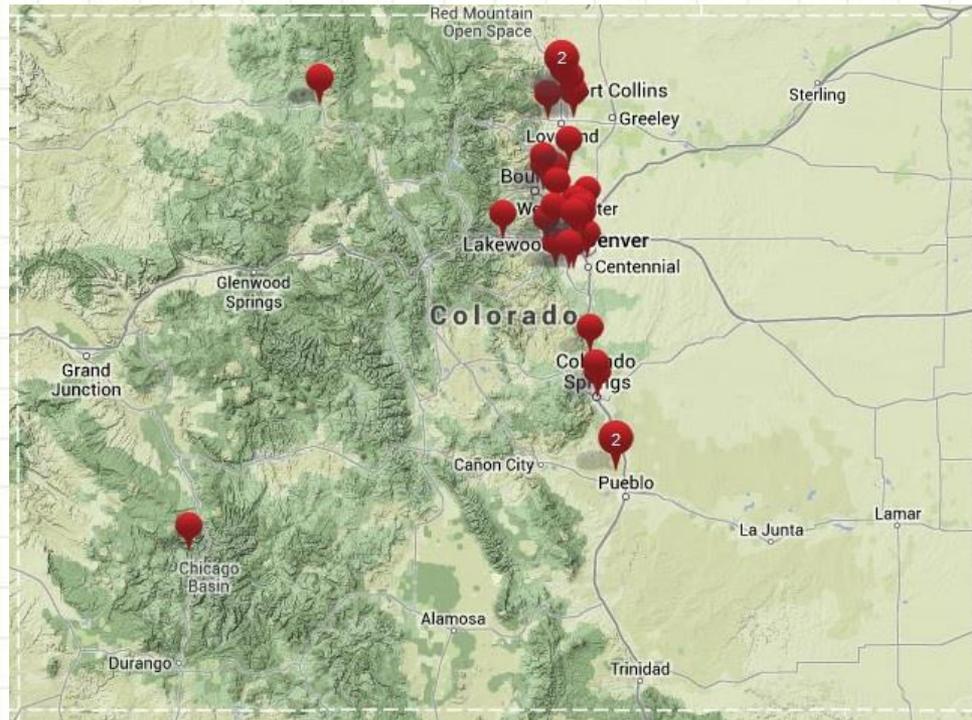
# Current Status of Hydropower in Colorado



Source: Colorado Energy Office

# Small Hydro Jobs Opportunity

- Colorado currently has hundreds of hydropower jobs at companies across the state
- The right policies can create additional new hydro jobs in Colorado



Source: National Hydropower Association



# Untapped Small Hydro Potential at Existing Dams, Canals and Center Pivots



*Pueblo Dam*



*Towaoc Highline Canal*

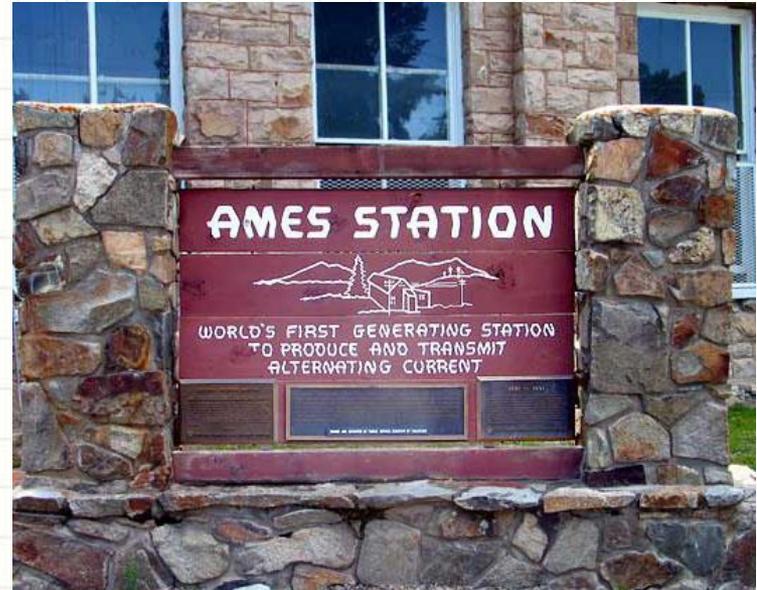


*Bear River Ranch*



# Colorado's Hydropower History

Nikola Tesla engineered the Ames Hydro Plant near Telluride, CO in 1891



President Taft recognized the hydro potential of Western Colorado's South Canal in 1909



# Recent Colorado State Leadership in Small Hydro Policy

- CO Energy Office FERC Pilot Program, Small Hydro Handbook
- CWCB loan funding for hydro
- CWRPDA feasibility grants and loan funding for hydro
- CO Department of Agriculture small hydro initiative



# Colorado Small Hydro Handbook

- Available for download under “Resources” tab at [www.colorado.gov/energy](http://www.colorado.gov/energy)



[Small Hydropower Handbook](#)

**THE COLORADO ENERGY OFFICE**

1580 Logan Street, Suite 100  
Denver, CO 80203-1973  
[www.colorado.gov/energy](http://www.colorado.gov/energy)



# Colorado Department of Agriculture Small Hydro Effort

- Assessing opportunities for cost-effective opportunities for installation of agricultural hydropower utilizing existing infrastructure
  - Existing dams
  - Center pivots
  - Ditch drops



- Results in 2014



# Recent Bipartisan Colorado Federal Leadership in Small Hydro

## Hydropower Regulatory Efficiency Act

- **New Conduit Hydro Exemption:** Creates an “offramp” for conduit projects under 5 MW
- **2 Year Licensing.** Directs FERC to explore a potential two-year licensing process for hydropower development at existing non-powered dams and closed-loop pumped storage projects
- **Small Hydro Exemption Increase:** Increases the FERC small hydro exemption from 5 to 10 MW
- **Preliminary Permits:** Authorizes FERC to grant developers preliminary permit extensions
- **DOE Studies:** Directs DOE to study pumped storage project opportunities as well as hydropower potential from existing conduits

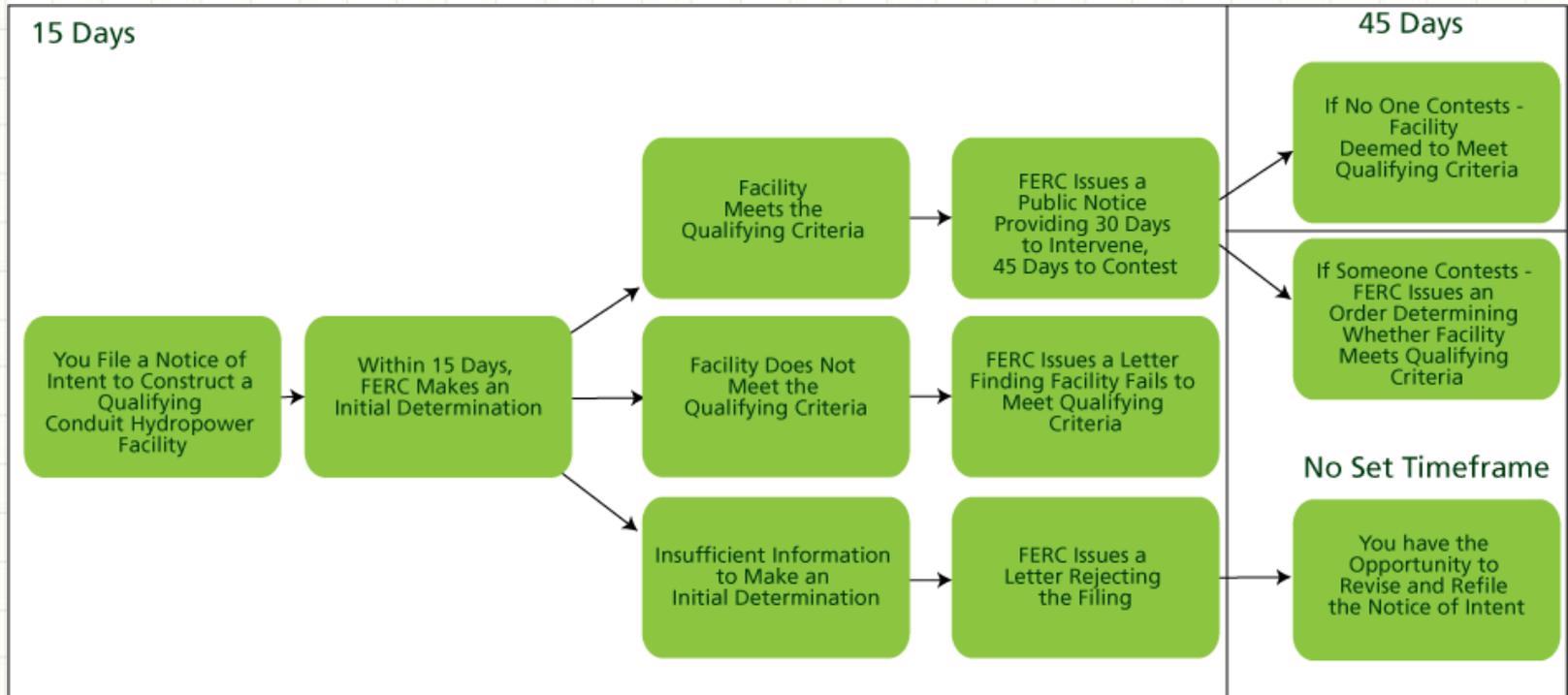


## Hydropower and Rural Jobs Act

- Accelerated approval for projects on Bureau of Reclamation facilities



# New FERC Timeline/Process for Conduit Small Hydro Permitting



# Silverton Project Recently Received FERC Approval Per New Law

UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

San Juan County Historical Society

Docket No. CD13-4-000

NOTICE OF PRELIMINARY DETERMINATION OF  
A QUALIFYING CONDUIT HYDROPOWER FACILITY AND SOLICITING  
COMMENTS AND MOTIONS TO INTERVENE

(September 30, 2013)

On September 20, 2013, San Juan County Historical Society filed a notice of intent to construct a qualifying conduit hydropower facility, pursuant to section 30 of the Federal Power Act, as amended by section 4 of the Hydropower Regulatory Efficiency Act of 2013 (HREA). The 11 kW Silverton Mayflower Mill Hydro Project would utilize excess flow from the six-inch-diameter Arrastra Gulch Pipeline, which serves the Mayflower Mill treatment plant, located in San Juan County, Colorado.

Applicant Contact: Beverly Rich, San Juan County Historical Society, P.O. Box 154, Silverton, CO 81433, Phone No. (970) 387-5488.



Silverton, CO

# Tri-County Water Project at Ridgway Dam



- Total Plant Capacity of 8 Megawatts (MW)
- Powerhouse will be connected to existing infrastructure
- One 7.2 MW unit plus one 0.8 MW unit
- Both units operate during high releases (summer)
- Smaller unit will operate during low releases (winter)
- Power will be generated using historic release patterns



# Delta Montrose Electric Association South Canal Project



# Summary of Suggestions for 2014

- Create a one-stop process for state agencies to review proposed projects implemented commensurate with new federal FERC 45 day review process
- Require fairness for QF rates for small hydro projects
- Allow use of motors as generators for electrical inspection
- Raise the net metering cap for municipalities
- Expand “Solar Garden” concept to include hydropower
- Create a finance mechanism for small hydro
- Incorporate hydro analysis into state water plan



# Ask One State Agency to Circulate FERC Applications to All State Agencies for Review

- Precedent previously established with CO FERC Streamlining Pilot Program
- Ask one state agency to distribute FERC notices
  - State of Idaho does this now
- If any State agencies have comments , file them with FERC once on behalf of ALL state agencies within 45 day FERC comment period



Colorado Department  
of Public Health  
and Environment



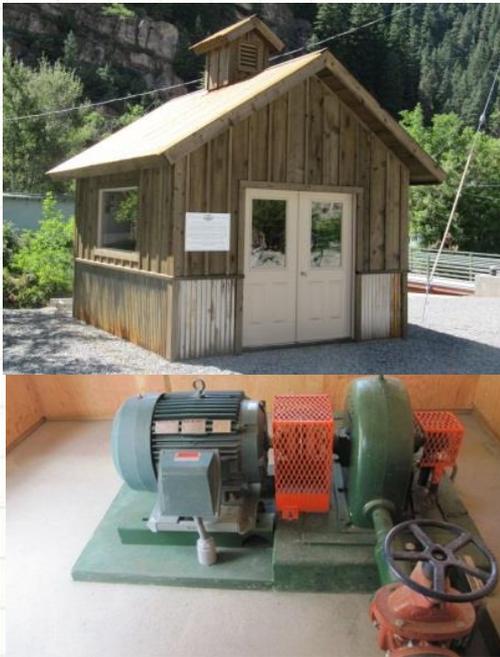
# Require Fairness for Avoided Cost Rates for QF Small Hydro

- Some utilities have already established hydro rates which can make hydro development economically feasible
- Wholesale utility costs currently low
- Require annual review of avoided costs and make sure internal and external costs for payment for small hydro are the same



# Ask State Electrical Board to Allow Use of Motors as Generators

- Electrical code requires all components to be used in a manner commensurate with nameplate
- Motors and generators are identical
- State Electrical Board has already allowed this for a project in Ouray



Division of Registrations  
Rosemary McCool  
Director

State Electrical Board  
Mark E. Browne  
Program Director

Bill Ritter, Jr.  
Governor  
Barbara J. Kelley  
Executive  
Director

September 30, 2010

Bob Risch, Mayor  
City of Ouray  
PO Box 468  
Ouray CO 81427

Re: VARIANCE REQUEST – OURAY MICRO-HYDRO BUILDING – PERMIT #687564

Dear Mayor Risch:

At the September 27, 2010 meeting, the State Electrical Board considered your August 30, 2010, request for a variance to article 90.7, 110.3(b) and 445.11 of the National Electrical Code. This request was to allow the installed motor to be used as a generator at the Ouray Micro-Hydro Building in City Park, Ouray, Colorado. According to §12-23-104 (2)(g), C.R.S., the Board is authorized to review and approve requests for exceptions to the code in unique construction situations where a strict interpretation of the code would result in unreasonable operational conditions or unreasonable economic burdens as long as public safety is not compromised.

It was the decision of the Board to approve this request with the following:

**Provisions**

1. This is a one-time variance for Ouray Micro-Hydro Building in City Park, Ouray, Colorado, permit #687564.
2. The installed motor is substantially equivalent to a listed motor generator.
3. The variance request approval letter and the manufacturer's documentation shall be permanently posted for future reference near the installed motor.

**Findings of Fact**

It is the opinion of the Board that:

1. The materials are equivalent to the code requirements.
2. Removal of this installation would result in unreasonable operational conditions and an unreasonable economic burden.
3. The new installation does not compromise public safety.

The State inspector for your area will also be notified of the Board's decision. If you have any questions regarding this matter, you may contact Chief Inspector, Stephen Conrad, at 303-894-2307 or stephen.conrad@dora.state.co.us.



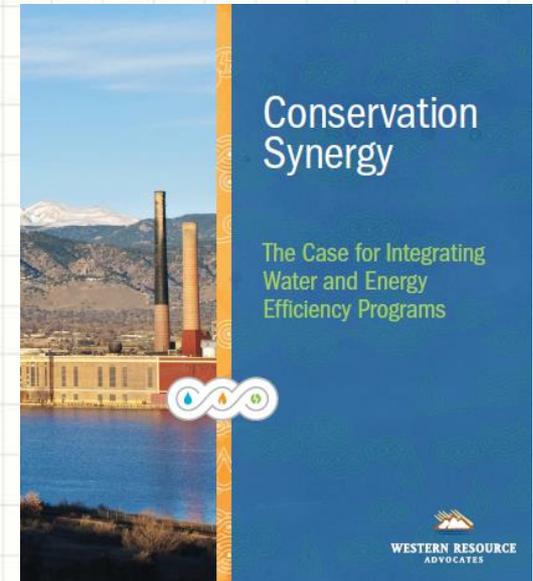
# Raise Net Metering Cap for Municipalities

- Under current state law, non-IOU utilities don't have to net meter beyond 25 kW.
- Raising the cap for municipalities will make economically feasible hydro projects larger than 25 kW that otherwise will not get built.



# Incorporate Hydro Analysis into State Water Plan

- Consider the energy-water nexus
- When developing the state water plan, consider how hydropower development fits logically with water development



# Expand “Solar Garden” Concept to Include Small Hydro

- Note California’s “Shared Renewables” Bill, SB 43, recently signed into law
- Build upon momentum with community-funded solar gardens already underway in Colorado



# Create a Financing Mechanism for Small Hydro Systems

- Given low wholesale electricity prices, the most economically-feasible projects are small, net-metered systems
  - Currently available state financing programs don't apply to small systems
- Repackage existing federal and state loan programs to make them accessible to developers of small projects

# Contact

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