



Colorado Small Hydro Association
PO Box 1646
Telluride, CO 81435
www.smallhydro.co

Email: coloradosmallhydro@gmail.com
Phone: 970-729-5051

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Contact:
Kurt Johnson
Colorado Small Hydro Association
Email: coloradosmallhydro@gmail.com
Phone: 970-729-5051

Fields of Green

\$1.8M USDA Grant Will Help Farmers Turn Irrigation Systems into Small Hydropower Plants

Telluride, CO (January 15, 2015) – The [Colorado Department of Agriculture](#) (CDA) has been awarded a \$1.8M grant by the U.S. Department of Agriculture (USDA) which will support development of agricultural hydropower projects in Colorado, helping agricultural producers turn irrigation systems into small hydropower plants.

Developing these new hydro projects won't require building any new dams or water diversions. Rather, agricultural producers will be able to capture existing available water pressure which is being wasted and use it to generate energy, saving money that would otherwise be spent paying for electricity to power irrigation systems.

"Water is vital to Colorado's agricultural community; by making small hydropower accessible to our producers, we are helping them become more self-sufficient and protect their bottom line while creating more efficiency in their water usage," said Eric Lane, CDA's Conservation Services Division Director.

The new first-of-its-kind agricultural hydropower program will facilitate the conversion of flood irrigation systems to pressurized irrigation systems with integrated hydropower. The project seeks to convert flood irrigation systems to center pivot systems with integrated hydropower and retrofit existing pressurized irrigation systems to add a hydropower component.

The new CDA hydro program received \$1.8 Million in [RCPP funding](#) as part of the first round of funding for USDA's new Regional Conservation Partnership Program (RCPP), with USDA investing more than \$370 million dollars to implement 100 high-impact conservation projects across all 50 states.

Energy costs can represent a significant operational cost for agricultural producers. According to a 2013 analysis commissioned by the [Colorado Energy Office](#), farmers in Colorado have indicated that energy expenses are generally about 7% of total operating expenses. In the farming sector, irrigation and its associated electricity costs are one of the largest areas of energy consumption.

Colorado farmers report spending an average of about \$33,000 per year on electricity. Electricity needed to power irrigation pumps typically makes up more than 50% of total farm electricity expenses.



Example agricultural hydro systems: hydromechanical center pivot (top) and hydroelectric (bottom).



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The new CDA hydropower program follows up on an [agricultural hydropower assessment](#) completed by the Colorado Department of Agriculture in 2014. The assessment concluded that Colorado has potential for installation of approximately 30 megawatts of new small hydropower utilizing pressurized irrigation pipelines. Staff from the USDA Natural Resource Conservation Service (NRCS) will optimize and incorporate new hydropower assessment tools into a new standard practice in Colorado for development of hydropower using pressurized irrigation.

The new CDA Colorado agricultural hydropower program builds upon Colorado's history of leadership in hydropower policy innovation, including the following:

- Colorado was the first state to sign a Memorandum of Understanding with the Federal Energy Regulatory Commission to expedite small hydro approval.
- Colorado was the first state to prepare a [Small Hydropower Handbook](#).
- Colorado modified an existing water infrastructure loan program at the Colorado Water Conservation Board (CWCB) to make low-interest loan financing available for small hydro construction.
- In May of 2014, Governor Hickenlooper signed into law [HB14-1030](#), bipartisan legislation developed by Colorado Reps. Diane Mitsch-Bush (D-Steamboat Springs) and Don Coram (R-Montrose) to cut state government red tape for small hydro development.



Governor Hickenlooper signed HB14-1030 into law on May 31, 2014.

Colorado's new small hydro program has also been made possible by federal hydro streamlining legislation which was approved in Washington, DC in August of 2013 thanks to Colorado legislators: the Hydropower Regulatory Efficiency Act introduced by Rep. Diana DeGette (D-Denver) and the Bureau of Reclamation Small Conduit Hydropower Development and Rural Jobs Act introduced by Rep. Scott Tipton (R-Cortez) were unanimously approved and signed into law by President Obama in August of 2013. Prior to the 2013 federal hydro reform legislation, federal permitting costs for small agricultural hydropower projects could exceed hydro turbine equipment costs – rendering many projects economically infeasible.

Colorado currently has hundreds of hydro-related jobs, a number that has the potential to grow. The National Hydropower Association has estimated 5.3 jobs created per megawatt of new hydro construction. COSHA estimates approximately 100 MW of potential new hydro development in Colorado, which would mean approximately 500 new jobs created in Colorado, including jobs for developers, engineers and financiers as well as concrete workers, plumbers, carpenters, welders and electricians.

"Colorado's innovation in hydro policy is serving as a model for other states nationwide," concluded COSHA President Kurt Johnson.

About the Colorado Small Hydro Association (COSHA)

The [Colorado Small Hydro Association](#) is dedicated to accelerating development of small hydro in Colorado. COSHA recently hosted a series of agricultural hydropower workshops across the state. Additional information is available on the COSHA website at www.smallhydro.co.

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