

Frequently Asked Questions:

What is the Tri-County Water Hydropower Project?

The hydropower potential at Ridgway Dam and Reservoir was recognized by the Tri-County Water Conservancy District (Tri-County) decades ago, but it wasn't until just recently that the project became feasible and its construction permitted by the federal government. The dam and reservoir, located between Ridgway and Montrose on Highway 550, are owned by the United States Bureau of Reclamation, but the District stores its water rights in the reservoir. Tri-County was awarded a Lease of Power Privilege (LOPP) from the Bureau to develop the hydropower resource on Feb. 6, 2012. As part of that process, Tri-County had to prove its water rights, perform public scoping and demonstrate that it could pay for the project. The project was first studied by Tri-County in 1984, during dam construction and periodically thereafter to determine if the project was economically feasible. In 2002, the City of Aspen approached the District about purchasing the power and plans moved forward. The hydropower plant consists of two turbines and two generators — a 0.8-megawatt system that operates in the winter months during lower flows, and a 7.2-megawatt system that will run during the high-flow months in the summer. The energy created is transmitted via an interconnection to Tri-State Generation and Transmission Association's (Tri-State) switch yard. Tri-State is a wholesale power distributor which provides electricity throughout our region.

How much electricity will be generated by the project?

The hydropower plant consists of two turbines and two generators — a 0.8-megawatt system and a 7.2-megawatt system. The smaller 0.8 MW unit will produce power efficiently on winter time flows of 30-60 cubic feet per second (cfs). The larger 7.2 MW turbine and generator will handle flows at 500 cfs during the summer. A megawatt hour (Mwh) is equal to 1,000 Kilowatt hours (Kwh). It is equal to 1,000 kilowatts of electricity used continuously for one hour. The project will not significantly change historic operations or the flows in the Uncompahgre River. The hydroelectric plant produces about 24,000 megawatt-hours of energy per year. Depending on annual water availability, the amount of energy produced could provide about 2500 homes a year with all electricity needs. The carbon offset is equivalent to removing 50 million pounds from the atmosphere or about 4400 cars from the road each year.

Who will use the power generated by the project?

Tri-County entered into agreements with the City of Aspen and Tri-State to purchase the power produced at the dam. These Power Purchase Agreements (PPA) allotted the bulk of the electricity created by the project to be sold to the two entities. The funding created by these commitments allowed the project to move forward. The Town of Telluride signed a contract agreeing to purchase Renewable Energy Credits (RECs) created by the project during the summer months. A renewable energy credit is an environmental commodity that represents the added value, environmental benefits and cost of renewable energy above conventional methods of producing electricity. Revenues generated from the sale of the electricity will be used to repay loans on the project for the first 30 years and then will be used to offset Tri-County operating expenses.

How much did the Ridgway Dam Hydropower Project cost to construct?

The hydroelectric power plant project spearheaded by Tri-County cost about \$18 million to construct and utilizes water stored in the Ridgway Reservoir. Tri-County obtained a 30-year loan from the Colorado Water Conservation Board for an amount of \$13 million. Another \$2 million, 20-year loan also has been approved from the Colorado Water Resources and Power Development Authority. Those loans and other expenses will be funded by the sale of the power the project produces. The rate at which power can be sold has been one of many deciding factors on whether to create a hydropower facility at the dam for several decades.

Who did the design and construction of the project?

Mountain States Hydro, LLC along with key subcontractors including Riverside, Inc., Caribou Construction Inc., Sorenson Engineering, Inc. and China Huadian Engineering Co. Ltd. completed the project. They work throughout the United States on projects much like this one. In addition to doing design-build on the project, Mountain States oversaw the construction of the powerhouse and the transmission line. The line and a substation boost the 4.16 kilovolt (Kv) output from the generator to the 115 Kv transmission voltage. The transmission line conveys the power produced at the plant to the interconnection switch yard. The switch yard, owned and operated by Tri-State, meters or measures the power delivered to the station and then relays it to the transmission grid. Key figures to consider: 1,699 cubic yards of concrete were used to construct the foundation of the powerhouse. 140,000 pounds of reinforcing steel were used to construct the foundation of the powerhouse. 18.31 miles of locally purchased wire were used to construct the project. The small turbine assembly weighs 30,357 pounds. The small generator weighs 36,442 pounds. The large turbine assembly weighs 72,752 pounds and the large generator tips the scales at 160,385 pounds.

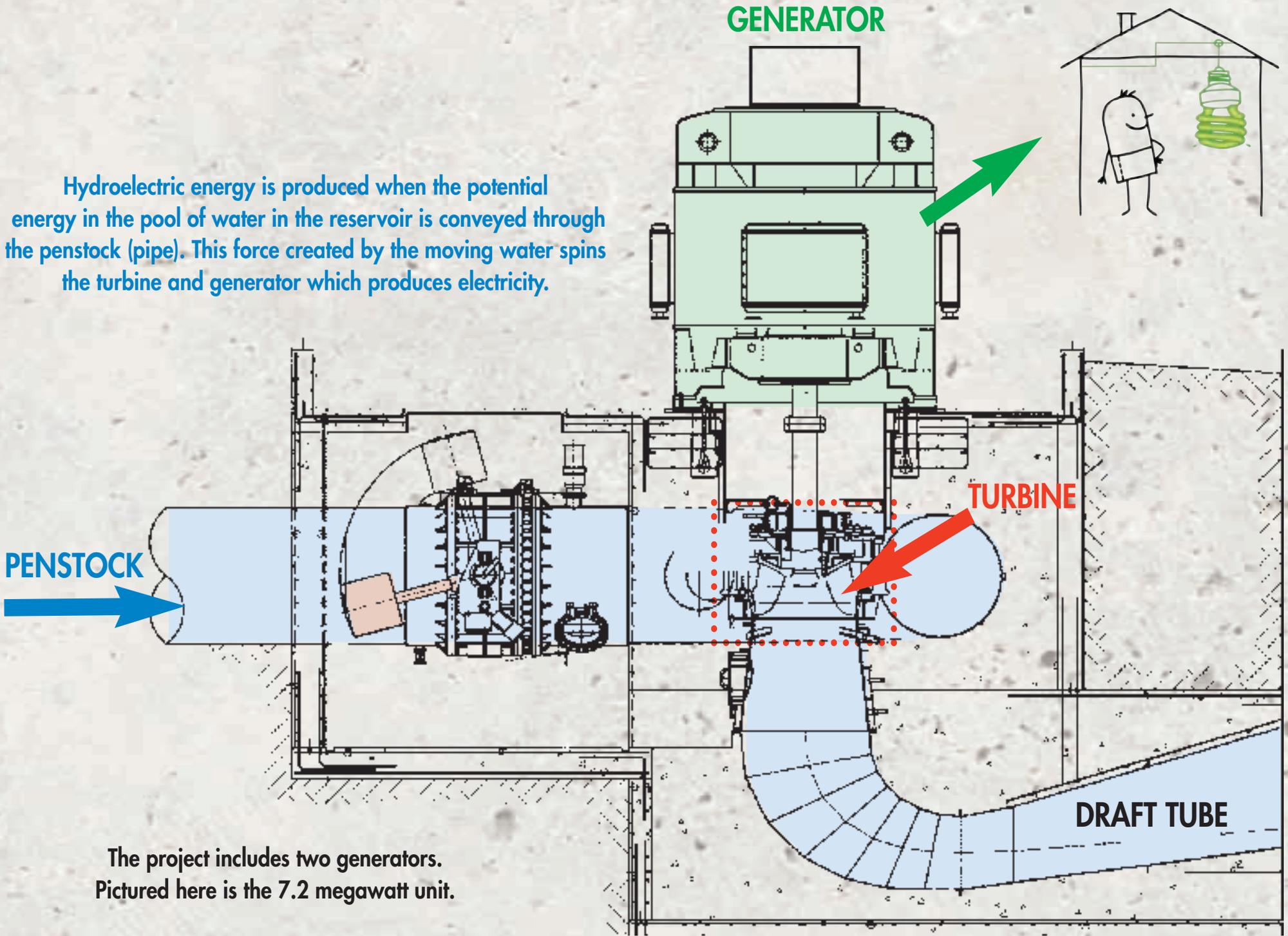
When was the Ridgway Dam built?

Construction on the dam began in 1978 and lasted until 1987. It was filled by 1990. The project was constructed to aid in irrigation and domestic water needs of the Uncompahgre Valley and for flood control. The reservoir can hold 84,600 acre-feet.

What is Tri-County Water?

The Tri-County Water Conservancy District was created August 19, 1957. The main purpose for the organization of the District was to provide an official agency to promote participating projects of the Colorado River Storage Project Act in the counties covered by the District. The original area to be served consisted of the Uncompahgre drainage in Ouray, Montrose and Delta counties. In the early days of the District, in addition to planned projects such as what would become the Ridgway Reservoir, there was an intent to create a valley-wide domestic water distribution system. Today, Tri-County, in cooperation with the Project 7 Water Authority, serves water to more than 6500 meters through 500+ miles of pipeline.

Hydroelectric energy is produced when the potential energy in the pool of water in the reservoir is conveyed through the penstock (pipe). This force created by the moving water spins the turbine and generator which produces electricity.



The project includes two generators. Pictured here is the 7.2 megawatt unit.