STATE OF COLORADO

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TO: Colorado Water Conservation Board Members

FROM: Ryan Edwards, P.E.
Tim Feehan, P.E., Chief
Finance Section

DATE: September 2, 2011

SUBJECT: **Agenda Item 20c, September 13-14, 2011 Board Meeting**
Finance Section – New Project Loans
Tri-County Water Conservancy District – Ridgway Reservoir Micro-Hydro Project

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Introduction

The Tri-County Water Conservancy District (District), acting by and through its Water Enterprise (Enterprise), is applying for a loan for the Ridgway Reservoir Micro-Hydro Project (Project). The purpose of the Project is to construct a 7mega-watt (MW) hydroelectric generating facility into the existing outlet works of Ridgway Dam. The loan request is for approximately half of the $18,170,000 total cost of the Project. See the attached Project Data Sheet for a location map and a Project summary.

Staff Recommendation

Staff recommends the Board approve a loan, from the Construction Fund, not to exceed $9,090,000 ($9,000,000 for project costs and $90,000 for the 1% Loan Service Fee) to the Tri-County Water Conservancy District, acting by and through its Water Enterprise, for the Ridgway Reservoir Micro-Hydro Project. The loan terms shall be 30 years at the hydroelectric rate of 2.0% per annum. Security for the loan shall be in compliance with the CWCB Financial Policy #5.

Staff further recommends that no funds be dispersed prior to the following conditions being satisfied:

1) Execution of the Lease of Power Privilege
2) Execution of the Power Purchase Agreement
3) Execution of the loan contract with the Colorado Water Resources and Power Development Authority
4) A 404 Permit from the Corps of Engineers, or a letter from the Corps stating that a 404 Permit is not required.

5) An interconnection agreement between the District and San Miguel Power Association or Tri-State Generation and Transmission Association.

Background

The Ridgway Dam and Reservoir are located on the Uncompahgre River about 6 miles north of the community of Ridgway, Colorado and one mile upstream of the confluence with Cow Creek. The reservoir has a capacity of 84,410 acre-feet (AF) and stores waters of the Uncompahgre basin for use by the District, Uncompahgre Valley Water Users Association (UVWUA) and private land owners to deliver water for irrigation, municipal, domestic, and industrial needs.

The Bureau of Reclamation (Bureau) began construction of Ridgway Dam in 1978 as part of the Dallas Creek Project, authorized by Congress as part of the Colorado River Basin Project Act of 1968. During construction the Bureau conducted an appraisal study that assessed the viability of adding a hydropower facility. The study, completed in 1981, concluded that it was technically feasible to incorporate a hydropower facility into the dam; however, it was not economically feasible based on the market rates for power at that time. This conclusion led to design modifications that could accommodate the future installation of a hydropower facility. In 1987, the 333-foot tall, 2,465-foot long dam was completed and began storing water.

In a letter to the Bureau, dated August 18, 2009, the District requested that the Bureau begin the Lease of Power Privilege (LOPP) process for the development of hydropower at Ridgway Dam. On June 2, 2010, the Bureau published a Notice of Intent in the Federal Register that it would accept proposals, select a lessee, and contract for hydroelectric power development at Ridgway Dam. On December 1, 2010, the District submitted a formal application requesting the right to develop hydropower at Ridgway Dam. On January 28, 2011, the Bureau notified the District that they were selected to proceed with the LOPP.

Loan Feasibility Study

The loan feasibility study titled "Ridgway Reservoir Micro-Hydro Project Loan Feasibility Study", dated August 1, 2011, was prepared by the District, with technical assistance from HDR Incorporated, and legal assistance from Aaron Clay, Tri-County general counsel. The study was prepared in accordance with the CWCB guidelines and includes preliminary engineering and an engineer's estimate used to establish the total Project cost.

Tri-County Water Conservancy District

The District, created on August 19, 1957, is a local governmental entity formed under Title 37 of the Colorado Revised Statutes and is considered a quasi-municipality by the State of Colorado. The primary purpose for creating the District was to provide an official agency to promote participating projects of the Upper Colorado Storage Projects Act in the counties of the Uncompahgre drainage: Delta, Montrose and Ouray.

The District, which is headquartered in Montrose, Colorado, operates and maintains Ridgway Dam under contract with the Bureau and owns and operates a rural domestic water distribution system. The District began construction of the distribution system in 1972 and currently serves 7,500 taps across a service area of 350 square miles. District facilities include 610 miles of distribution and transmission pipelines, 42 pump stations, 21 water storage tanks and approximately 120 pressure reduction stations. On average, the District annually delivers 9,000 AF of water to domestic customers and over 11,000 AF to agricultural users.

The District employs 23 staff members and is governed by a 15-member Board of Directors which is appointed by a State District Court. There are five board members representing each of the three counties served by the District.

Water Rights

The District presently controls all water rights for the project. The District received an absolute fill right, which included hydropower as a decreed use, adjudicated under Decree No. 94CW52; a hydropower direct flow right, adjudicated under Decree No. 96CW139; and a second-fill right, which included hydropower as a decreed use, adjudicated in Decree No. 96CW140. These rights are summarized in Table 1.

TABLE 1: RIDGWAY RESERVOIR MICRO-HYDRO WATER RIGHTS

Case Number	Adjudication Date	Appropriation Date	Amount	Use Includes Power Generation
94CW0052	April 14, 1961	November 16, 1956	84,602 AF	Yes
96CW0139	December 31, 1996	November 6, 1956	300 cfs	Yes
96CW0140	December 31, 1996	November 6, 1956	84,602 AF	Yes

Project Description

The purpose of the Project is to incorporate a clean and renewable energy source into Ridgway Dam that is locally controlled and will generate revenue for the District. Previous studies for hydropower at Ridgway Dam were conducted by the District in 1984, 1996, 2002 and 2009. Design alternatives include multiple configurations and locations for the powerhouse and piping network, as well as the type and number of turbines. Each alternative was analyzed to estimate conceptual-level costs and benefits to determine project viability. Advances in technology combined with an increase in the market rate for power, make the Project both technologically and economically feasible.

The District plans to tap into the existing outlet works to install a new bifurcation that will direct flow to a powerhouse located immediately east of the existing gate house. The powerhouse will contain two Francis-type turbines and generators, rated at a combined total of 7 MW and associated mechanical and electrical equipment capable of generating an estimated 22,600 megawatt-hours (MWh) annually. A proposed transmission line will carry power 3,000 feet north to a proposed step-up substation adjacent to an existing Tri-State Generation and Transmission Association (Tri-State G&T) 115-kV transmission line on the west side of Highway 550. River flow rates downstream of the dam will not be impacted by the power facility due to a network of proposed valves, enabling the District to convey flows to the powerhouse, or divert them away from the powerhouse for maintenance or emergency purposes.

The Project shall be permitted through the Bureau via the LOPP. Additional permitting includes: NEPA compliance, a Power Purchase Agreement (PPA), and possibly a Section 404 permit from the Corps of Engineers (COE) to address fill placement along the Uncompahgre River. The District is working jointly with the Bureau and the COE to fully address the permitting requirements. The District is in negotiation with the San Miguel Power Association (SMPA)/Tri-State G&T and the City of Aspen/Municipal Energy Agency of Nebraska to develop and execute a PPA to sell the output of energy, capacity, and renewable energy credits (REC's).

The initial study conducted by the Bureau concluded that the addition of a hydropower facility would have minimal impact on the local or regional environment. More recent evaluations support that conclusion and anticipate environmental and biological impacts would be confined to the construction phase because the Project will be located within the area already disturbed by the dam, where sensitive habitats have not been observed. Anticipated environmental impacts consist of noise, dust and minor soil erosion attributed to site excavation. Mitigation measures will be implemented in accordance with local and federal guidelines in an effort to minimize environmental impacts throughout construction. Following construction, there are no lasting environmental impacts expected.

The Project will be funded through a combination of cash reserves from the District, financing through the CWCB and Colorado Water Resources and Power Development Authority (CWRPDA), and Qualified Energy Conservation Bonds (QECB) through the Governor's Energy Office (GEO). Fluctuations in project variables, particularly materials and labor costs, have resulted in total cost estimates varying from $13.0M to nearly $18.2M. A total project cost estimate of $18,172,000 has been used in the financial analysis. A summary of project costs is provided in Table 2.

TABLE 2: TOTAL PROJECT COST SUMMARY

Task	Cost
Engineering	$1,082,000
Materials/Construction Costs	$12,463,000
Administrative/Permitting Expenses	$1,627,000
Contingency (20%)	$3,000,000
Total	$18,172,000

Project construction is scheduled to begin in Spring 2012, starting with the ordering of items that require long lead times, such as the turbine/generator equipment, butterfly valves and bifurcation fittings. It is estimated that the construction phase of the Project will take 2 years to complete, with energy production scheduled to commence in 2014.

CWCB will not disperse any funds until all Colorado Water Resources and Power Development Authority funds have been fully expended. Following expenditure of CWRPDA funding, the CWCB will reimburse project costs at 90%, up to a project total of $9,000,000.

Financial Analysis

The District qualifies for the hydroelectric interest rate of 2.00% for a 30-year term. Table 3 provides a summary of the financial criteria of the loan request.

TABLE 3: PROJECT FINANCIAL SUMMARY

Total Project Cost		$18,172,000
CWCB Loan Amount (50% of total Project cost)		$9,000,000
CWCB Loan Amount (including 1% Service Fee)		$9,090,000
CWCB Annual Loan Payment		$405,868
CWCB Loan Obligation (including 10% debt reserve funding)		$446,455
Additional Funding Sources:	District Contribution	$4,172,000
	CWRPDA	$2,000,000
	GEO - QECB	$3,000,000
	TOTAL	$9,172,000
Projected 2014 Expenses: (for Power Generation)	CWCB Loan Obligation (2.0% with a 10% reserve)	$446,455
	CWRPDA Debt Service (2.0%)	$122,313
	GEO - QECB (estimated at 4%)	$220,745
	O&M	$210,000
	Bureau of Reclamation Lease	$67,800
	TOTAL	$1,067,313
Projected 2014 Power Revenue		$1,243,000
Number of Water Taps		7,417
Monthly CWCB Obligation Cost per Tap: ($446,455 / 7,417) / 12mo.		$5
Monthly Project Cost per Tap: ($1,067,313 / 7,417) / 12mo.		$12

This summary is based on the District's assumption of: annual power sales at a negotiated PPA rate of $0.055/kWh, Bureau lease rate of $0.003/kWh, and O&M projected expenses equivalent to those of similar facilities.

Creditworthiness:
The District has $32.8M in debt remaining to the Bureau for the Dallas Creek Project. Annual payments total $2.18M; however, the District has contracts with five other water providers that account for 54% of the annual payment. The District collects water usage fees as its primary source of revenue. Over the last three years the operating revenues for water usage have exceeded operating expenses by an annual average of $1.1M, generating a surplus that has enabled the District to grow its cash reserve balance to nearly $12M. The District will use these reserves to cover its portion of the Project costs, estimated at $4,172,000. Financing through the CWCB, CWRPDA, and GEO will fund the remaining balance of the project.

Upon completion of the Project, the District anticipates that it will be able to sell 22,600 MWh annually through its PPA at a rate of $0.055 per kWh, generating $1,243,000. With expenses for operating and maintenance estimated at $210,000, and a Power Privilege lease payment to the Bureau of $67,800 (based on a rate of $0.003 per kWh), the District expects power generated revenues to exceed expenses by a minimum or $965,200 over the first 12 months of operation. Based on the projected annual increase in O&M (2.5%), Bureau lease (2.0%) and power sale (3%), revenues are expected to increase at a greater rate than expenses over the life of the project. The resulting balance will be used for repayment of the CWCB, CWRPDA and GEO debt service (totaling $789,513). Should the power related income fall short of projections, the District will use the excess revenue from water sales in combination with an increase in water rates to cover its loan obligation to the CWCB.

The life of the facility is expected to extend well beyond 50 years. After repayment of debt, the project will provide the District with a long-term reliable income stream that will supplement revenues from water sales, helping to minimize the need for future water rate increases.

TABLE 4: FINANCIAL RATIOS

Financial Ratio	2008-2009	Future w/ Project
Operating Ratio (revenues/expenses)* weak: <100% - average: 100% - 120% - strong: >120%	225% (strong) $6.3M/$2.8M	206% (strong) $6.3M/$3.1M
Debt Service Coverage Ratio (revenues- expenses)/total debt service** weak: <100% - average: 100% - 120% - strong: >120%	146% (strong) ($6.3M-$2.8M)/$2.4M	110% (average) ($6.3M-$3.1M)/$3.0M
Cash Reserves to Current Expenses weak: <50% - average: 50% - 100% - strong: >100%	231% (strong) $12M/$5.2M	144% (strong) $7.8M/$5.4M
Average Residential Water Bill (monthly) weak: >$60 - average: $30 - $60 - strong: <$30	$30.92 (average)	$30.92 (average)
Debt per Tap (Total Debt/taps) weak: >$5,000 - average: $2,500 - $5,000 - strong: <$2,000	$4,449 (average) $33.0M/7,417	$6,310 (weak) $46.8M/7,417

**"Future Expenses" include projected expenses for O&M ($210,000) and Bureau lease ($67,800)*
*** In 1970 the District issued General Obligation Bonds for an approximate debt service of $200,000 per year. This debt service was retired in 2010 and is not included in "Future w/ Project"*

Collateral: As security for the loan, the District will pledge power revenues and water usage revenues backed by a rate covenant and annual financial reporting. This is in compliance with the CWCB Financial Policy #5 (Collateral).

Staff Recommendation

Staff recommends the Board approve a loan, from the Construction Fund, not to exceed $9,090,000 ($9,000,000 for project costs and $90,000 for the 1% Loan Service Fee) to the Tri-County Water Conservancy District, acting by and through its Water Enterprise, for the Ridgway Reservoir Micro-Hydro Project. The loan terms shall be 30 years at the hydroelectric rate of 2.0% per annum. Security for the loan shall be in compliance with the CWCB Financial Policy #5.

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cc: Mike Berry, General Manager, Tri-County Water Conservancy District
Susan Schneider, AGO
Peter Johnson, AGO

Attachment: Water Project Loan Program – Project Data Sheet

CWCB Construction Loan Program
Project Data Sheet

Borrower: Tri-County Water Conservancy District **County**: Ouray, Montrose, Delta

Project Name: Ridgway Reservoir Micro-Hydro **Project Type:** Hydroelectric

Drainage Basin: Gunnison, District 68 **Water Source**: Uncompahgre River

Total Project Cost: $18,172,000 **Funding Sources:** Construction Fund, CWRPDA, GEO

Type of Borrower: Hydroelectric **Avg. Diversion:** 35,000 AF (84,410 AF of reservoir storage)

Loan Amount: $9,090,000 (Including 1% fee) **Interest Rate:** 2.00% **Term:** 30 years

The Tri-County Water Conservancy District (District) is requesting a CWCB loan for the construction of a 7MW hydroelectric power generating facility at Ridgway Reservoir. The project will be permitted through the "Lease of Power Purchase" process with the Bureau of Reclamation (Bureau), allowing the incorporation of a hydropower facility into the existing outlet works of Ridgway Dam. The dam, constructed by the Bureau as part of the Dallas Creek Project, began storing waters of the Uncompahgre Basin in 1987. The District projects that the facility will produce an annual average of 22,600 MWh, which will be sold to the San Miguel Power Association/Tri-State Generation and Transmission and the City of Aspen/Municipal Energy Agency of Nebraska through a Power Purchase Agreement. Construction is scheduled to begin in the spring of 2012 and take approximately 2 years to complete, with energy production expected by spring 2014.