



TR-286

Economic and Conservation Evaluation of Capital Renovation Projects: United Irrigation District of Hidalgo County (United) - Rehabilitation of Main Canal, Laterals, and Diversion Pump Station - Preliminary

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Initial construction costs and net annual changes in operating and maintenance expenses are identified for a three-component capital renovation project proposed by the United Irrigation District to the U.S. Bureau of Reclamation (USBR). The proposed project involves: installing 4.66 miles of pipeline in the Main Canal and Lateral 7N, installing 13.46 miles of pipeline in several laterals and sub-laterals, and rehabilitating the District's Rio Grande diversion pumping plant. Both nominal and real estimates of water and energy savings and expected economic and financial costs of those savings are identified throughout the anticipated useful lives for all three components. Sensitivity results for both the cost of saving water and the cost of saving energy are presented for several important parameters.

Annual water and energy savings forthcoming from the total project are estimated, using amortization procedures, to be 1,409 ac-ft of water per year and 4,506,882,727 BTUs (1,320,892 kwh) of energy per year. The calculated economic and financial cost of saving water is estimated to be \$325.20 per ac-ft. The calculated economic and financial cost of saving energy is estimated at \$0.0001113 per BTU (\$0.380 per kwh).

In addition, real (vs. nominal) values are estimated for the USBRs three principal evaluation measures specified in the U.S. Public Law 106-576. The aggregate initial construction cost per ac-ft of water savings measure is \$354.30 per ac-ft of water savings. The aggregate initial construction cost per BTU (kwh) of energy savings measure is \$0.0003376 per BTU (\$1.152 per kwh). The aggregate ratio of initial construction costs per dollar of total annual economic savings is estimated to be -3.442.

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