



Colorado Department of Local Affairs



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Energy Performance Contracting

- The Department of Local Affairs partners with Local Governments to assist in the implementation of energy performance improvements.
- Projects are developed by the analysis of the local government's utility usage and systems developed in an Investment Grade Audit (Energy Audit) that is completed by an Energy Services Company.
- Usually, DOLA's participation is warranted when the payback for the investment of the improvement exceeds 12 to 15 years.



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Energy Performance Contracting Projects

➤ South Routt School District - The Challenge

- In 2007 Schools in Oak Creek and Yampa were still burning coal in 1970 boilers for heat in their schools.
- The boilers had numerous failures, high maintenance costs and caused indoor air quality issues with coal dust.
- There was no natural gas service, propane was cost prohibitive and coal was cheap and available.



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➤ **South Routt School District - The Solution**

- With assistance from the Governor's Energy Office, McKinstry (ESCO) developed an Energy Audit that identified the work necessary to address issues and funding sources to implement the improvements.
- It was determined that conversion from the coal fired boilers to Ground Source Heat Pumps for the high school and the elementary school in Yampa were appropriate.
- The installation of a woody biomass boiler, using locally produced pellets, at the middle school would complete the heating and cooling needs of the district.



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➤ **South Routt School District - The Financials**

- The total cost of the project was \$4.3M.
 - Governor's Energy Office Grant - \$75,000 for Biomass Boiler
 - CO -Department of Education Grant - \$2,102,000
 - CO- DOLA Grant - \$625,000
 - South Routt SD Bond - \$1,500,000
 - McKinstry (ESCO) provided in-kind engineering, financial assistance and biomass boiler installation.



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➤ **South Routt School District - The Results**

- Reduced carbon footprint = 977 tons/year CO2.
- Mitigated the indoor air quality and improved learning environment with better lighting.
- New efficient heating and cooling system decreased operation and maintenance costs, using locally sourced pellets saving \$15,000 over the cost of propane annually.
- “I can’t say enough about the improved environment of our schools. After the new boilers were installed the classrooms are cleaner and I’m confident that our students and staff see and feel the benefits.....” Dina Murray, Business Manager SRSD



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➤ **Clear Creek County - The Problem**

- In 2015 the Henderson Mine announced that they may cease production at any time due to a lack of reserves and worldwide commodity prices. Cessation of production would cause a severe loss of revenue to the County of approximately \$10M annually.
- The County's current utility costs were in excess of \$300,000 which was not sustainable with the projected loss of revenue.
- The County aggressively started to invest in capital projects prior to the loss of revenue from the mine. In doing so, they engaged Iconergy (ESCO) to perform an energy audit and execute an energy performance contract.



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➤ **Clear Creek County - The Solution**

- The Energy Audit determined that most of the major HVAC equipment, overhead doors and lighting system in County facilities were beyond their useful life
- The project resulted in the installation of energy saving equipment to 16 County owned buildings encompassing over 104,000 sq.ft. Improvements were made to lighting fixtures, air handling units, overhead doors and HVAC equipment.
- These improvements will save the County approximately \$55,000 in annually.



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➤ **Clear Creek County - The Financials**

- The total cost of the project - \$2,633,076
 - Clear Creek County CIP Fund - \$246,589
 - Clear Creek County EPC Loan - \$941,868
 - CO- Energy Mineral Impact Grant - \$1,444,619



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➤ **Clear Creek County - The Results**

- Reduction in electrical usage in the County buildings by 493,876 kWh/yr. or 37%
- Reduction in natural gas usage by 18,091 therms/yr. or 14%.
- Production of 52,268 kWh/yr. of renewable energy generation from the PV installation.
- PV installation will power 85% of all the lighting fixtures in the County facilities.



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- **Town of Walden, Jackson County - The Opportunity**
 - The Town of Walden identified its water treatment facility as the largest user of electricity for the Town.
 - Johnson Controls (ESCO) identified in its Energy Audit that the installation of a floating solar array in the Town's water plant ponds was budget neutral to the Town for installation and operations.
 - Mountain Parks Electric agreed that if the solar array produces excess energy than is needed to run the Town's water treatment plant they will buy it from the Town.



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- **Town of Walden, Jackson County - The Solution**
 - The Town of Walden executed a performance contract with the Johnson Controls that was supported by the Colorado Energy Office for the installation of a 75kW 8,000 sq.ft. floating photovoltaic array.
 - Johnson Controls contracted with GRID Alternative Colorado and CIEL & Terre as subcontractors to design, build and expedite the project for commissioning in October, 2018.



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- **Town of Walden, Jackson County - Floating Solar Array**



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- **Town of Walden, Jackson County - The Financials**
 - The total project cost was \$400,000
 - Walden Capital Improvement Fund - \$200,000
 - CO-Department of Local Affairs Grant - \$200,000



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- **Town of Walden, Jackson County - The Results**
- The installation of the first ever floating photovoltaic array in the State of Colorado and only the fifth such facility in the United States at the time of commissioning.
- Under the contract the Town is guaranteed energy savings of approximately 2,503,974 kWh for 20 years with a total savings value of \$217,000.
- By having the solar array on the grey water ponds it also reduces evaporation and potential algae growth on the ponds.



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- **Town of Walden, Jackson County - The Comments**
- The installation of this system was reported by KCNC News 4 the State's CBS affiliate, *Finished Water, Opflow, AWWA, Route 50* and a photo journal by NREL at this link:
<https://www.flickr.com/photos/nrel/sets/72157672648192537>
- Mayor Jim Dustin was quoted, "This project is a testament of what can be achieved with a little bit of sun, multiple state agencies and private industries working together for one common goal - and provides a great example for other towns across the state and country to emulate." "Walden doesn't get a chance very often to lead the state in any endeavor, but we have done that today."





Questions



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