



# *Economic Recovery Through Energy Cost Savings*

Colorado Resiliency Office's  
Climate Adaptations and Futures Climate Webinar Series

December 2, 2020  
12 p.m. to 1 p.m.



**COLORADO**  
Resiliency Office  
Department of Local Affairs

# Welcome

Please use the chat to communicate any questions for the panelists.

Ensure your microphone is on mute for the duration of the webinar.

This webinar is being recorded and will be posted on the Colorado Resiliency Office's website: [coresiliency.com/webinars](https://coresiliency.com/webinars)



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# Agenda

- Introduction
- Colorado Energy Office
  - DeLynne Southern, Technical Specialist
  - Dylan Klomhaus, Technical Specialist
- Yearout Energy
  - Colby Geer, President
- Q&A with Panelists



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**DeLynne Southern**  
Technical Specialist

Colorado Energy Office



**Dylan Klomhaus**  
Technical Specialist

Colorado Energy Office



**Colby Geer**  
President

Year Out Energy



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Technical Specialist

Colorado Energy Office



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# Colorado Energy Office - Local Government Advisor

## Resources & Support

### Revitalizing Main Streets

- Funding for projects that provide open spaces for mobility, community activities and economic development

### Building Codes

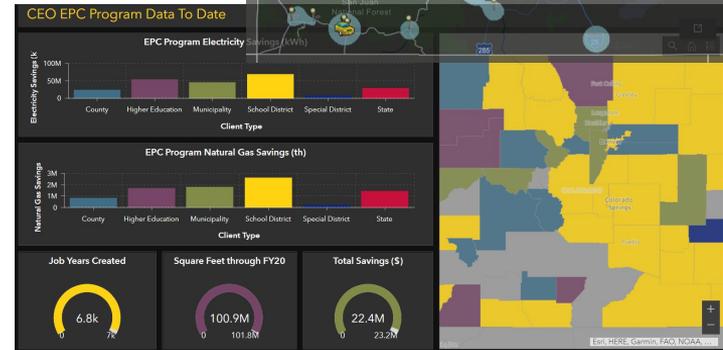
- Free in-depth training and toolkit
- Compliance resources

### Local Government Toolkit & [Story Map](#)

- GHG Emissions, Air Quality, Drought Intensity
- CEO Program Info

## Local Government Toolkit

for a  
**Resilient  
Clean  
Energy  
Future**



**COLORADO**  
Energy Office

Contact: [Christine.Berg@state.co.us](mailto:Christine.Berg@state.co.us)

# Governor's Bold Four

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*Preserving, Protecting and Providing for Colorado's way of life.*

Reduce the cost  
of healthcare

Healthcare

Implement free,  
full-day kindergarten  
& expand preschool

Education

Set Colorado on a  
path to **100%**  
**renewable energy** by  
2040

Energy

Fiscal reform that  
serves hardworking  
Coloradans

Tax Reform



# Water - Energy Nexus

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Every drop of water saved,  
***saves energy.***

Every kilowatt of electricity  
saved, ***saves water.***



# Colorado Energy Office - Energy Performance Contracting

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## Presenters



Technical Specialist

**Dylan Klomhaus**

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Technical Specialist

**DeLynne Southern**

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Energy Office

<https://energyoffice.colorado.gov/energy-performance-contracting>

# Colorado Statutes

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**Energy Performance Contracting** in Colorado is a statutorily enabled method for public jurisdictions to leverage utility cost savings to repay annual financing costs associated with certain types of facility upgrades.

## Local Government Statute

C.R.S. 29-12.5-101 (2017)

## State & Higher Ed Statute

C.R.S. 24-30-2001 (2016)

## Colorado Statute establishes EPC guidelines including:

- ✓ Guaranteed Utility Cost Savings
- ✓ Cost weighted average life of equipment
- ✓ Three years of M&V
- ✓ Cash flow positive



# What is Energy Performance Contracting (EPC)?

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A financing & contracting tool that allows Public entities to use savings from energy improvements to fund capital projects

**23yrs.**

Colorado's EPC program began in 1997

**200M**

Public buildings have achieved 200 million energy (kWh) savings

**\$40M**

Communities have realized over \$40 million in cost savings



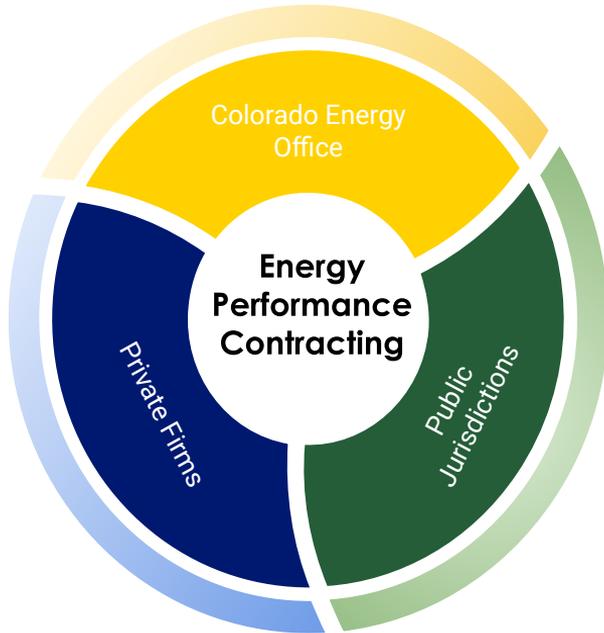
# Benefits of Energy Performance Contracting

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- ✓ **Single Procurement Contract** for design/engineering, installation, startup, and M&V
- ✓ Generates **Positive** Cash Flow, no-capital upfront solution
- ✓ **Guaranteed** energy and maintenance cost **savings** → (Frees up budget to be used for other capital projects or community needs.)
- ✓ Promotes **local workforce** and **economic development**
- ✓ No-cost support from the Colorado Energy Office
  - Standardized, state-approved documents
  - Pre-qualified ESCOs
  - Colorado Energy Office engineering & contract support throughout lifecycle of the project



# A Public Private Partnership (P3)



## Colorado Energy Office

Program Administrators, Engineers, Contract Support, Guidance Tools, Standardized Documents

## Public Jurisdictions

Cities, Counties, School Districts, State Agencies, Higher Education Institutes, Special Districts

## Private Sector Firms

Energy Service Companies (ESCOs), Financial Institutions



# Colorado EPC Market Partners

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## Colorado EPC Program

### Pre-qualified ESCOs

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AECOM  
Ameresco  
CEG  
Honeywell  
Iconergy  
Johnson Controls  
McKinstry  
Midstate  
Schneider  
Siemen's  
Trane  
Willdan  
Yearout

### Industry Stakeholders

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NAESCO  
  
Energy Services  
Coalition (ESC)  
  
Colorado ESC Chapter  
  
Colorado Municipal  
League (CML)  
  
Western Resource  
Advocates (WRA)

### Interagency Partners

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Colorado Dept. of  
Local Affairs (DOLA)  
  
Colorado Dept. of  
Education (BEST)  
  
Greening  
Government  
Leadership Council  
  
Office of the State  
Architect

# DOLA Grants

## Dept. of Local Affairs

The Division of Local Government provides strategic expertise, advocacy, and funding for Colorado communities. DOLA promotes local problem solving, informs decision making and invests in communities.

## Program Benefits

### EIAF

- Tier I: Up to \$200K grant
- Tier II: Between \$200K - \$1M grant

### Water

- State Revolving Loan Funds
- Community Development Block Grants
- Colorado Water Conservation Board



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Energy Office

Contact: DOLA Regional Manager

# CASE STUDY: Town of Walden, CO

## SUMMARY

Using the EPC Program, Walden selected an engineering firm who delivered a 75kW floating solar array project--offsetting the energy consumption needs for a WTP.



## PROJECT DATA

### Annual Operating Savings

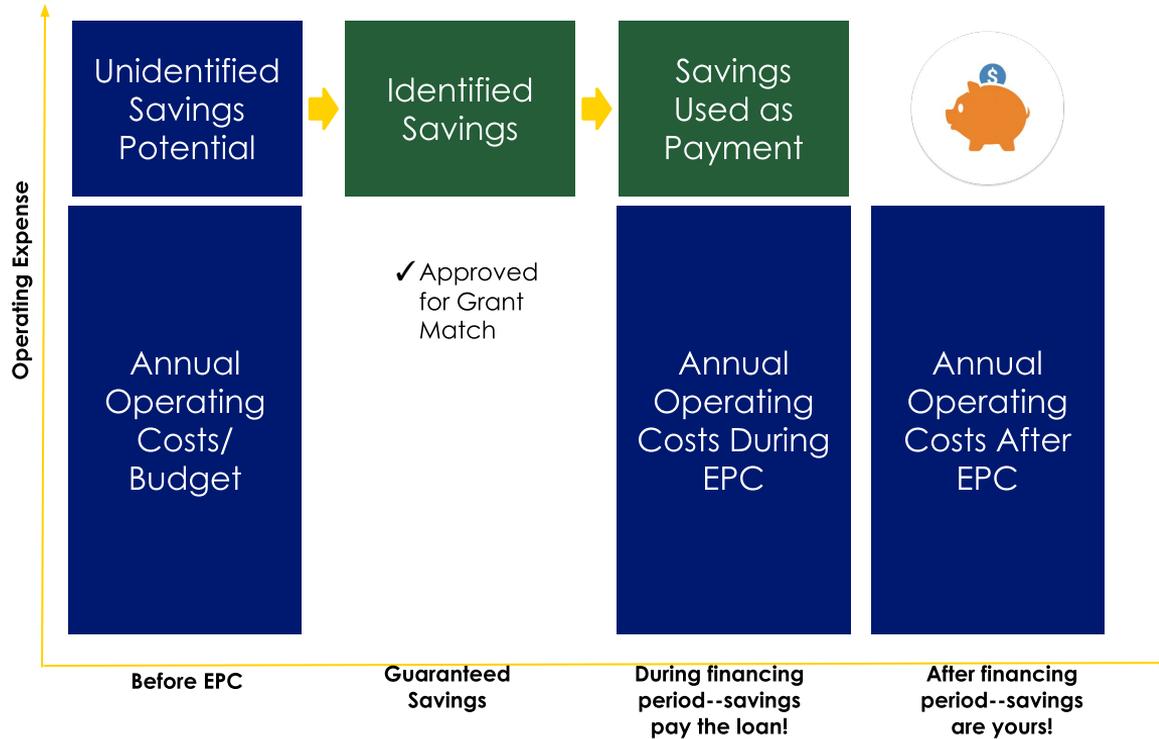
- \$8,301 in utility costs
- 108,000 kWh

### Grants & Incentives

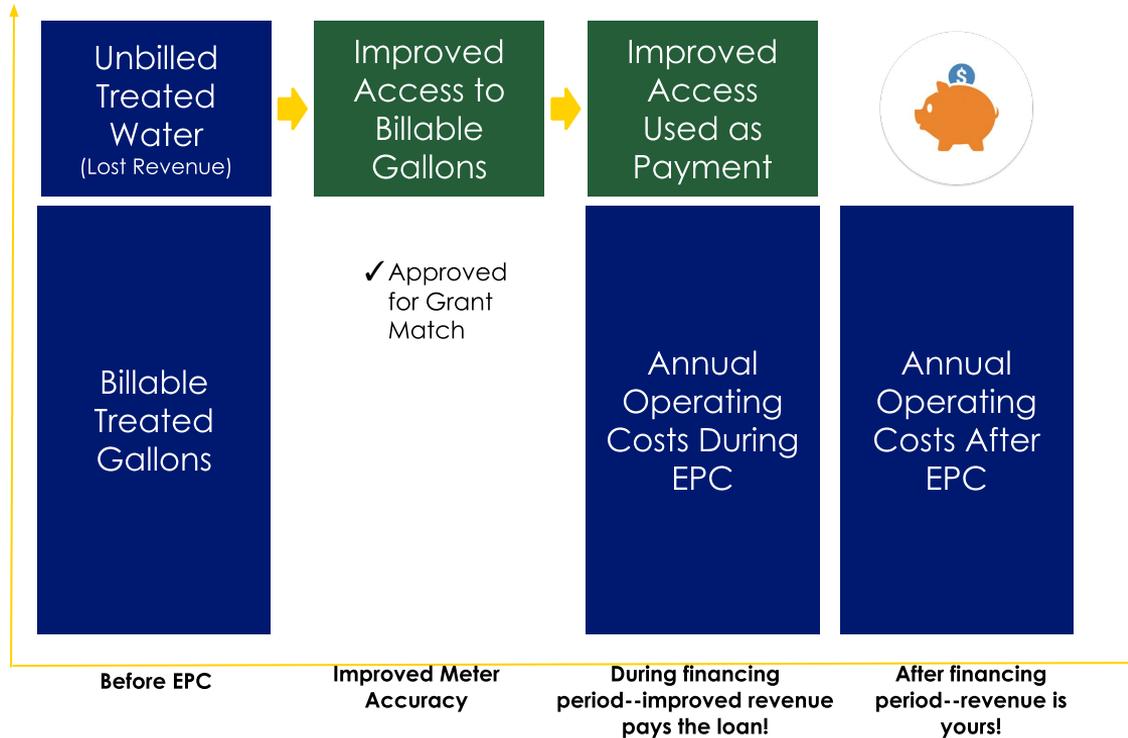
- \$208K in Utility and Government Incentives



# How It Works - Energy Savings Financing Approach



# EPC: Revenue Based Financing Approach



# When to Choose Energy Performance Contracting

## You are a public entity with:

- High Utility Costs
- Capital Improvement or Deferred Maintenance Needs
- Budget Constraints
- Sustainability Goals & Climate Action Plans

## The EPC Program will:

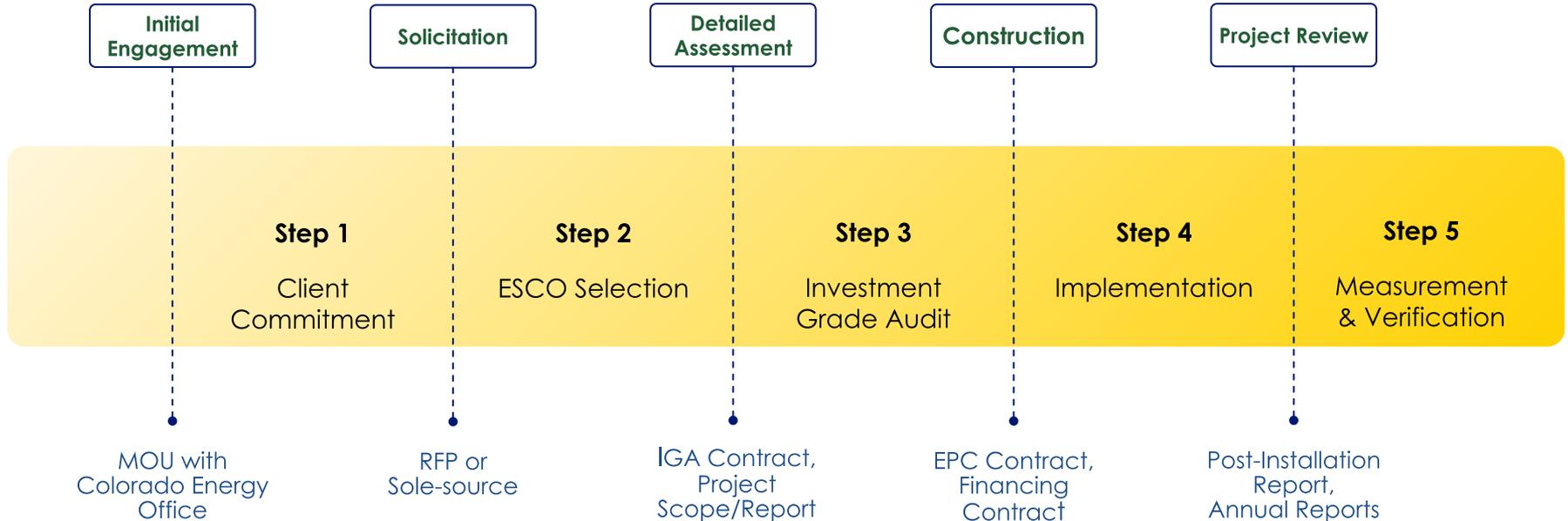
Identify capital improvements opportunities & cost savings

Provide solutions for capital & financing

Help achieve community goals through reduced energy use and operational costs



# EPC: 5-Step Process



# Energy Efficiency Measures

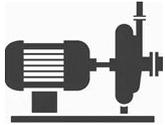
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Lighting Upgrades



Boiler Replacements



Pump & Motor Upgrades



Building Automation System



# Electrification Measures

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Community Solar Gardens, Solar Arrays, Wind, Hydroelectric Generation



Electric Charging Stations/ Zero-emission Vehicles



Building Energy Systems: Geothermal, VRF



Renewable Utility Rates



# Efficiency Measures for WTP & WWTP

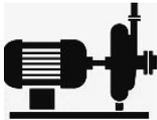
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**Aeration Equipment:** High Efficiency controls, blowers, & diffusers



**Net-zero Energy:** Biogas recovery from digesters, Solar PV and Floating Solar PV



**Pumps:** Resizing of pumps, valve replacement, VFDs



**Water Meters:** AMI, AMR



# Colorado Energy Office - Energy Performance Contracting

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## Presenters



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<https://energyoffice.colorado.gov/energy-performance-contracting>



**Colby Geer**  
President

Year Out Energy



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# YEAROUT

E N E R G Y

A Pre-qualified Energy Service Company (ESCO) Provider for State Agencies & Local Governments  
by the Colorado Energy Office

## WHO IS YEAROUT ENERGY?

### PRACTICAL SOLUTIONS

- **PROFICIENT.** Born from one of the largest mechanical contractors in the Southwest, we embrace and thrive on improving complex building systems and infrastructure.
- **EXPERIENCE.** Fortified by six decades of delivering high performance projects in the region, we have established ourselves as one of the prominent ESCOs serving the Southwest.
- **IMPARTIAL.** We do not manufacture nor represent specific equipment or product lines. This enables us to engineer the best overall solution for each project.

### MEANINGFUL PROJECTS

- **PURPOSE.** Client motivations and objectives take center stage to ensure projects deliver meaningful and impactful outcomes to their communities.
- **PRIVATELY-OWNED.** Our decisions and priorities are guided solely by how to best serve our clients and employees, not profits or shareholder expectations.
- **LOCAL.** Our regional focus, expertise, and workforce enables our team to build strategic enduring relationships with our clients through strong collaboration and unparalleled ongoing support. We proudly serve the communities where we live.

### CONFIDENT OUTCOMES

- **REPUTATION.** Our reputation is unmatched in regard to integrity, reliability, safety, performance, and quality.
- **RIGOR.** Our exhaustive integrated-delivery approach to project development and implementation ensures we accomplish Client objectives, maximize project benefits, and transcend guaranteed outcomes.
- **FINANCIAL CERTAINTY.** No excessive margins or hidden fees, just fair and true open-book pricing.

## SERVING THE SOUTHWEST - REGIONALLY FOCUSED



Yearout Energy – Main Office  
• Albuquerque, NM

Yearout Energy – Colorado Office  
• Littleton, CO

Yearout Energy – Texas Office  
• Royse City, TX

**YEAROUT**  
ENERGY

About YE:

**SERVICES  
PERFORMED**

Today's Focus

- Energy Performance Contracting (EPC)
- Renewable Energy
- Design-Build Construction
- Commissioning & RCx
- Engineering and Consulting
- Infrastructure and Smart Cities
- Distributed Generation / Microgrids
- Energy-as-a-Service (EaaS) / Utility Management
- Grant/Funding Procurement
- Sustainable Wastewater Infrastructure
- Advanced Metering Infrastructure / Water Meter Replacement

## SUSTAINABLE WASTEWATER INFRASTRUCTURE

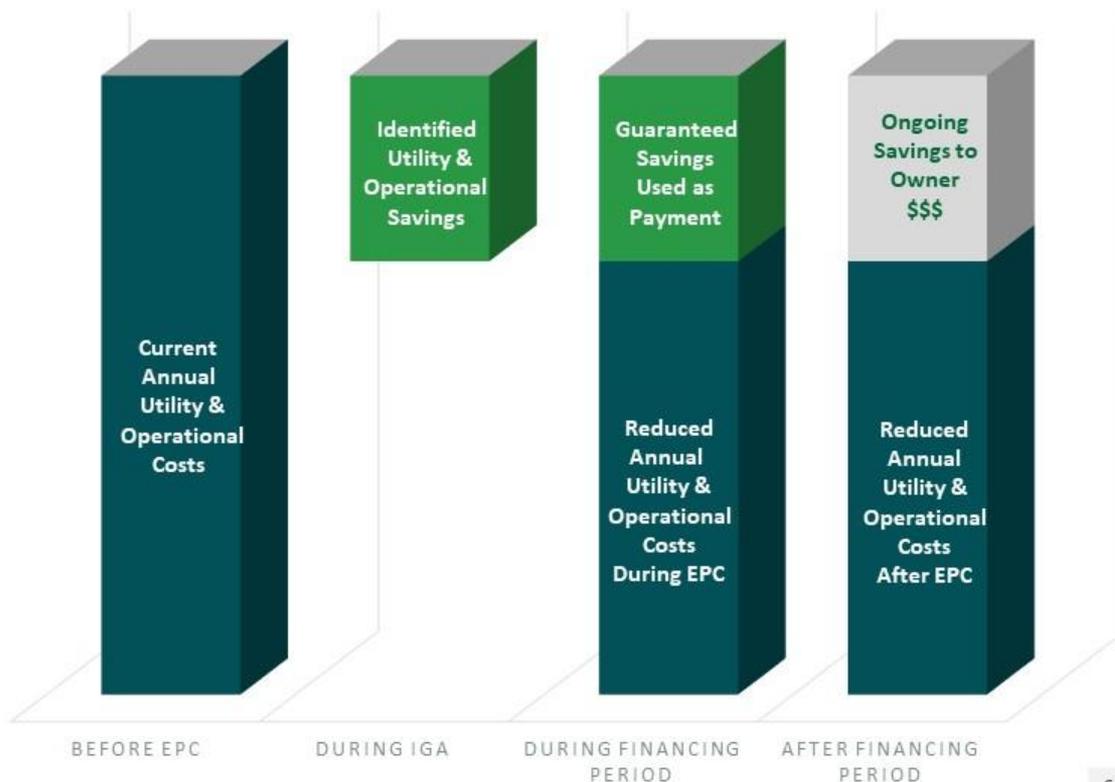
Energy  
Performance  
Contracting  
for Water Resource  
Recovery Facilities  
(WRRF)

- Instead of Making capital improvements as funds become available, EPC provides a way to fund and implement facility-wide, comprehensive and cost-effective improvements all at once using self-generating funds.
- WRRFs across the country have used EPC to:
  - Improve Operations
  - Upgrade Aging Infrastructure
  - Improve the Bottom Line
  - Plan for Future Needs
  - Improve Environmental Performance

# SUSTAINABLE WASTEWATER INFRASTRUCTURE

Energy  
Performance  
Contracting  
for Water Resource  
Recovery Facilities  
(WRRF)

## HOW IS EPC FUNDING ACCOMPLISHED



## OPPORTUNITIES FOR SAVINGS

### Water Resource Recovery Facilities (WRRF)

- Aeration Systems
- Pumping Systems
- Supervisory Control Data Acquisition (SCADA) Controls (monitoring, system automation)
- Energy Production
  - Anerobic Digestion
  - Combined Heat and Power
  - Landfill Gas
- Biosolids Management
- Water Conservation Through Enhanced Reuse
- Building Improvements

## **WATER DISTRIBUTION SYSTEM UPGRADES**

**Advanced  
Metering  
Infrastructure  
(AMI)**

**Water Meter  
Replacement**

- Significant advancements have been made in new meter accuracy and Advanced Metering Infrastructure (AMI) technology continues to evolve.
- For many water utilities the cost of system-wide replacement can be prohibitive because of the capital required to fund it.
- The Colorado Energy Performance Contracting (EPC) program, offered through the Colorado Energy Office, is a practical funding alternative that can help water providers achieve needed water distribution system upgrades without a substantial capital outlay.

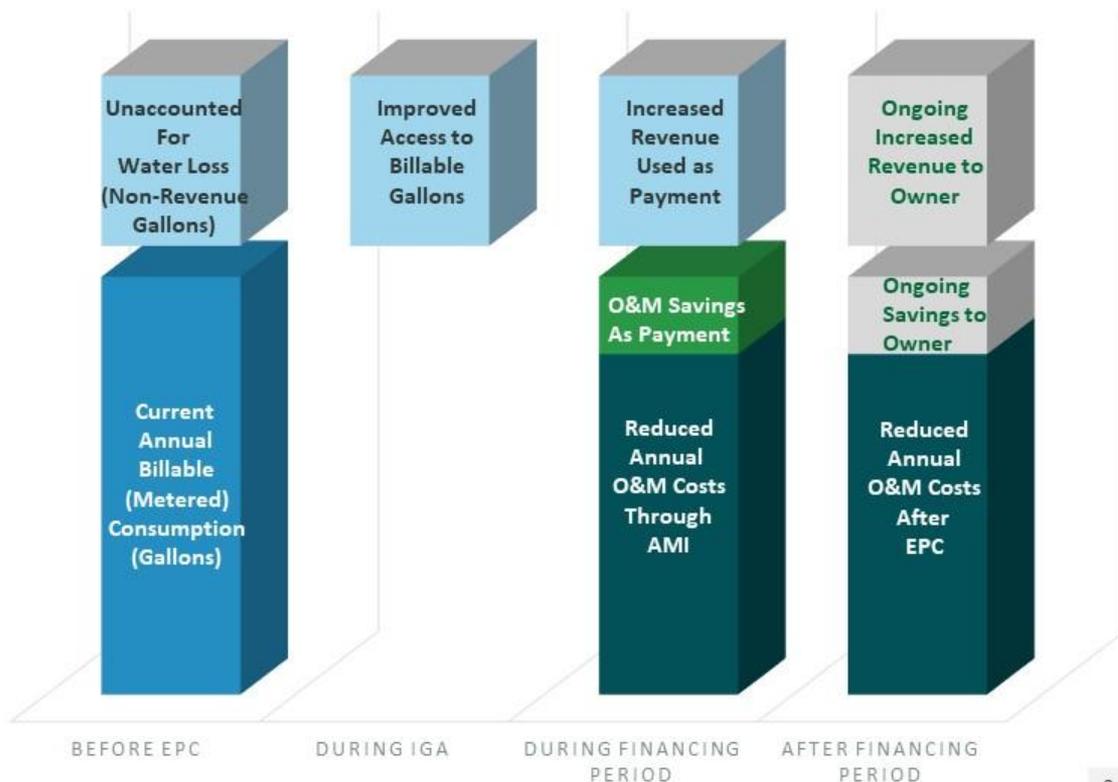
# AMI & WATER METER REPLACEMENT

New meters more accurately measure water use, thereby increasing revenue.

AMI gives providers real-time data and analytics to identify potential water leaks thereby reducing water loss.

Automatic meter reads reduce truck rolls thereby reducing O&M costs.

## HOW IS EPC FUNDING ACCOMPLISHED



Energy Performance Contracting

## INVESTMENT GRADE AUDIT (IGA) / PROJECT PROCESS

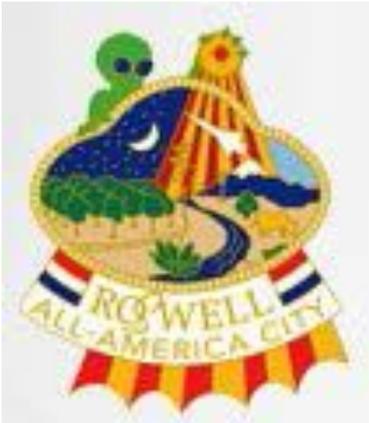


Experience:

## AMI & WATER METER REPLACEMENT

### CASE STUDY

City of Roswell



- Yearout Energy performed an in-depth audit of the existing water meter system to determine inaccuracy and non-revenue water loss from the aging meters.
- A customized retro-fit program was created based on the audit to upgrade over 19,500 meters to a solid state, including an AMI collection system.
- The retro-fit also included the installation of Remote Disconnect valves on all residential meters.
- The recovered revenue resulting from the high accuracy of the new meters will be used finance the project.
- The City can significantly reduce operations and maintenance costs, and view system operations in real-time through a new meter data management program.

## PROJECT COST & SIMPLE PAYBACK

The determination of appropriate proposed project for actual implementation is a result of the economic analysis.

This can be determined by the simple payback, which is investment costs divided by year-one revenue increase and O&M savings.

Meters Replaced	19,500
Recovered Non-revenue Water	416,499 KGAL
Annual Revenue Improvement	\$1,161,472
Anticipated O&M Savings (Year-one)	\$536,530
Total Increased Revenue and O&M Savings	\$1,698,002
Turn-Key Project Amount	\$19,853,557
Simple Payback	11.7 Years



# Project Benefits

- Increased meter accuracy resulting in higher revenue for the City.
- The AMI system will reduce meter-reading costs by eliminating meter reads on each customer's premises. The system has the ability to shut off remotely for all residential meters.
- The AMI system facilitates contactless customer service in a post-pandemic environment.
- The AMI system provides rapid real-time data for the entire meter inventory. This includes continuous data collection, report of tampering, and leakage reporting, all from the comfort & safety of the billing office.
- The detailed data will significantly enhance water conservation programs: customer education, drought restrictions, compliance monitoring and enforcement.

# PROJECT CHALLENGES

- This was the first implementation for the reading infrastructure
  - Confirming integration with the billing software
  - Pushing and pulling information from the infrastructure (2-way communication to the remote disconnect valves)
- Full deployment of Remote Disconnect Valves on the residential meters
  - Additional technological integration, and data management

# Special Offer

Preliminary Water  
Audit

ESPC Project  
Feasibility  
Assessment

CONTACT

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2489 W. Main Street  
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To help water providers determine where opportunities exist to:

- Improve the water distribution system.
- Increase revenue through new meter accuracy.
- Reduce water loss through AMI leak detection and consumption analytics
- Reduce costs associated with system operation.

Yearout Energy will perform what is defined as a “top-down” water audit following the American Water Works Association (AWWA) M-36 Chapter 3 guidelines by using “AWWA Free Water Audit Software v5.0”.

From this tool, Yearout Energy will offer a preliminary project feasibility analysis using the client’s metering inaccuracies and initial evaluation of provider water rates to estimate the financial benefits of installing more accurate meters with AMI technology.



**YEAROUT**  
E N E R G Y

**THANK YOU**

# Q&A

*Please leave your questions in the chat*

**Q&A Facilitator:**

**Christine Berg**

Colorado Energy Office



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*Join us for these upcoming webinars!*

**Climate Action Planning**

January 6, 2021

12 P.M. - 1 P.M.

Sign up at: [www.coresiliency.com/webinars](http://www.coresiliency.com/webinars)



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***THANK YOU!***



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