WALKING THE TALK
of Your Climate Action Plan

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What is Energy Performance Contracting (EPC)?

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

- **25 yrs.**
  - Colorado’s EPC program began in 1997
- **240 M**
  - Public buildings have achieved 240 million energy (kWh) savings
- **$45 M**
  - Communities have realized over $45 million in cost savings
How It Works - Energy Savings Financing Approach

- **Unidentified Savings Potential**
- **Identified Savings**
- **Savings Used as Payment**

**Annual Operating Costs/ Budget**
- Before EPC
- Guaranteed Savings
- During financing period -- savings pay the loan!
- After financing period -- savings are yours!

✓ Approved for Grant Match
Improving Your Facilities

**Traditional Approach**
- Quick Fixes
- Existing Technology
- Piecemeal
- Budget Requests
- Voter Approval

**EPC Approach**
- Comprehensive
- Technology Transition
- New Equipment
- Existing Budget
- Support Climate Goals
Energy Efficiency Measures

- Lighting Upgrades
- Boiler Replacements
- Pump & Motor Upgrades
- Building Automation System

Quicker payback items help pay for capital intensive measures.
Electrification Measures

- Community Solar Gardens, Solar Arrays, Wind, Hydroelectric Generation
- Electric Charging Stations/ Zero-emission Vehicles
- Building Energy Systems: Geothermal, VRF
- Renewable Utility Rates
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
- Help achieve community goals through reduced energy use and operational costs
- Provide solutions for capital & financing

COLORADO Energy Office
WALKING THE TALK
of Your Climate Action Plan
Reducing GHG’s from Local Government Operations

Many local governments have created a climate action plan showing how we could reduce emissions in our communities.

But have we figured out how we are going to walk the talk of GHG reduction from our own operations?
Incremental Steps to Lower Energy Use & GHG emissions

- **Envelope**
  - Reduce leaks
  - Improve insulation
  - Windows and doors

- **Mechanical & Electrical**
  - Lighting Improvement
  - HVAC Electrification
  - Tenant behavior

- **Renewable Energy**
  - On-site PV
  - Off-site renewables

High Energy
Uncomfortable
High Cost

Low Energy
Comfortable
Low Cost
Building Electrification

Buildings must convert to **electric** in order to achieve climate goals.
Avoid the Sunk Cost Fallacy - Utilize life-cycle analysis

Building components useful life vary:
- Boiler: 25 yrs
- Chiller: 15 yrs
- Fan coil: 30 yrs
- Controls: 10 yrs
- Hydronics: 50 yrs

Replacing parts as needed “sinks” costs into existing systems.

Often major system changes are needed to achieve greater efficiency.
Life-cycle Considerations

- Building component Life
  - End of useful life
  - Wear and tear
  - Failure
  - Damage

- Tenant requirements
  - Space needs/ growth
  - Process change
  - Security

- Operating costs
  - More efficient equipment available
  - Maintenance costs increasing/ lower maint. options available

- Goals/ Values
Health & Human Services

1952 Building/ Renovated 2018

- 2012: Efficiency Improvements
- 2018: Electrified
- 2020: Solar Array
- Future: Additional Solar & Battery

Combined Energy Use and GHG's

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<tbody>
<tr>
<td>Natural gas (kWh)</td>
<td>314,937</td>
<td>251,033</td>
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<td>Electricity (kWh)</td>
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<td>Emissions m tons CO2e</td>
<td>112</td>
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Energy Use

GHG emissions
Emissions Reduction Across Entire Portfolio

Collect Data - all energy use should be collected at every building

Set Goals

Identify high energy users

Focus resources on highest energy users & opportunities for biggest chance of improvement - Plan for future & next steps (don’t install a new boiler if you want to electrify in the future)

Report success & build momentum for next project

Re-evaluate goals

Roll energy $ savings into continued improvement & future projects
Gunnison County Building Portfolio

30 Buildings
Energy use reduced by 34% since 2008

- Energy Performance Contracts pay for upgrading equipment & controls
- Strategic goal of saving 10% energy on 1 building each year

9 Buildings
Account for 75% of energy use

- Focus resources on those buildings
- 3 are now all-electric & use ⅓ or less energy compared to 2008
- 6 have solar arrays
- 1 is under renovation & will be net-zero
Reducing Emission from County Operations

Buildings = 49% GHG

24% overall reduction in GHG’s

Buildings = 35% GHG