


BUILD ON EFFICIENCY

Colorado Energy Performance Contracting Program



Energy Performance Contracting for Water Conservation & Water Meters

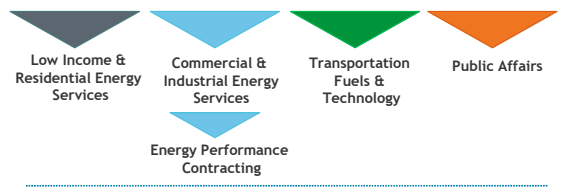

Presented By: Delynne Southern, CEO Technical Specialist



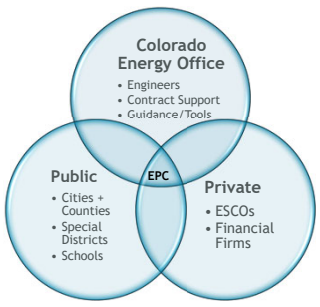
Colorado Energy Office

Overview

Our Mission
To deliver cost-effective energy services and advance innovative energy solutions for the benefit of all Coloradans.

Energy Performance Contracting Partnership



Colorado Energy Office

- Engineers
- Contract Support
- Guidance/Tools



Public

- Cities + Counties
- Special Districts
- Schools

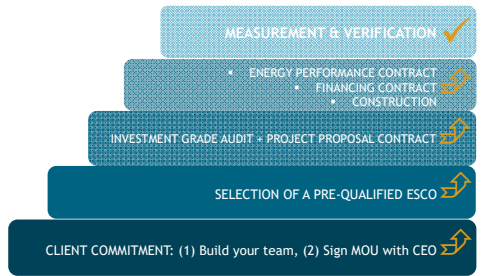
Private

- ESCOs
- Financial Firms


EPC

The EPC 5-Step Process




- MEASUREMENT & VERIFICATION ✓
- ENERGY PERFORMANCE CONTRACT
FINANCING CONTRACT
CONSTRUCTION
- INVESTMENT GRADE AUDIT + PROJECT PROPOSAL CONTRACT
- SELECTION OF A PRE-QUALIFIED ESCO
- CLIENT COMMITMENT: (1) Build your team, (2) Sign MOU with CEO

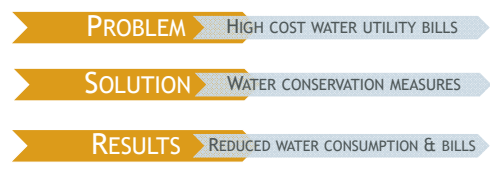




Support from Colorado Energy Office

- ✓ Standardized, state-approved documents
 - Developed by consensus, and approved by State Architect +AG + Controller
 - Toolkits, contracts, guidance, protocols on website
- ✓ Pre-qualified ESCOs
 - Engineering capacity and organizational strength
 - ESCOs contracted with the State
- ✓ CEO advice and technical support
 - MOU outlining CEO support
 - Dedicated engineer throughout life cycle of project-no charge!
- ✓ Private market-based financing
 - Active EPC finance community in CO



Water Conservation for Public Jurisdictions

Water Efficiency Measures



Indoor Fixture Replacements



Cooling Tower Retrofits



Landscape Irrigation Conservation



Outdoor Landscape Improvements



Energy Efficiency Measures



Lighting Upgrades



Boiler Replacements



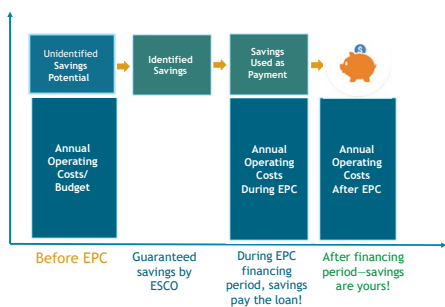
Occupancy Sensors



Operations Scheduling + BAS



Energy Performance Contracting (EPC)

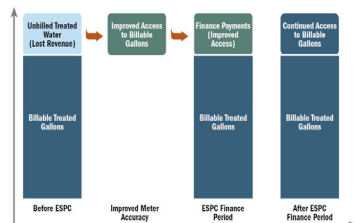


Water Meters for Water Utilities



EPC: Revenue Based Financing Approach

Project cycle of a performance contract water meter replacement project



The results, through FY18

PUBLIC SECTOR EPC PROGRAM RESULTS as of June 30, 2018		
Facility investments	\$574,452,035	
Executed projects	206	
Public clients	152	
State agencies	8/18	
Higher education	19/26	
Counties	23/64	
School districts	57/179	
Municipalities	36/271	
Special districts	9/7	
Public buildings	2576	
Square feet improved	83.1 million sf	
<i>Office space, schools, housing, libraries, jails, hospitals, street lighting, water & wastewater facilities, swimming pools, ball fields</i>		
Electricity (kWh)	193 million	
Natural gas, propane, heating oil & coal (therms)	10.3 million	
Water (kgal)	507,560	
Utility cost savings	\$34.2 million	
Operations & maintenance (O&M) cost savings	\$3 million	
ENERGY + WATER CONSERVATION MEASURES		
HVAC improvements		
Boiler replacements		
Pumps, fans & drivers		
Equipment controls		
Lighting fixtures & controls		
Occupancy sensors		
Operations & scheduling		
Building envelope improvements		
Water efficiency (low flow fixtures, irrigation), evapotranspiration & cooling tower controls, ice machine & laundry conversions, pool covers, valve replacements)		
Street & traffic lights		
Renewable energy installations		



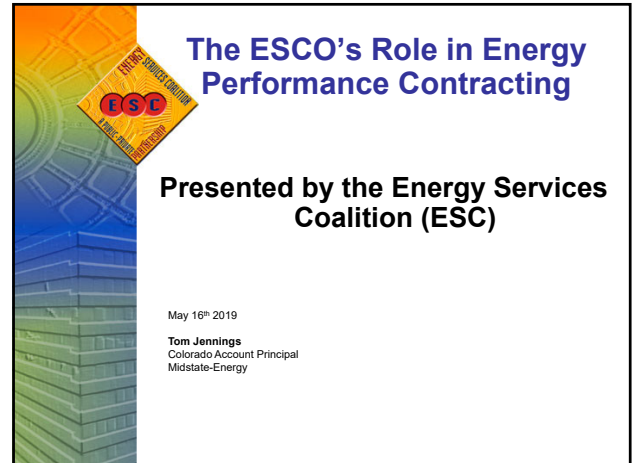


COLORADO
It's our nature.[™]

CEO would love to hear from you!

Contact us at:
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Energy Office

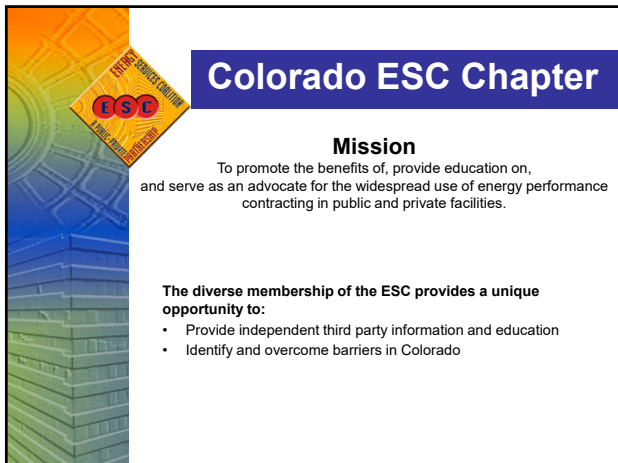


The ESCO's Role in Energy Performance Contracting

Presented by the Energy Services Coalition (ESC)

May 16th 2019

Tom Jennings
Colorado Account Principal
Midstate-Energy



Colorado ESC Chapter

Mission

To promote the benefits of, provide education on, and serve as an advocate for the widespread use of energy performance contracting in public and private facilities.

The diverse membership of the ESC provides a unique opportunity to:

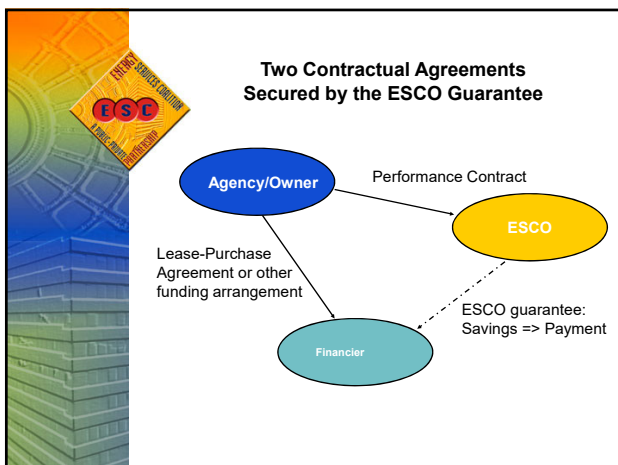
- Provide independent third party information and education
- Identify and overcome barriers in Colorado



Your ESCO Partner

A qualified ESCO combines multiple disciplines into a turnkey approach for your Energy Performance Contract including:


- Identification/evaluation of project opportunities
- Financing and other funding sources (grants/rebates, etc)
- Installation, project commissioning, and construction management
- Measurement and verification of energy savings
- Staff and building operator training
- A savings guarantee that covers the cost of the total project




What Challenges Do You Face At Your Facilities? We've Got The Solution!


Challenges	The Solution	Results
<ul style="list-style-type: none"> • Sustainability Policies • Conservation Concerns • Aging Infrastructure • Rising Operations Costs • Lack of Capital • Code and Regulation • Comfort Issues • Deferred Maintenance • Inadequate In-House Staffing/Training 	<p>The Solution</p> <p>➔</p> <p>Energy Performance Contracting</p>	<ul style="list-style-type: none"> • Reduced Energy & Operational Costs • Modernized Facilities • Reduced Waste • Single Source Responsibility • Guaranteed Results • Project Risk Mitigation • Environmental Compliance • Sustainability Initiatives • Reduced Emissions

Typical Project Selection Profile




<p>Typical Payback Term 13 - 100+ yrs.</p>	<p>Larger Capital Improvements, Lower Savings or Return Items</p> <ul style="list-style-type: none"> Major Mechanical Replacements Capital Improvement Item Priority List Central Plant and/or Heating & Cooling System Replacements Cogeneration CHP, Bio-Fuels and Bio-Mass 	<p>Typical Program Term - 10 to 20 yrs.</p> <p>Shorter term paybacks fund capital intensive Projects.</p>
<p>Typical Payback Term 7-12 yrs.</p>	<p>Medium Capital Cost Medium Return Items</p> <ul style="list-style-type: none"> Air Quality & Emissions Reduction Wastewater Reduction P2, Energy Star, CO2 Safety & Environmental Controls Recycling and Waste Management Medical Equipment 	
<p>Typical Payback Term 0-6 yrs.</p>	<p>Lower Capital Cost + High Return Items</p> <ul style="list-style-type: none"> Building Lighting, Controls, HVAC Equipment & Process Water Conservation Utility Supply Contract Purchasing Support On Site Energy Manager 	

Typical Water Selection Profile




<p>Typical Payback Term 0-6 yrs.</p>	<p>Lower Capital Cost + High Return Items</p> <ul style="list-style-type: none"> Meter Replacements Increase revenue by reducing apparent losses of water that is consumed but not billed. Reduce meter-reading costs by eliminating meter reads on each customer's premises. Facilitate rapid and accurate leak detection throughout the system and consumer level. 	<p>Typical Program Term - 10 to 20 yrs.</p> <p>Shorter term paybacks fund capital intensive Projects.</p>
<p>Typical Payback Term 7-12 yrs.</p>	<p>Medium Capital Cost Medium Return Items</p> <ul style="list-style-type: none"> Indoor Fixtures and Low Flow equipment Landscape Irrigation Improvements Landscape conversion from turf to low water - using plants Water Conservation Measures 	
<p>Typical Payback Term 13 - 100+ yrs.</p>	<p>Larger Capital Improvements, Lower Savings of Return Items</p> <ul style="list-style-type: none"> Cooling Tower Retrofits Provide detailed data on water use to significantly enhance water conservation programs: customer education, drought restrictions compliance monitoring and enforcement. 	

An Alternative Approach for Building Improvements

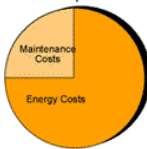


Traditional Design-Bid-Build	Energy Performance Contracting (EPC)
<ul style="list-style-type: none"> Longer design and development process Cost not known until design is complete Lowest bid drives subcontractor selection Many contracts and lack of accountability Design misses cause change orders Customer at risk for costs and savings 	<ul style="list-style-type: none"> Collaborative design reduces development time Project price defined at TEA/IGA completion Collaboration with subcontractors develops best cost solutions Single point of responsibility resides with ESCo No change orders - fixed project price ESCO at risk for costs and savings

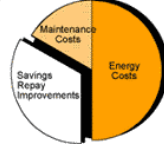
How It Works



Annual Budget Before Improvements




Annual Budget After Improvements



Money otherwise owed to the gas or electric utility pays for equipment!

22


Financing & Funding



- Lease-purchase finance agreement where savings meet annual payments
- Other funding sources (bonds, treasury)
- Supplemental funds for cash infusion to expand the project funding and scope (utility rebates, grants, in-house funds, etc.)
- Blend lease-purchase financing with supplemental funds
- ESCO facilitates financing but does not profit from financing

23

Energy Performance Contract Process



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    graph LR
      subgraph "Phase 1: ~30 days"
        FS[Feasibility Study]
        FS --> ESCO[ESCO Selection]
      end
      subgraph "Phase 2: ~15-90 days"
        ESCO --> IGA[Investment Grade Audit]
      end
      subgraph "Phase 3: ~30 days"
        IGA --> EPC[Energy Performance Contract]
      end
      subgraph "Phase 4: 6 months - 1 year"
        EPC --> IMP[Implementation]
      end
      subgraph "Phase 5: 3 Years +"
        IMP --> VER[Verification]
      end
  
```

~30 days: Feasibility Study (Needs Assessment, Energy Use Analysis, Preliminary Scope, Determine Viability)

~15-90 days: ESCo Selection (Sign MOU with Colorado Energy Office, Select ESCo via Sole Source or RFP)

~30 days: Investment Grade Audit (IGA Contract, Scope Selection, Price and Savings, Project Development)

~30 days: Energy Performance Contract (EPC Contract, Financing Contract, Customer Approvals)

6 months - 1 year: Implementation (Final Design, Award Subcontracts, Order Equipment, Implement Project, Commission)


3 Years +: Verification (Acceptance, Measurement and Verification, Ongoing Support)



ESC / CEO Collaboration



- CEO membership in ESC (CO chapter and National)
- CEO officer posts in ESC (Co-Chair; Outreach Committee; Water Subcommittee).
- Shared participation in EPC contract development and updating
- ESC meetings as a forum for ongoing coordination



Questions?

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