



Colorado Dairy and Irrigation Efficiency Program

Michael Turner

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COLORADO
Energy Office

The Colorado Energy Office

MISSION STATEMENT

The CEO's mission is to improve the effective use of all of Colorado's energy resources and the efficient consumption of energy in all economic sectors, through providing technical guidance, financial support, policy advocacy and public communications.

DEPARTMENT VISION

The CEO's vision is to help Coloradans live more prosperous and healthy lives by promoting innovative energy production and efficient energy consumption practices that are beneficial to the economic and environmental health of the state.

Presentation Agenda

- Origin of Program
- 2014 Colorado Dairy and Irrigation PILOT Program
- Statewide Colorado Dairy and Irrigation Efficiency Program
- Program process, benefits, and logistics
- Questions



Colorado Diary and Irrigation Pilot

In spring 2013 the Colorado Energy Office completed a market study for the agricultural industry.

Key findings included:

- Energy costs account for 7% of the Colorado agricultural industry's overall expenses.
- Irrigation was responsible for 50% of the total electric expenses in 2008 for Colorado's agricultural sector.
- Dairies, while fewer in number, are very energy intensive and operate 24/7/365.



In fall 2013, Governor Hickenlooper directed the Colorado Energy Office and Colorado Department of Agriculture to develop an agricultural energy efficiency program to reduce energy costs in this sector.

Stakeholder Engagement

CEO and Colorado Department of Agriculture worked with numerous stakeholder to develop the program:

Tri-State, Colorado Rural Electric Association, and member co-ops

Industry trade groups including Innovation Center at US Dairy, Western Dairy Association and Colorado Corn Growers



CSU Extension

U.S Department of Agriculture:
NRCS and Rural Development

Pilot Overview

- CEO's pilot brought existing resources and partners together while leveraging new funding and a turnkey approach that made achieving energy efficiency easy.
- CEO engaged an experienced third party contractor to deliver program offerings in 4 co-op territories: Highline Electric, Morgan County REA, Poudre Valley REA, and United Power.
- CEO conducted the pilot in two phases:

Phase I:

No-cost energy audits and Technical support for 12 participants (8 Dairies and 4 producers with powered irrigation).

Phase II:

Implementation of efficiency improvements with a goal of at least 4 participants completing implementation (two dairies and two producers with powered irrigation).

Pilot Overview

- CEO funded 75% of the cost of improvements (up to \$25,000 per participant).
- Funding came from a DOE State Energy Plan grant.
- All work had to be completed by June 30.
- Pilot was designed to resemble CEO's Statewide program.
- At scale the program will leverage existing resources, in particular USDA's Environmental Quality Incentives Program (EQIP) and Rural Energy For America Program (REAP).

Improvements at 8 Dairies

Project Types:

Lighting, Stock Waterers, Radiant Heating, Compressor Heat Recovery, Plate Cooler, On Demand Natural Gas Water Heater, VSD Transfer Pump

Annual Energy Savings: 2,897 MMBtu

Payback Period:

Program incentives reduced the payback period from 4.8 years to 1.5

Estimated Reduction in Energy Use						Payback	
Applicant	Project	Energy Savings (kWh)	Natural Gas Savings (ccf)	Propane Savings (gal)	Energy Savings (MMBtu)	Original Payback	Payback With Incentive
Dairy 1	Lighting	18,589	0	0	77.09	5.7	2.2
	Compressor Heat Recovery	0	4,797	0	494.09	9	3.5
Dairy 2	Lighting	16,204	0	0	55.30	2.3	1.1
	Stock Waterers	32,760	0	0	111.81	1.5	0.4
	Radiant Heating	0	1,209	0	124.53	4.7	.2
Dairy 3	Lighting	16,845	0	0	57.49	6.7	1.7
	Compressor Heat Recovery	0	0	2,958	270.95	4.7	1.3
Dairy 4	Compressor Heat Recovery	0	0	6,546	599.61	3.1	1.2
Dairy 5	Lighting	33,770	0	0	115.26	4	1.1
	Compressor Heat Recovery	0	2,522	0	259.77	12.2	3.2
Dairy 6	Lighting	22,744	0	0	77.63	3.7	0.9
	Compressor Heat Recovery	0	3,688	0	379.86	10.1	2.7
Dairy 7	Lighting	7,226	0	0	24.66	8.7	2.2
	Plate Cooler	23,464	0	0	80.08	2.4	0.6
	VSD Transfer Pump	7,220	0	0	24.64	6.6	1.6
	On Demand Natural Gas Water Heater	39,988	-1,309	0	3.00	2.1	0.5
Dairy 8	Lighting	41,435	0	0	141.42	5.8	4.3
Totals		260,245	10,907	9,504	2,897.19	4.8	1.5

Lessons Learned

CSU Extension analysis (surveys, interviews, and a focus group)

Key Findings

- Reasons for participating: availability of grant funds, ability to install new equipment, and desire to save money
- REAs were key to creating awareness about program
- Producers were unlikely to implement without an audit; 56% of respondents said \$250-\$500 was a reasonable cost share

Highest Value

- Technical assistance
- Streamlined application process
- REA rebate process
- CEO pilot was less bureaucratic than other programs (i.e. USDA)

Colorado Dairy and Irrigation Efficiency Program: Statewide Launch

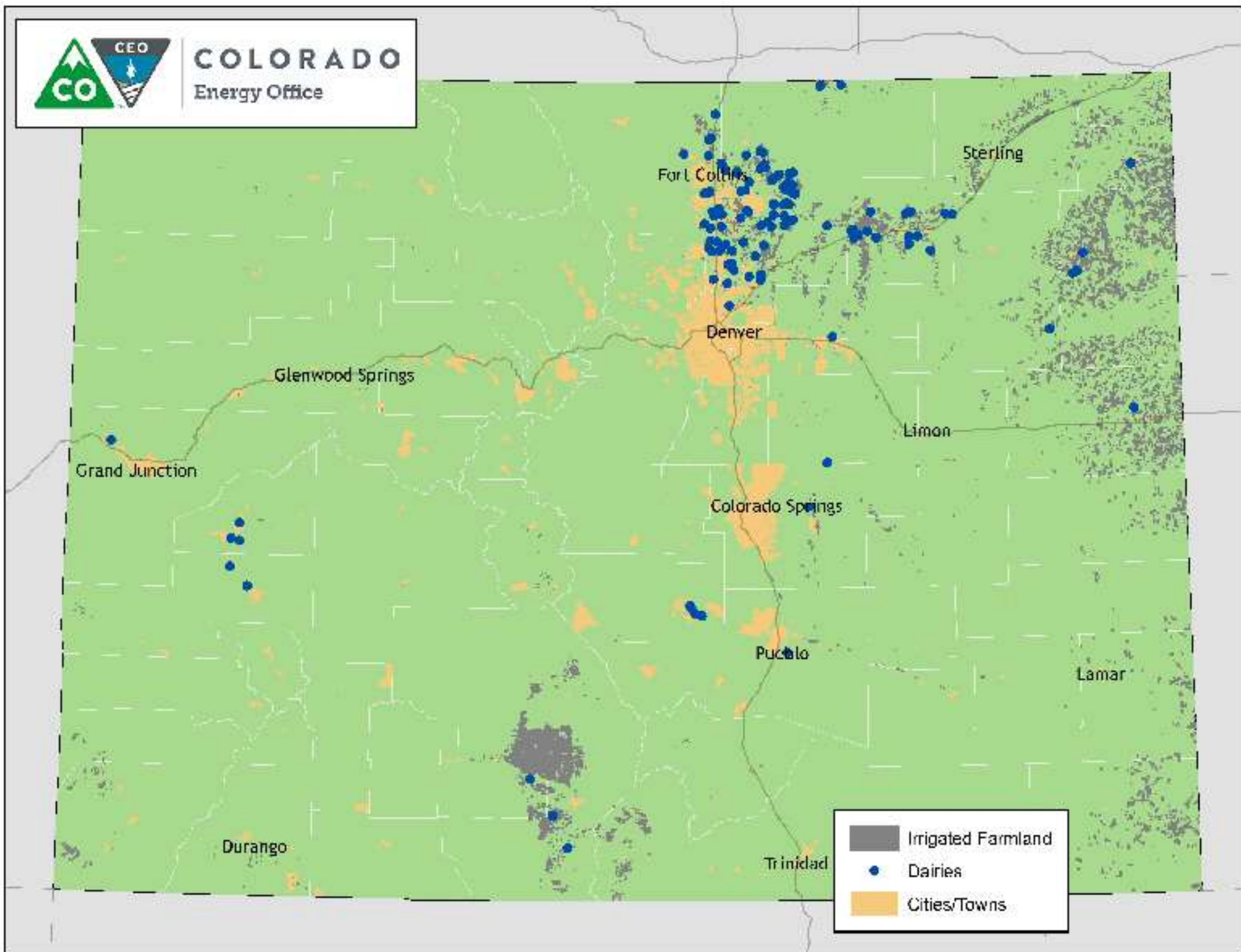
Recommendations factored into expansion

- Extend timeline but keep defined
- Clarify rules, deadlines, and selection criteria
- Increase project cost cap
- Prioritize technical assistance and promotion
- Expand analysis of renewables





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Program Logistics

- Launched in July, 2015
- 80 producers per year for next 3 years
- Program Participants receive:
 - a free energy audit,
 - preliminary renewable energy assessment
 - technical support
 - and access to financial resources that help reduce the upfront cost of energy efficiency improvements.
- Applications online

The Colorado Dairy and Irrigation Efficiency Program

Apply online: www.colorado.gov/energy



About the Program



The Colorado Energy Office has partnered with industry, utilities, and government to launch the Colorado Dairy and Irrigation Efficiency Program. This program makes achieving energy efficiency easy through a streamlined process that connects producers with resources to help offset the cost of improvements.

Producer Benefits



Program participants receive a free energy audit, technical support, and access to financial resources that help reduce the upfront cost of energy efficiency improvements. Program participants will benefit from reduced energy use and utility costs, resulting in a more competitive, sustainable business operation.

Industry Benefits



Colorado's agricultural industry faces direct energy expenses of more than \$400 million annually which accounts for 7% of the industry's overall expenses. This program aims to reduce energy use and costs to Colorado's agricultural producers and improve Colorado's environment.

How it Works

For more information and to sign up, please visit:
www.colorado.gov/energy

Once enrolled, a program specialist will contact you to evaluate your energy options, formulate an energy management plan, and help implement your projects.



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Thank You!



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