

Reduce Operating Costs through Efficiency

Presented by Fort Collins Utilities



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Biz Ed
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Reduce Operating Costs through Efficiency

Agenda

Part 1: Business Efficiency

- Definition
- Motivation

Part 2: Utilities' Business Efficiency Support

- ClimateWise
- Services
- Rebates

Part 1: Business Efficiency

Topics

Efficiency related to energy & water use

- Definition
- Motivation



Definition

Efficiency

$$\text{efficiency} = \frac{\text{output}}{\text{input}}$$

As an example,
a light bulb's efficiency =

$$\frac{\text{lumens}}{\text{watts}}$$

Definition

Efficiency

To improve efficiency,

↑ output or ↓ input

Generally requires an investment (time/money)

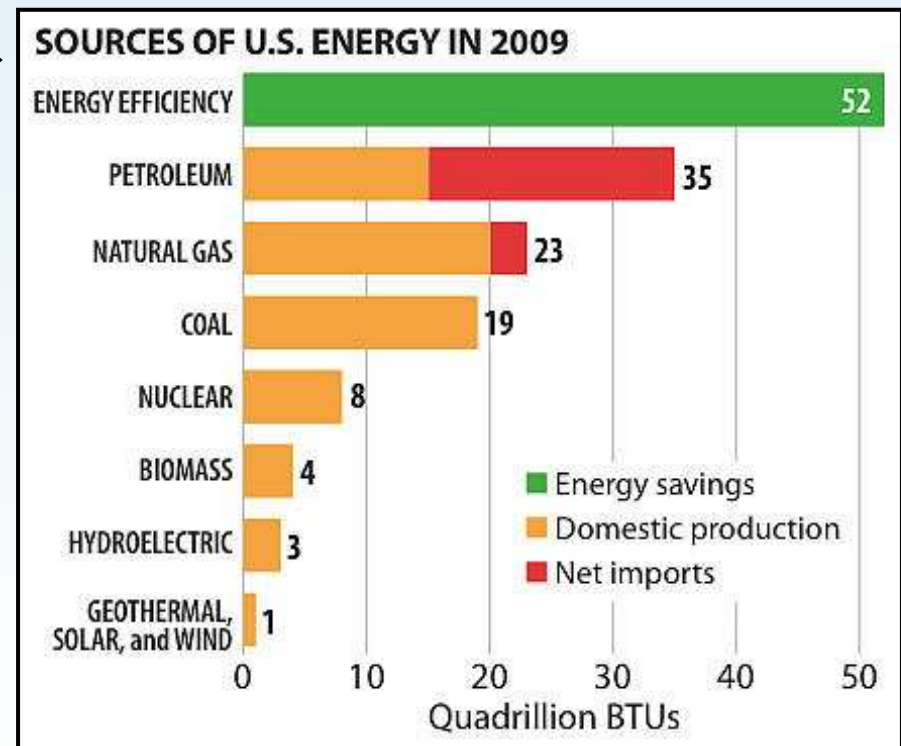
So why increase efficiency?

Different businesses, different motivators

Motivation

Resource Conservation

- Environmental protection
- Cheapest resource →
- Reduce need for new power plants



Motivation

Building Occupants



Possible...

but not required
for efficiency

Motivation

Building Occupants

Efficiency improvements often make systems work better (*or as intended*), increasing:

- Comfort
- Safety
- Productivity





Motivation

Business Investment

Increase property quality and value

- Survey of efficiency projects (2010)

Benefit	New	Retrofit
Lower Operating Costs	13%	8%
Higher Building Value	11%	7%
Better ROI	10%	19%

- Survey of “green” labeled offices (2009)
 - Rent 3% higher
 - Selling price 16% higher

Motivation

Cost Reduction / Avoidance

- Lower use = lower bills
- Avoid surcharges
- Reduce impact of rate increases
- Reduce maintenance costs



=



Part 2: Utilities' Business Support Topics


Technical and financial support

- ClimateWise
- Services
- Rebates

March 2012 Fort Collins Utilities' Business Efficiency Program

Fort Collins Conserves

with Efficiency Programs and Community Leadership.



New cooling efficiency rebates can help you upgrade older less efficient rooftop and condensing units to reduce your facility's cooling costs.

Program Details

- Plan ahead. Rebates must be approved before the project starts.
- Incentives are available until funds are expended in a given year.
- All Fort Collins Utilities commercial electric customers are eligible.
- Equipment must be installed at the customer's service address.
- New construction projects and existing building retrofits are eligible for funding.
- Incentives are calculated based on the amount of summer peak demand savings (based on the hours between 3-7 p.m. in the months of June and August) or annual electric energy savings.
- To verify existing conditions and projected savings, pre- and post-project measurements may be required.
- The program is a collaboration between Fort Collins Utilities and Platte River Power Authority.

Cash Incentives for Energy-Saving Improvements

Save money by saving energy. Unless your business has recently been retrofitted with energy efficient lighting and cooling, it probably costs more than it should to operate. Electric efficiency rebates help you improve the efficiency of your building, save energy and lower your electric bills. Cash incentives and new rebates are available for upgrades that reduce electric demand and energy use, including:

- Lighting
- Air conditioning
- Motor variable frequency drives
- Mechanical equipment
- Building tune up (retro-commissioning)
- Building envelope (windows, insulation and roofing)
- Kitchen, laundry and grocery equipment
- Office equipment/IT
- Custom projects for efficiency upgrades to your facility/operations


Incentives.

Incentives are the greater of \$500 per kilowatt (kW) of summer peak demand reduction or \$0.10 per annual kilowatt-hour (kWh) saved. Typically, the incentive pays 25 to 50 percent of the project costs. Incentive caps may apply.

How it works.

Step 1: Identify projects through a free assessment.
Step 2: Complete application.
Step 3: Install equipment.
Step 4: Verify savings and collect incentive(s).

Fort Collins Utilities will help you every step of the way. Applications are available at fcgov.com/conserves or by calling (970) 226-4000.



Fort Collins Conserves. A Year-Round Activity.

Program Participants

- JAX Outdoors
- Columbine Health Systems
- United Way of Larimer County
- Realtec
- Clay's Ace Hardware
- Colorado State University
- Christ Center Community Church
- Wilbur's Total Beverage

fcgov.com/conserves • utilities@fcgov.com • (970) 221-6700 • TDD (970) 224-8003

Learn more at fcgov.com/business-efficiency or contact Utilities

ClimateWise

Overview

- Promotes business conservation
- Open to all Fort Collins businesses
- Partners receive:
 - Public recognition
 - Technical support
 - energy
 - solid waste
 - water
 - transportation
 - Peer networking

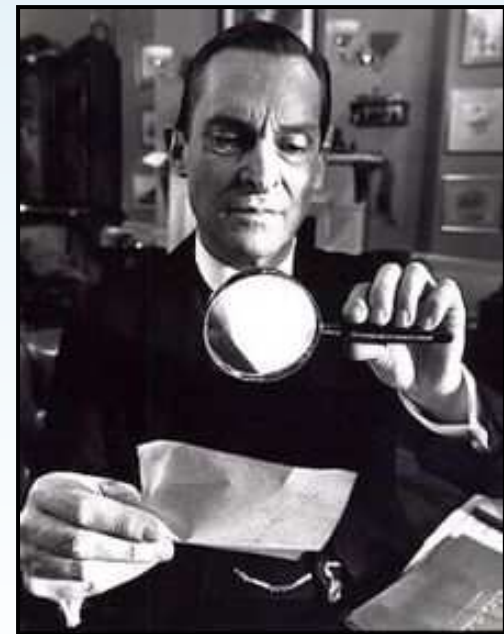


Services

Facility Assessment

Great 1st step - connects to rebates & other services

- Free to Utilities' customers
- Confidential
- Comprehensive



Sign-up for an assessment at fcgov.com/assessments

Services

Facility Assessment

Site Visit

- 2-3 hours
- Covers:
 - energy
 - water
 - solid waste *(ClimateWise)*
 - transportation *(ClimateWise)*

Energy	Water
<input type="checkbox"/> Historical Energy Use	<input type="checkbox"/> Historical Water Use
<input type="checkbox"/> Previous Improvements	<input type="checkbox"/> Previous Improvements
<input type="checkbox"/> Envelope (air seal)	<input type="checkbox"/> Equipment (dishwashers, clothes)
<input type="checkbox"/> Space Heating & Cooling	<input type="checkbox"/> Fixtures
<input type="checkbox"/> Lighting (interior)	Faucets
<input type="checkbox"/> Equipment (computers, copiers)	Toilets
<input type="checkbox"/> Refrigeration (cooling)	Urinals
<input type="checkbox"/> Compressed Air	Showers
<input type="checkbox"/> Water Heating (systems, pumps, tanks)	

Solid Waste	Transportation
<input type="checkbox"/> Bins / Dumpsters (quantity, location)	<input type="checkbox"/> Employee Transit (realistic? - car, bus, etc.)
<input type="checkbox"/> Materials Recycled (paper, cardboard, etc.)	<input type="checkbox"/> Alternative Transit Support (bicycles, etc.)
<input type="checkbox"/> Hazardous Materials	<input type="checkbox"/> Alternative Transit Incentives (Subsidies, etc.)
<input type="checkbox"/> Composting (sufficiency)	<input type="checkbox"/> Business Vehicles Operated/Maintained
<input type="checkbox"/> Employee Education / Awareness	<input type="checkbox"/> Employee Education / Awareness
<input type="checkbox"/> Products with Recycled Content	
<input type="checkbox"/> Source Reduction	

Services


Facility Assessment

Report

- “A Plan to Save”
- Two parts:
 - Facility Overview
 - Conservation Opportunities

Facility Assessment
A Plan to Save: Reduce costs while minimizing environmental impacts

Sample Business Name
123 East Road Street, Fort Collins, CO 80521



Assessment Date:
April 1st, 2011

Assessment Team:
Michael Authier – Fort Collins Utilities
(970) 221-6768; mauthier@fcgov.com

Facility Contacts:
Contact Name – Sample Business Name
(970) 123-4567; ContactName@SampleBusiness.org

Lucas Mouttet – Fort Collins Utilities
(970) 221-6123; lmouttet@fcgov.com

Matt Gibbs – ClimateWise
(970) 416-2230; m.gibbs@fcgov.com

Services

Project Assistance

Technical support for efficiency projects

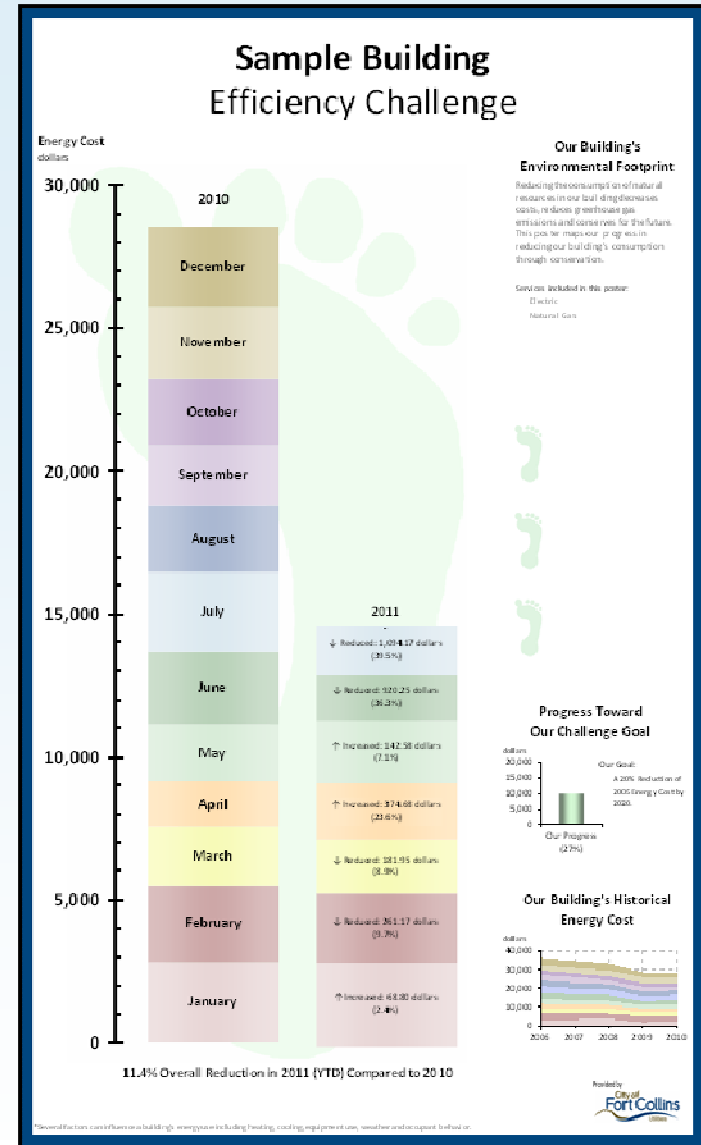
- Free to Utilities' customers
- Covers:
 - questions / technologies
 - calculations (cost/savings)
 - utility history analysis

Services

Efficiency Challenge

Free behavior focused education

- Customized presentations
- Tools to track & present progress



Services

Building Tune-up

Retro-commissioning

- Available to Utilities' electric customers
- Targets no/low cost improvements
 - HVAC
 - controls adjustments
 - building scheduling
 - plug loads
 - water



Services

Building Tune-up

Implementation Cost

- Utilities pays 75% ($\$0.15/SF$)
- Customer pays 25% ($\$0.05/ft^2$ up to $\$12,000$)

Energy savings varies

but may range from 10-15% on average

Services

Design Assistance

Targets opportunities in the design process

- Support for additional design work
- Incentives for efficiency upgrades

Available to Utilities' electric customers

- New buildings
- Additions
- Remodels / Renovations



Rebates

General Process

Most rebates follow similar process

1. Identify a project
2. Complete the application
 - Pre-approval required if rebate above \$1,000
3. Install equipment
4. Verify installation/savings
5. Collect the rebate



Rebates

Water Fixtures

- Free Faucet Aerators (*0.5 & 1.0 gpm*)
- Toilets and Urinals (*\$50-\$100*)
- Irrigation Audit (*\$100 – twice a year*)
- Sprinkler Equipment (*\$3-\$45*)
- Clothes Washers (*\$125-\$250*)
- Dishwashers (*\$250*)



Rebates

Food Service Equipment

- Ovens, Griddles, Steamers, Fryers (\$75-\$1,000)
- Refrigerators & Freezers (\$50-\$125)
- Vent Hood Controls (\$200 / fan hp)
- Ice Machines (\$200-\$300)



Rebates

Grocery Equipment

- Cooler/Freezer Improvements (\$30-\$50)
 - auto closers
 - gaskets
 - strip curtains
- Cooler/Freezer Upgrades (\$8-\$1,250)
 - anti-sweat heater controls
 - EC motors



Rebates

IT & Office Equipment

- Smart Strip Surge Protector (\$7)
- Motion Sensing Surge Protector (\$15)
- Vending Machine Occupancy Controls (\$70)
- Server Virtualization (\$250 / server)
- Thin Client PC (\$50)



Rebates

Lighting

Based on
wattage
reduction

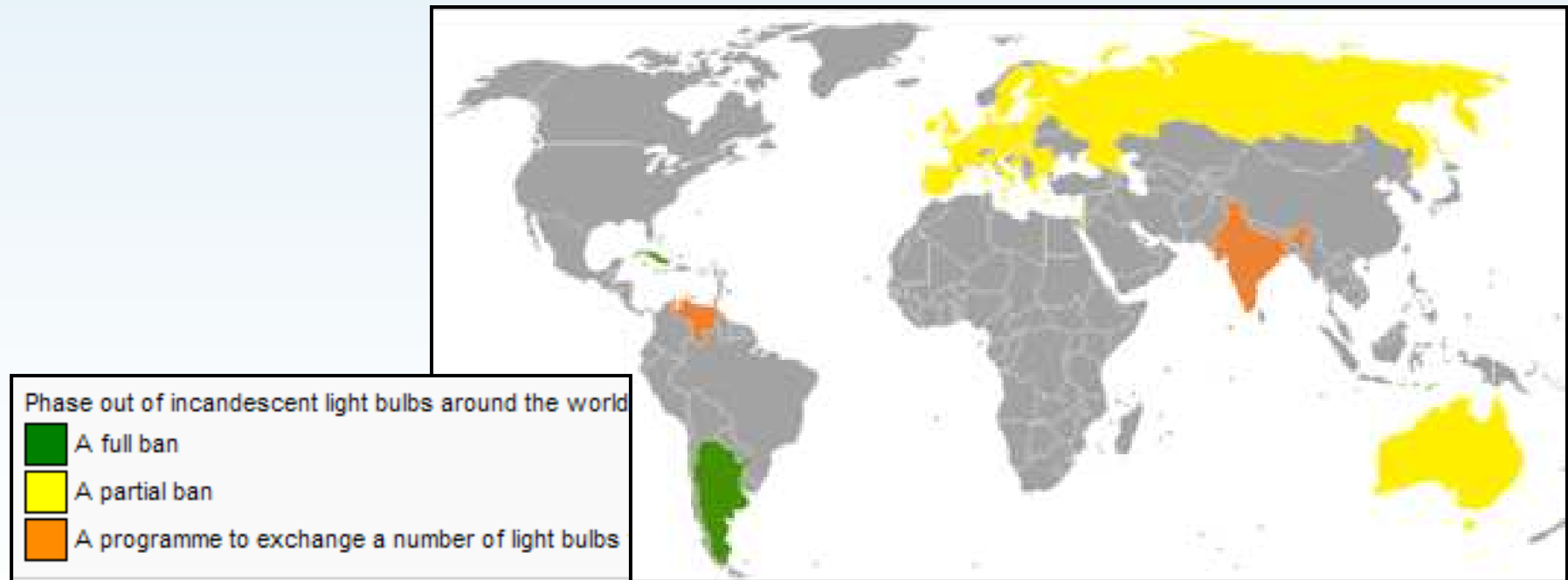
Typically
covers
25-50% of
project cost

Fixture type		\$/Watt*
4 ft linear, 1 to 4 lamp, T12 /magnetic ballast	4 lamp	\$0.35
	3 lamp	\$0.40
	1, 2 lamp	\$0.45
8 ft linear, 1 to 4 lamp, T12 /magnetic ballast		\$0.50
2, 4, to 8 ft linear, 1 to 4 lamp, T8 /standard electronic ballast		\$0.55
Screw-in CFLs		No longer available
GU24 CFLs with conversion kit		\$0.10
Automatic Controls		\$0.50
LED replacement lamps		\$0.30
LED hardwire fixtures		\$0.50

Rebates

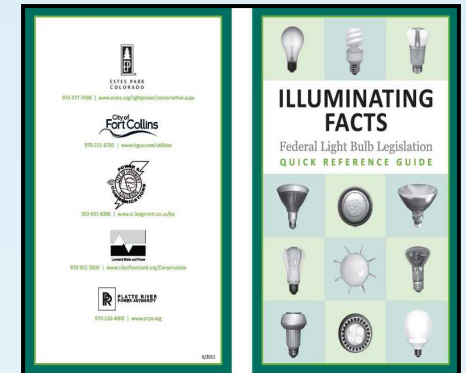
Lighting


New lighting legislation implemented soon
Similar to efforts in other countries



Rebates Lighting

Example of U.S Lighting Legislation



	T12	F34	Can no longer manufacture	88-89 Lumens per Watt
		F40		
		F96	7/14/2012	Linear fluorescent lamps less than four feet long are not affected.
	T8	F32		
		F96	Inventory sellable until depleted	
NEW UPGRADES:		Standard T8 lamp and electronic ballast		Low wattage T8 lamp and low ballast factor electronic ballast
Watts		32		25-28
Energy Reduction		30%		60%
Life (hours)		20,000		30,000
Lifetime Savings`		\$2		\$5

Rebates

Lighting

Rebates related to phased out technology
still available (*for now...*)



New Rebate for Delamping

A \$0.10 per watt reduction bonus rebate
for the use of retrofit kits for fluorescent fixtures

Temporary Bonus Rebate

50% bonus on new projects finished by 12/31/12

Rebates

Lighting Side Note

New Rebates for Cold Cathode Lamps (CCFL)

- Longer life - up to 25,000 hours, 4X CFLs
- Fully Dimmable
- Instant "On"
- Less flicker
- Not affected by frequent on-off cycles
- A fraction of CFL mercury content



Rebates

Building Envelope

- Window Film (\$1.00 per glass ft²)
- Replacement Windows (\$1.50 per glass ft²)
- Roof Insulation (\$0.16 per ft²)
- Wall Insulation (\$0.03 per ft²)
- Cool Roofs (\$0.09 per ft²)



Rebates

HVAC

Cooling Efficiency

Equipment Type and Cooling Capacity (tons)	(Btu/h)	Minimum Efficiencies & Incentives			Incremental	
		Peak Efficiency	Seasonal or Part-Load Efficiency	Base Incentive (\$/ton)	Increment	Incremental Incentive (\$/ton)
Split/Unitary Cooling Equipment						
<5.4 tons, split system	<65,000	12.5 EER	15.0 SEER	\$100	0.1 SEER	\$5.00
<5.4 tons, unitary	<65,000	12.0 EER	15.0 SEER	\$100	0.1 SEER	\$5.00
5.5 - 11.2 tons	65,000 - 134,999	12.0 EER	13.8 IEER	\$150	0.1 IEER	\$5.00
11.3 - 19.9 tons	135,000 - 239,999	12.0 EER	13.0 IEER	\$150	0.1 IEER	\$5.00
20 - 63.3 tons	240,000 - 759,999	10.6 EER	12.1 IEER	\$150	0.1 IEER	\$5.00
Packaged Terminal Air Conditioning (PTAC) Equipment						
<4.2 tons, PTAC	<50,000	11.0 EER	n/a	\$50	0.1 EER	\$5.00

*Economizer - \$250 if added to existing or replacement unit

Rebates

HVAC

Variable Frequency Drives

Motor Capacity (hp)		Incentive Rate (\$/hp)		
Min	Max	Fan	Pump	Other
5	7.4	\$120	\$120	*
7.5	9.9	\$100	\$100	*
10	14.9	\$100	\$100	*
15	20	\$85	\$85	*
20		*	*	

A (*) Indicates a custom rebate may be available



Rebates

Custom Projects

Includes projects not already covered by rebates

Water Projects

- 25% of equipment replacement cost
- Replacement must use >20% less water

Energy Projects

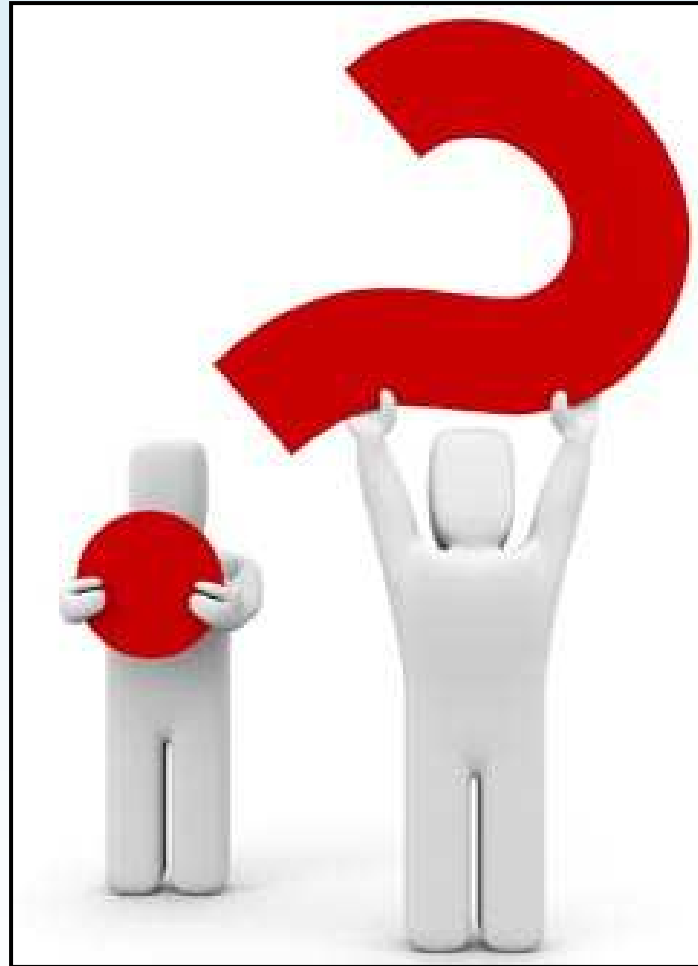
- 10¢ per annual kWh saved
or \$500 per summer peak kW reduced

Rebates

Potential Future Rebates

- Motors
- Air compressor VFDs
- Demand control ventilation
- Appliances (Combined Water & Energy)
- Advanced rooftop unit controls
- VFD calculator for motors > 20 hp
- Insulation, hp windows, perm. affixed shading
- Evap-cool hybrid or in/direct & after market add-ons

Thank You Questions?



Learn more at fcgov.com/business-efficiency or contact Utilities