

NW Regional Public Utility Behavior Based Energy Efficiency Programs Conference Call
June 19, 2013

Behavior Based Energy Efficiency - Lessons Learned from Fort Collins Utilities

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Next Generation Information Feedback and Behavior Change Programs

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Bonneville Power Administration Webinar
June 19, 2013



Fort Collins Utilities

Fort Collins Utilities provides electricity, water, wastewater, stormwater and financing services

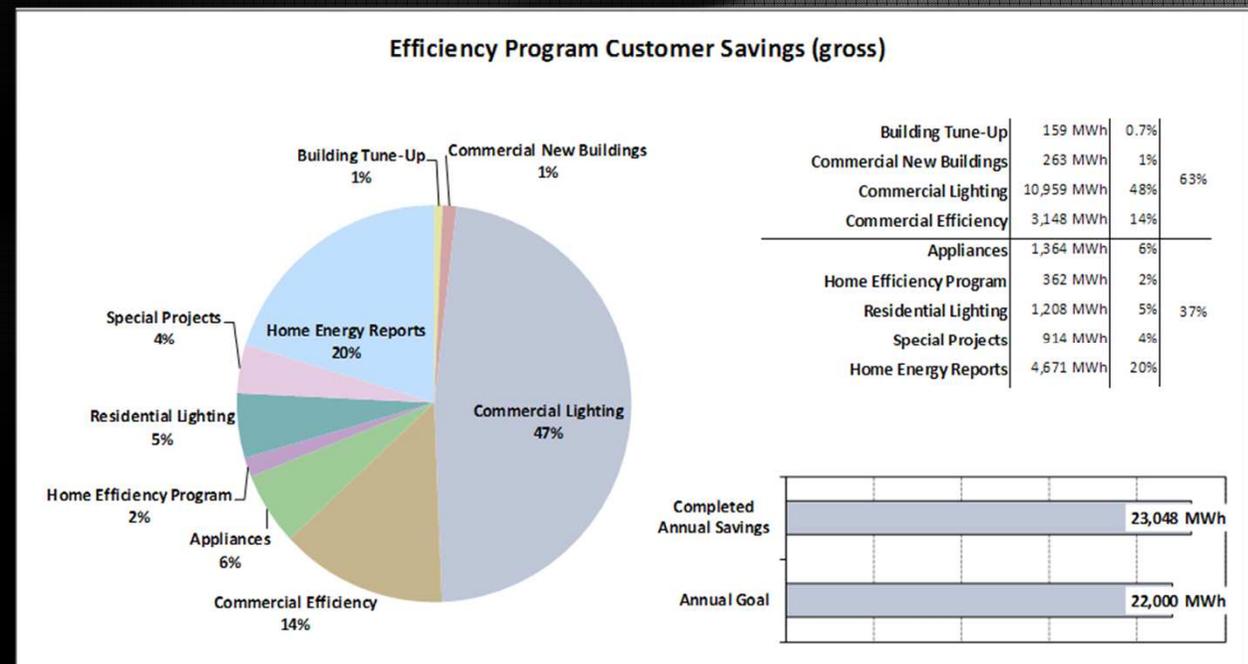
Citizen-owned, electric utility established 1935, ~64,000 customers

Highly educated, environmentally aware customers



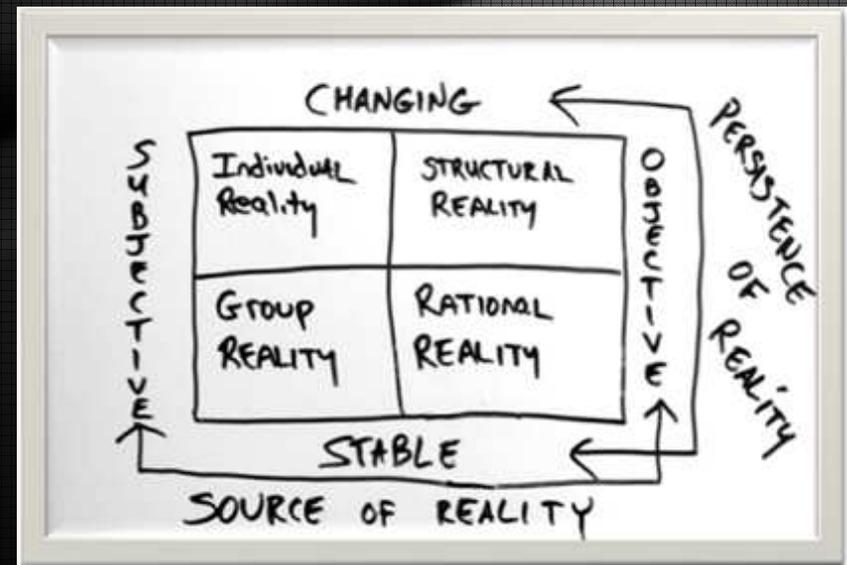
Fort Collins Efficiency Portfolio

- 16 or 17 of the 18 best practices programs from SWEEP's new study (The \$20B Bonanza)
- 2012 results, 23 GWh annual savings, 1.5% of sales, 2.2 cents/kWh
- Details at fcgov.com/what-we-do



Energy Policy Goals

- Top down “inventory” approach
 - Carbon emissions basis
 - Everything counts
 - 20% below 2005 by 2020
- Bottom up “DSM” approach
 - Attribution drives what counts
 - Portfolio savings at least 1.5% of community electric use



Where are the opportunities?



- Efficiency
 - Technology grows new low-hanging fruit
 - Replacement cycles are long
- Conservation
 - Saving 10% or more is "easy" but,
 - can we spend money on it?
 - can we prove that it works?

Experience and Lessons Learned

- Program
- Type
- Measurement
- Experience
- Lessons

- Home Energy Reports
- Business Energy Challenge
- FortZED Community Challenge
- Poudre School District
- And a few more

Program: Home Energy Reports

- Delivered in partnership with O-Power
- Type
- Residential neighbor comparison
- Measurement
- Statistical sample comparison
- Experience
- Three years
- Lessons
 - It works
 - Leaves many customers out
 - Sampling become increasingly difficult over time

City of Fort Collins
Utilities

Home Energy Report
Account number: 475836-62047
Report period: 08/21/12-09/19/12

We are pleased to provide this personalized report to help you save energy.

The purpose of the report is to:

- Provide information
- Help you track your progress
- Share energy efficiency tips

This information and more is available at fcgov.com/energyreports

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JOHN RHELAN
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Last Month Neighbor Comparison | You used **18% LESS** electricity than your efficient neighbors.

Category	kWh
YOU	315 kWh*
Efficient Neighbors	385
All Neighbors	765

* kWh: A 100-Watt bulb burning for 10 hours uses 1 kilowatt-hour.

How you're doing:
▶ **GREAT** 😊 😊
Good ☺
More than average

Who are your Neighbors?

- **All Neighbors:** Approximately 100 occupied nearby homes that are similar in size to yours (avg 2,360 sq ft) and have gas heat
- **Efficient Neighbors:** The most efficient 20 percent from the "All Neighbors" group

Neighbor Efficiency Rank

More Efficient ←

Your Rank: 13, 12, 15, 22, 23, 11

★ You are in the top 20%. Great job!

Your rank: **# 11**

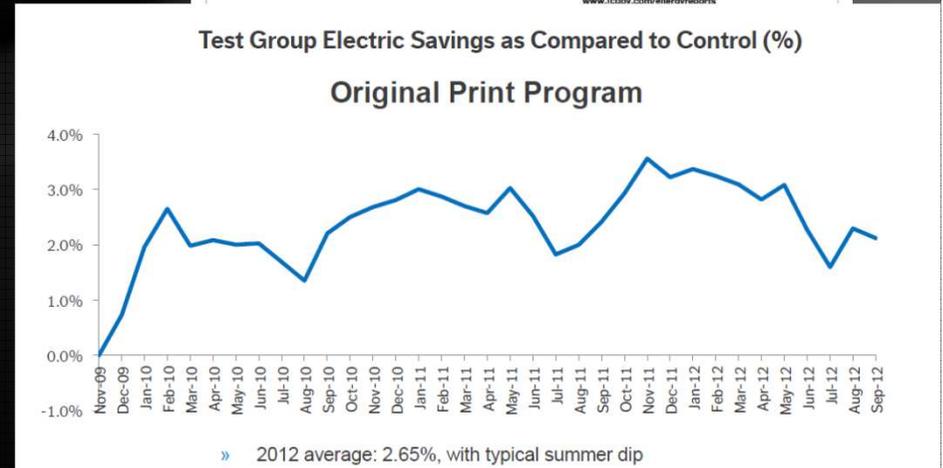
Out of 100 neighbors
#1 is the most efficient

Less Efficient →

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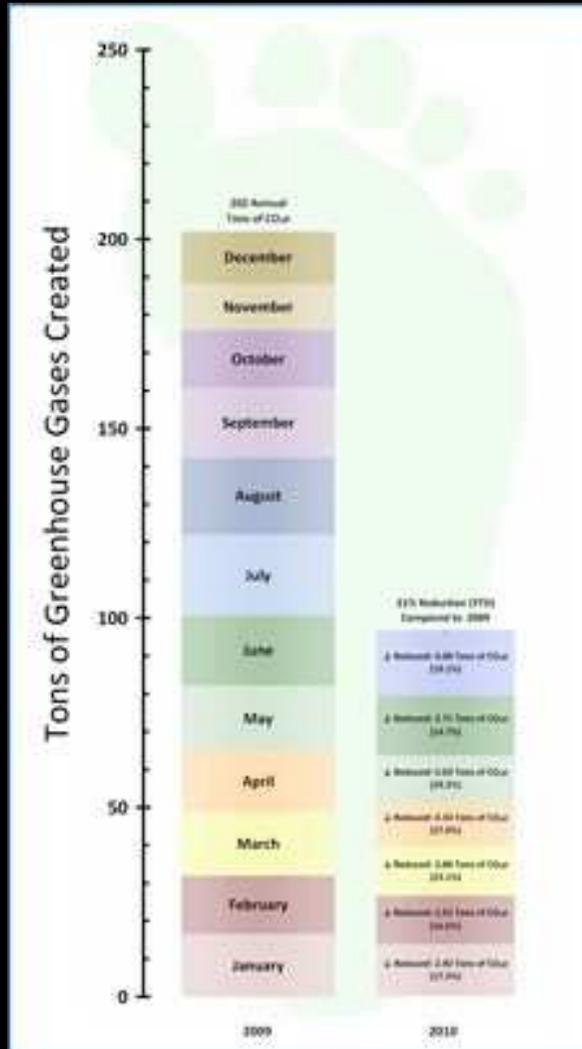
Your rank is calculated each bill period.
See the Neighbor Comparison section for details about your neighbors.

Looking for ways to stay at the top?
www.fcgov.com/energyreports



Program: Efficiency Challenge

- AKA Employee Engagement
- Type
 - Short-term conservation challenge for businesses
- Measurement
 - It depends
- Experience
 - Approximately 10 projects
- Lessons
 - Businesses like it
 - Can be adapted for large and small
 - Typically can't measure savings



Program: FortZED Community Energy Challenge

- Grassroots effort
- Type
- Pledge plus house parties plus neighborhood competition
- Measurement
- In theory
- Experience
- 2 year project, 2000 pledges
- Lessons
 - No data collection plan
 - Unsustainable grassroots model
 - No apparent savings

FORTZED COMMUNITY ENERGY Challenge TAKE IT TO ZERO

WE RECOMMEND COLLECTING YOUR UTILITY (ELECTRIC AND GAS) BILLS FROM THE PREVIOUS YEAR TO MONITOR CHANGES IN YOUR MONTHLY ENERGY USE AS YOU IMPLEMENT YOUR CHALLENGE. PLEASE CHECK THE APPROPRIATE BOXES BELOW.

REBATES AVAILABLE
TAX CREDITS AVAILABLE

BEGINNER PLEDGE
COMPLETE AT LEAST 10 out of 15 ACTION ITEMS

- 1 INSTALL WEATHERSTRIPPING on exterior doors and windows
- 2 ADJUST THERMOSTAT to 78°F in summer and 68°F in winter
- 3 REPLACE incandescent LIGHTS with CFLs or LEDs
- 4 LOWER hot water HEATER TEMPERATURE to 110°F
- 5 CLEAN your REFRIGERATOR COILS
- 6 SET your REFRIGERATOR to no less than 38°F and the freezer to no less than 5°F
- 7 RUN your DISHWASHER only when full, turn off the heated dry cycle.
- 8 LET THE SUN SHINE in during winter, and use blinds or window coverings during summer
- 9 INSTALL MOTION SENSORS on outdoor porch lights
- 10 TURN OFF LIGHTS when not in use
- 11 OPEN WINDOWS at night and close during the day for natural cooling
- 12 USE a POWER STRIP when turning off computers, TV, stereos & appliances
- 13 ENABLE the POWER MANAGEMENT FEATURES on your computer
- 14 REPLACE -or- CLEAN the FILTER on your furnace monthly
- 15 SIGN UP a NEIGHBOR to take the FortZED Community Energy Challenge pledge.

INTERMEDIATE PLEDGE
COMPLETE AT LEAST 5 out of 11 ACTION ITEMS

- 1 SCHEDULE a low-cost HOME ENERGY AUDIT for only \$60, contact Fort Collins Utilities
- 2 INSTALL & ACTIVATE a PROGRAMMABLE THERM
- 3 REPLACE an older COMPUTER, MONITOR or PE
- 4 BUY ENERGY STAR REFRIGERATOR, CLOTHES
- 5 RECYCLE a second REFRIGERATOR or FREEZER
- 6 PLAN & MODIFY LANDSCAPING to shade home
- 7 GET a "Check-ME" AIR CONDITIONING TUNE
- 8 CHECK OUT an ENERGY METER from the library
- 9 AIR DRY CLOTHES on a line
- 10 PURCHASE LOCAL OFFSETS via the Colorado C
- 11 APPLY for an ENERGY STAR MORTGAGE or refi

ADVANCED PLEDGE
COMPLETE AT LEAST 3 out of 14 ACTION ITEMS

- 1 INCREASE/IMPROVE your home's INSULATION
- 2 HAVE your home professionally AIR SEALED to
- 3 INSTALL HIGH EFFICIENCY WINDOWS
- 4 INSTALL a whole HOUSE FAN for summer cooli
- 5 SEAL & INSULATE all AIR DUCTS
- 6 INSTALL a tubular SKYLIGHT for natural day-l
- 7 INSTALL ENERGY STAR or HIGH EFFICIENCY F
- 8 INSTALL a HIGH EFFICIENCY FURNACE MOTOR
- 9 INSTALL a HIGH EFFICIENCY HOT WATER HEAT
- 10 INSTALL a SOLAR THERMAL DOMESTIC HOT WATER
- 11 INSTALL a SOLAR SPACE HEATING SYSTEM
- 12 INSTALL a SOLAR ELECTRIC PHOTOVOLTAIC (PV)
- 13 INSTALL ground source HEAT PUMP
- 14 INSTALL small wind GENERATOR

WHICH PACK DO YOU RUN WITH?

MAP HABITAT KEY

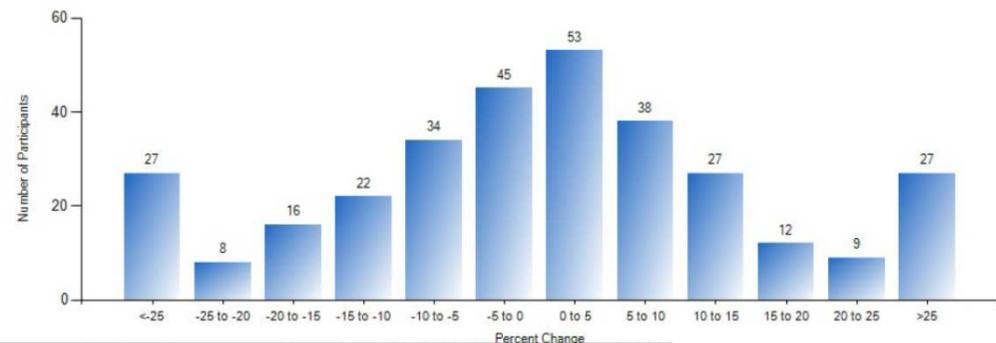
1 Coyotes	16 Great Horned Owls	31 Bobcats	46 Peregrine Falcons
2 Mountain Goats	17 Moose	32 Grasshoppers	47 Vulpes
3 Bullfrogs	18 Pronghorns	33 Foxes	48 Great Blue Herons
4 Rattlesnakes	19 Eagles	34 Gray Wolves	49 Prairie Dogs
5 Black-footed Ferrets	20 Cutthroat Trout	35 Mountain Lions	50 Crows
6 Elk	21 Porcupines	36 Muskkrats	51 Jackalopes
7 Marmots	22 Bison	37 Black Bears	52 Rams
8 Lynx	23 Squirrels	38 Deer	53 Unicorns (Greater Ft. Collins)

FORT COLLINS FORTZED PACK HABITATS

Map showing neighborhood energy packs: LEWIS ST, SCHEMIG CT, CHEST ST, MAPLE ST, LAUREL ST, LEWIS ST, SCHEMIG CT, CHEST ST, MAPLE ST, LAUREL ST, LEWIS ST, SCHEMIG CT, CHEST ST, MAPLE ST, LAUREL ST.

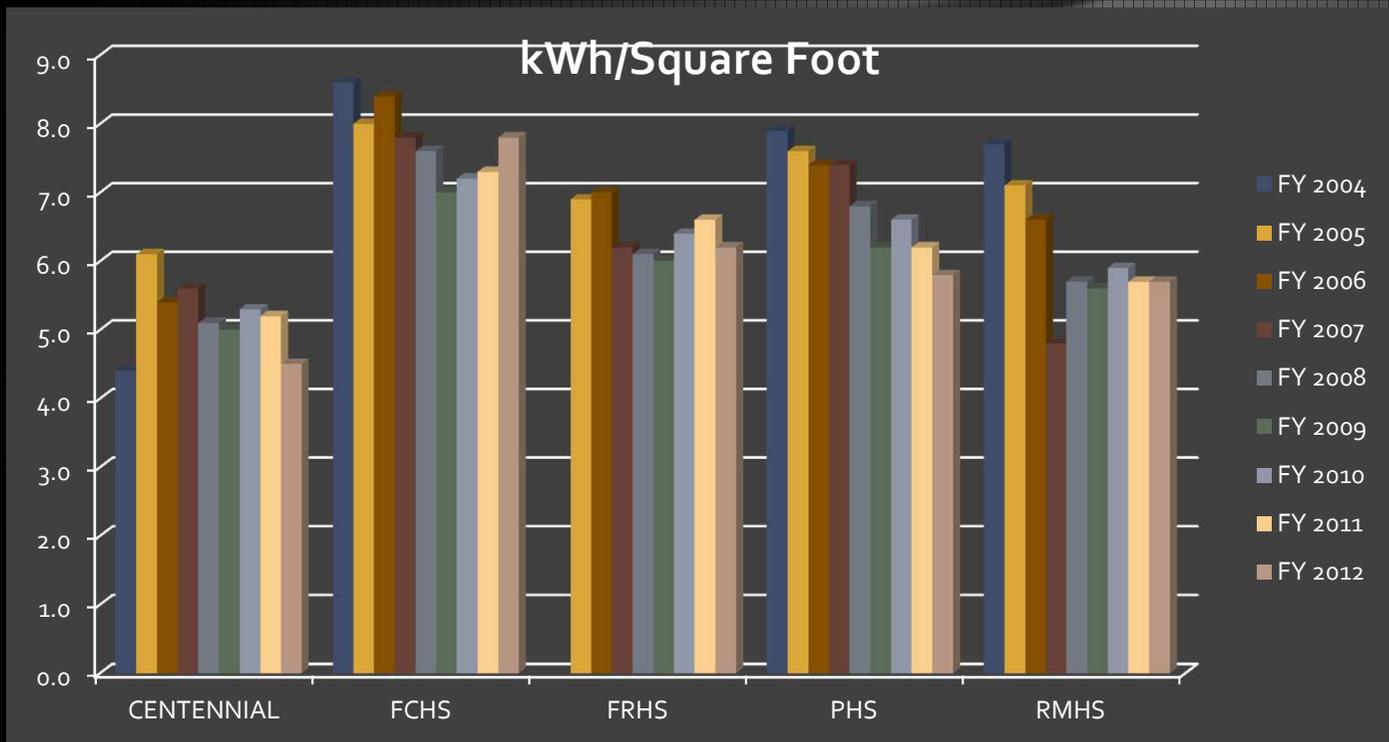
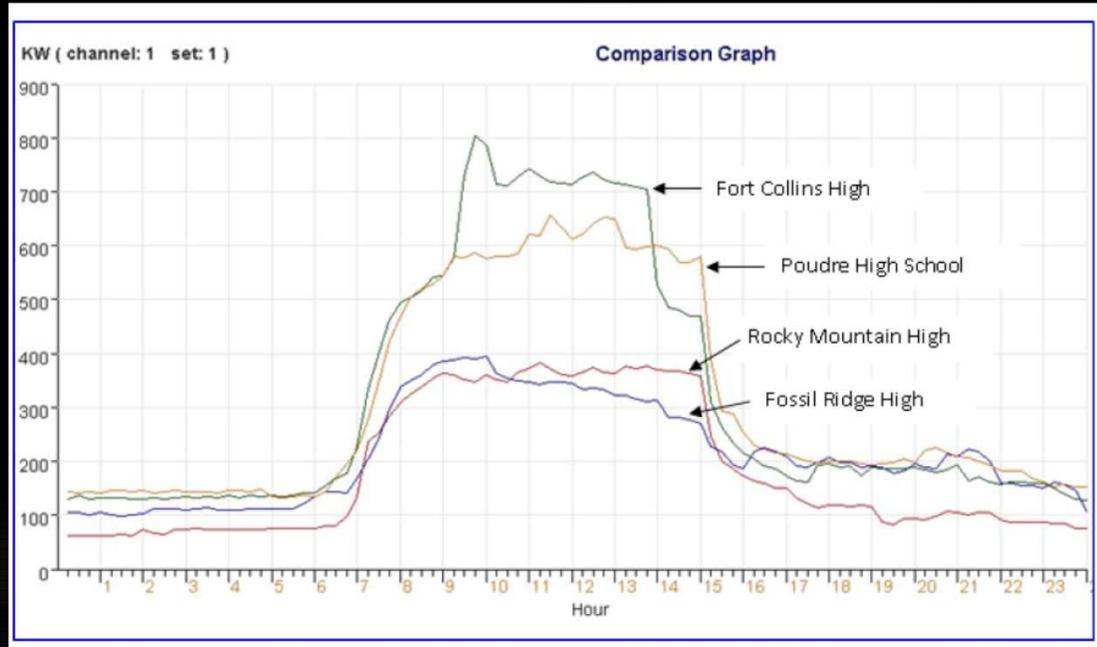
Program Evaluation Report

Distribution of Relative Savings by Participant



Poudre School District

- How does a public high school built in 1973 compare to a new LEED-certified high school in the same district in the same town?
- High schools competing for bragging rights

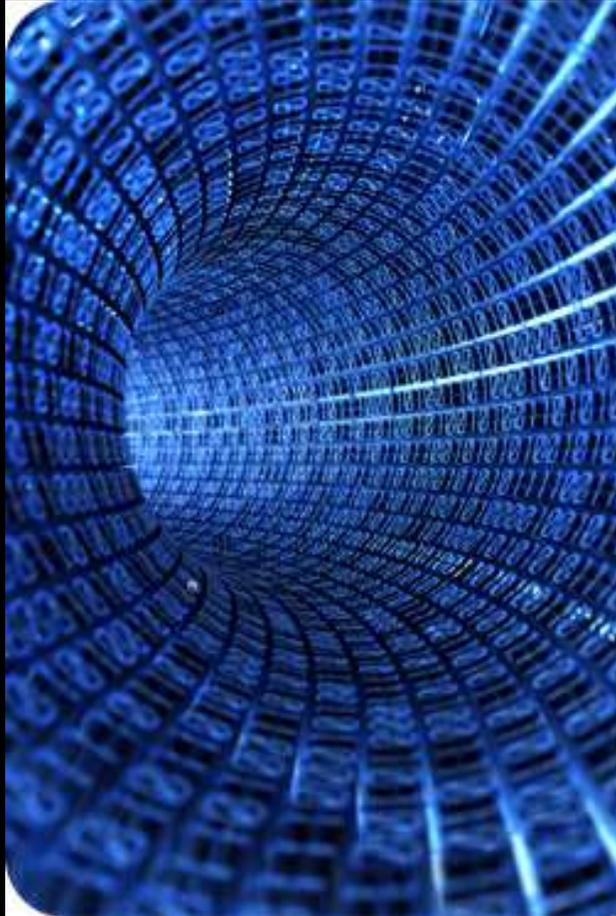


More Programs

- Colorado State University
- Staff position
- Dorm challenges
- Greek life energy challenge



What's New and Next?



- Home Energy Reports “for all”
- AMI web portal tools
- Mobile applications and information feedback
- Performance based incentives
- Pre-pay
- Game-based programs

Home Energy Reports “for all”

- All residential customers with data will receive reports
- Approximately double recipients
- Deemed savings from Fort Collins specific model of energy savings based on home characteristics, energy use and demographics
- Started January 2013
 - Link to new web portal in late 2013
- Issues
 - Limited precedent for the deemed savings approach?



Say hello to your first Home Energy Report.

Learn about your home's electricity use, see how you compare to your neighbors, and learn ways to save money.



AMI Web Portal Tools

- Bill comparison to similar homes
- Where do energy dollars go in the home?
- Goal setting with self-identified demographics
- Posting to community portal
- Bill analysis, AMI data (yesterday)
- Starting late 2013
- Issues
 - Generating web traffic

Account Summary

Last Bill Sent 4/17/2012 \$326.14 [View](#)

Payment History [View](#)

Next Meter Read 5/7/2012

Last Payment Received 4/12/2012 \$263.70

Amount Due 5/7/2012 \$326.14 [Pay](#)

You can pay future bills online by registering for our E-Bill online payment service. [Register Now!](#)

My Bill-to-date

You are 28 days into your billing cycle.

Estimated Cost as of 5/14/2012 \$64.75

Due to data processing issues, the total dollar value does not include certain services. The expanded view provides a detailed listing of included services.

Did My Bill Change?

- Your energy charges were \$ 62.44 higher for this bill.
- Your electric usage increased for this bill.
- A longer billing period increased your usage for this bill compared to the previous bill.
- Other Water service charges/credits totalling \$ 16.22 are included in this bill.
- Other "non-energy" charges totaling \$ 38.06 are included in this bill.

[Bill Analysis](#)
Still have questions about this bill? Find out more about why your bill has changed.

Day-to-day Usage

Average Usage by Day-of-Week

kWh

Missing data for 4/7, 4/18, 4/22, 5/5, 5/7, 5/8

Meter: Electric - EM60M272841

[Daily and Hourly Views](#)
Create my own graphs to learn how and when I use my utilities.

Home Comparison

Total Costs 4/7/2012 to 5/9/2012

\$249 Avg. Home

Uses Least Energy Uses Most Energy

\$288 My Home

Total Electricity Water

Your home used more energy than most of the similar homes in your area.

My Home's Usage

Total Costs 4/7/2012 to 5/9/2012

Total Electricity Water

[Find savings opportunities.](#)
Go to the **My Energy** section to find savings options that are right for you.

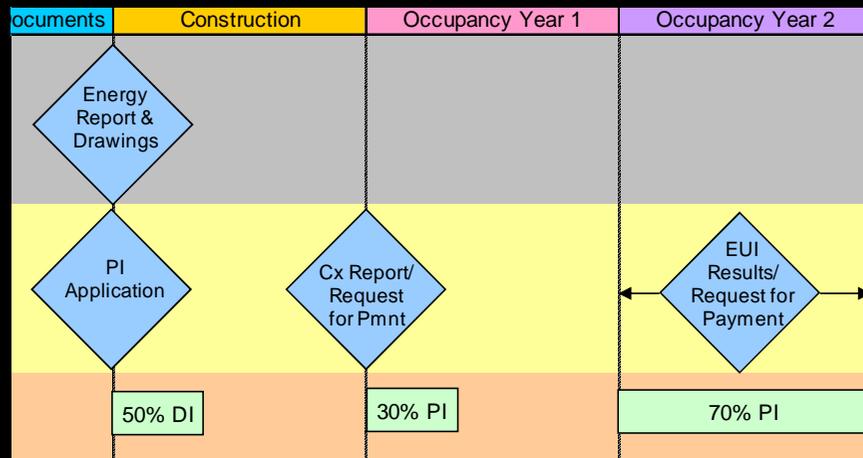
Mobile & 3rd Party Apps

- Your phone should be an in-home display
- Most everything from the AMI web portal
- Green Button Initiative
- Starting early 2014
- Issues
 - “Near real-time” data is harder than it seems



**Green Button
Download
My Data**

Performance Based Incentives



- New construction and deep retrofits
- Bundles behavior, operations and retrofit measures
- Multi-fuel, performance based
- Total energy use performance period
 - Target EUI vs. actual
 - Piloting in deep retrofit program
 - 6 projects in pilot

Pre-pay or Pay as You Go Programs

- Operational, customer satisfaction and conservation benefits
- Leverage investment in AMI systems
- Savings of 5-15%
- Case studies exist for results
 - Salt River Project



Game Based Programs

- Social, fun, simple
- People
 - like to play
 - can't be expected to act rationally
- Define your own social groups, competitions, prizes, no jargon
- Impact energy use and demand (event driven)
- Issues
 - Models need to change frequently to maintain engagement



Thanks!
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