Boulder's Energy Future

Dec. 11, 2012, Study Session

Next Steps in Exploring Municipalization

Climate Commitment and Energy Efficiency Initiatives

Agenda

(6:00-6:20) **Exploring Municipalization – Project Update**
Heather Bailey, City of Boulder

(6:20-6:55) **Public Finance for Municipal Utilities**
Mike Berwanger, Public Financial Management, Inc. (PFM)

(6:55-7:30) **Reliability Presentation**
Tom Ghidossi, Exponential Engineering

(7:30-9:00) **Boulder's Climate Commitment & Energy Efficiency Initiatives**
David Driskell and Joe Castro, City of Boulder

Municipalization Exploration Update

A lot has happened since the last update:

- Metrics were approved
- Stakeholder working groups now meeting
- Engineers and financial advisor retained
- Modeling and decision analysis tools selected
- Lots of data collected
- Continued monitoring of PUC and legislation
- Met with several community groups and businesses
- Developed Xcel/city partnership white paper

Municipalization Exploration Timeline

What to expect in early 2013

- **December 2012/January 2013**
  - Gather data from staff, stakeholder working groups and consultants
  - Begin optimizing strategies and run data through decision analysis, financial model and other tools
  - Prepare draft strategy recommendations
  - Internal vetting of strategies

Municipalization Exploration Timeline

- **January 21 through January 31, 2013**
  - Public input and comment on strategies
    - Will host public meetings and have an online comment option
- **February 2013**
  - Compile all public and internal feedback on strategies and revise
- **February 26, 2013**
  - Study Session with City Council to present strategies for moving forward

Municipalization Exploration Timeline

- **March 2013**
  - Respond to feedback and questions from Feb. 26 Study Session with council
- **March 19, 2013**
  - Return to City Council for public hearing on revised recommendations
  - Can & Should we move forward with municipalization or pursue something else

CITY OF BOULDER, COLORADO

DISCUSSION REGARDING POTENTIAL ELECTRIC SYSTEM ACQUISITION

December 11, 2012

The PFM Group

GENERAL TIMELINE

- December 2012 – February 2013
- March 2013
- Post March 2013 (assuming “Go” decision by Council)

BONDING PROCESS

- Bonding process for any Electric Acquisition would not be materially different than what the City has done for the Water & Sewer System

- Enterprise fund needs to borrow money for a “project,” but can't afford to pay for that project out of available funds

<u>First and foremost though…</u>

- City must establish clear ownership rights to the Electric System assets, authority to operate those assets and the legal authority to set rates and charges
- State Law and the legal proceedings to acquire the system and settle any disputed claims will establish the legal framework
- Governance: City Charter will provide the framework for the ownership, operation, management and governance of the utility

BONDING PROCESS

- Bond process can move forward once the City legally owns the system and has the rights to establish and pledge the revenue stream to investors

- Enterprise fund would put together requisite financing team and proceeds to put together required documentation

- Bond Ordinance: Pledge to investors

- Official Statement: Offering document

- Notice of Sale: Required for Competitive Bond Sale

BONDING PROCESS

- City Charter currently restricts the manner in which the bonds can be sold to a Competitive Sale Process
- A Negotiated Sale Process may be more appropriate for the City's potential electric bond sale
- Negotiated Sale Process is the market standard for taxable financings and for start-up enterprises like the City's potential undertaking

CREDIT CONSIDERATIONS: OVERVIEW

- One of the largest drivers of the long term success of the Utility will be the credit rating obtained at inception
- City is “AAA” rated which provides a solid place to start the discussion regarding service territory quality
- However, in PFM’s experience it is highly likely that the credit agencies will assign several areas/layers of risk to the utility and, therefore, derive a lower rating
- Similar start-up efforts have shown a credit curve
- The Rating Process is not about absolutes. The City’s Electric Enterprise will be graded on a curve as compared to other similarly situated utilities according to pre-established Rating Agency frameworks for assessment

CREDIT CONSIDERATIONS: FOCUS AREAS

- Start-up nature of the enterprise
- Competitiveness and Rate Setting Mechanisms
- Governance
- Organization / Management structure and competence

CREDIT CONSIDERATIONS: FOCUS AREAS

- Power resource management
- Legal construct of bond documents
- Legal Risk, if any

CREDIT CONSIDERATIONS: FINANCIAL METRICS

- The table below provides a sampling of both the important financial metrics evaluated by the ratings agencies and the medians for retail systems across ratings categories as measured by Fitch Ratings in their most recent U.S. Public Power Peer Study

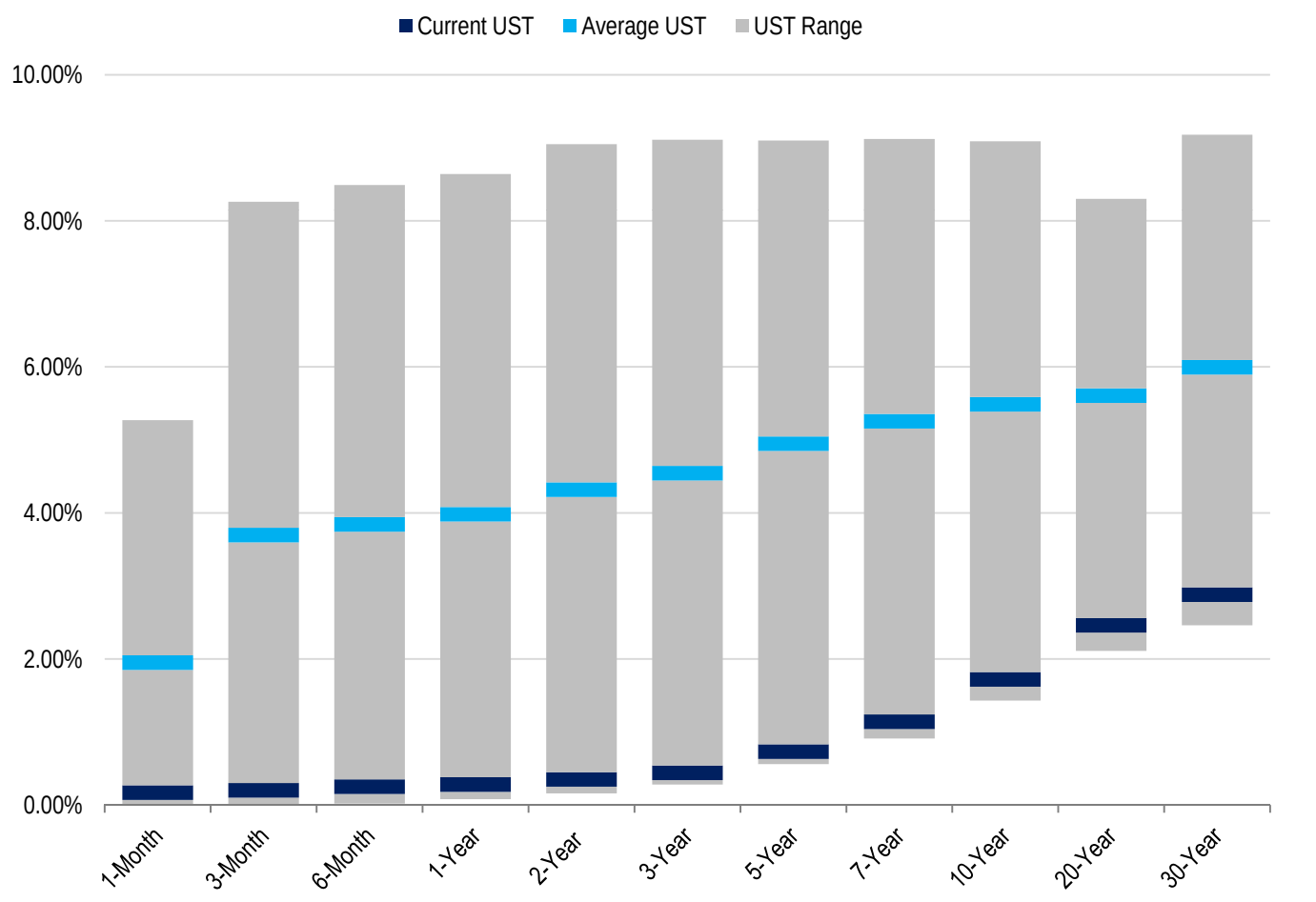
Fitch Retail System Medians				
Metric (2011 Data)	"AA" Rated	"A" Rated	"BBB+" Rated	"BB" Rated
Debt Service Coverage (x)	2.09x	1.57x	1.42x	0.90x
Days Cash On Hand	167	84	16	(2)
Transfer Payment as % of Op. Revs	4.9%	4.5%	1.0%	0.2%
Capex / Depreciation (%)	159.7%	124.2%	165.4%	184.4%
Equity / Capitalization (%)	51.0%	38.8%	35.6%	22.8%
Debt Per Customer ($)	$4,542	$7,362	$4,145	$9,511

Source: Fitch Ratings US Public Power Peer Study, June 18, 2012

MARKET CONSIDERATIONS: INTEREST RATE POSITION

- Benchmark tax-exempt and taxable interest rates are at historic lows across the yield curve

Benchmark Taxable (UST) Interest Rate Position
(1/2/1990 – 12/4/2012)[1]

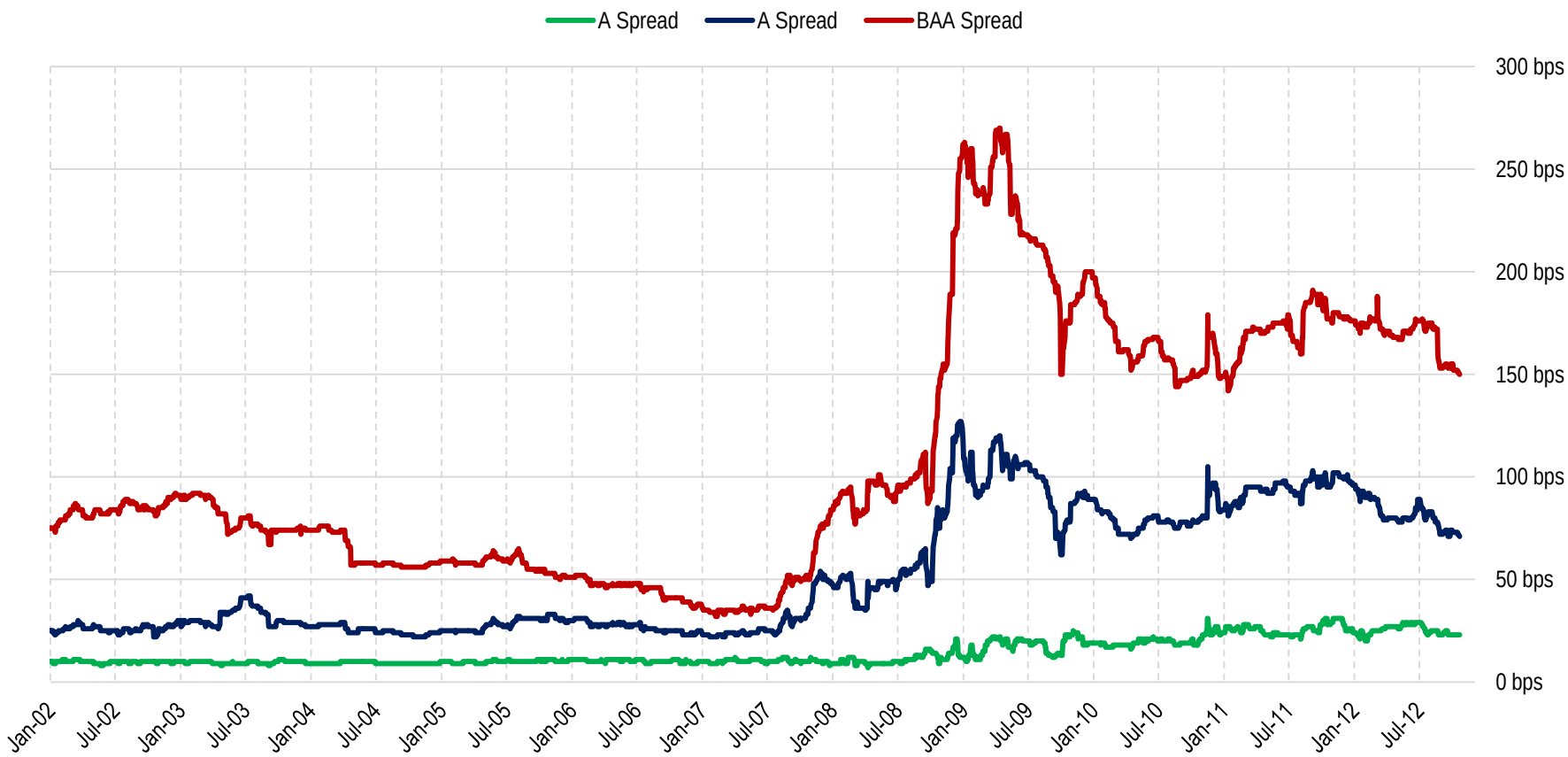


Source: Thomson Reuters, U.S. Treasury [1] Certain maturities unavailable for certain periods of time. Visit www.treasury.gov for details

MARKET CONSIDERATIONS: CREDIT SPREADS

- Since the collapse of the bond insurance market, investors have been focused on underlying credit factors. While credit spreads have retreated substantially from the severely elevated levels seen during the financial crisis, they remain above the pre-crisis / bond insurance era levels

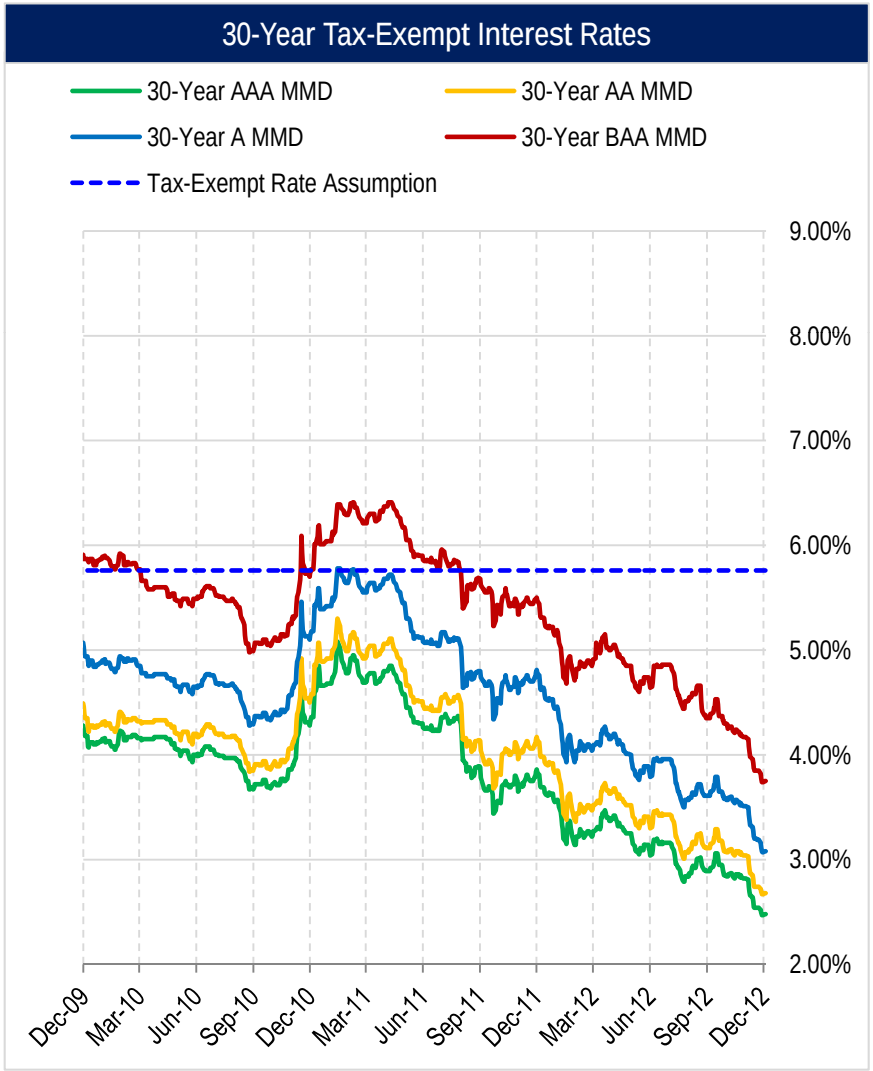
20-Year MMD Tax-Exempt Credit Spreads
(Benchmark: 20-Year AAA MMD)

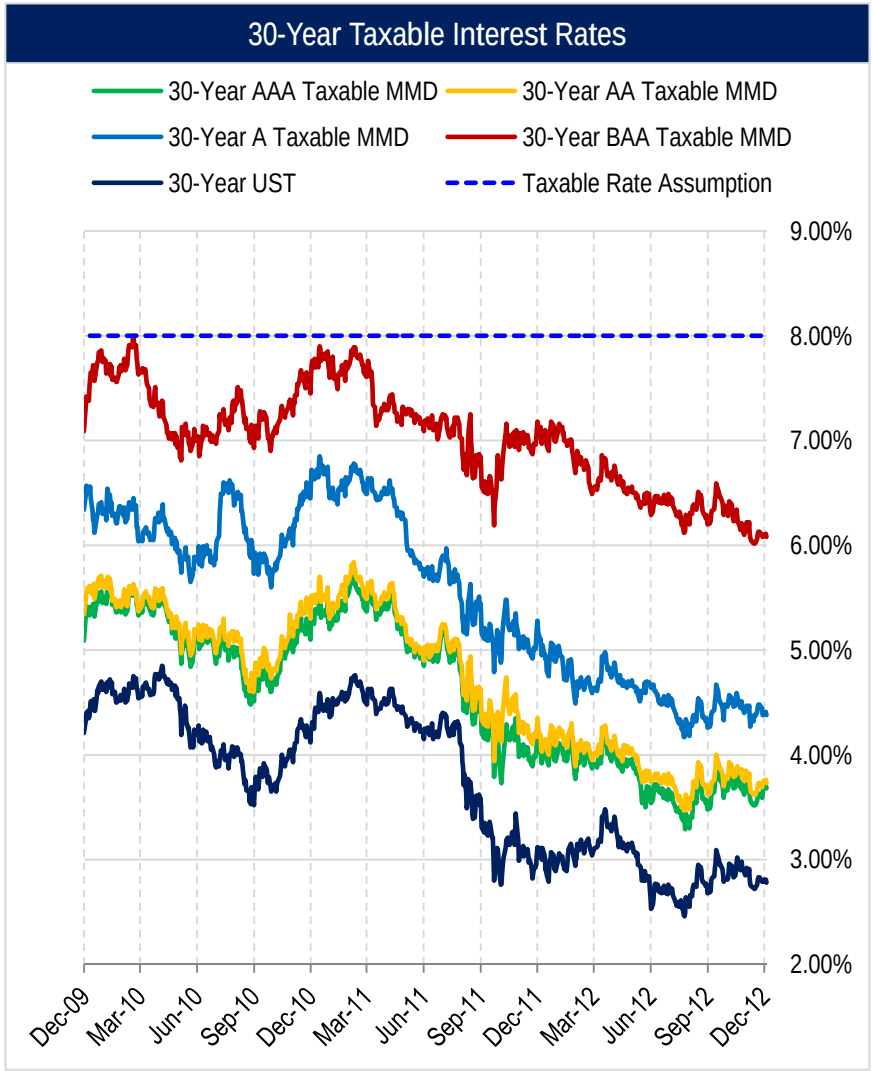


Source: Thomson Reuters

MARKET CONSIDERATIONS: BORROWING RATE COMPARISON

- Current benchmark rates are low even for lower rated credits





Source: Thomson Reuters

Separation and Reliability Overview

Exponential Engineering Company's scope is to establish alternatives for separation and evaluate feasibility. Maintaining reliability is a key evaluation criterion.

This presentation covers separation and reliability concepts applicable to a typical municipal utility system.

What does “Separation” Mean?

- Creating an Ownership, Operational, and/or Maintenance boundary within the electric grid
- Separation Points are commonly called Points of Interconnection
- While the electric grid remains connected, flow across the points of interconnection is metered

What does “Separation” Mean?

- Examples of Separate Systems:
  - Primary Metered (transmission or distribution voltage)
    - Industrial or large commercial distribution system
    - Campus distribution system
  - Distribution Utility
    - Municipal taking delivery at owned or shared substations
    - Rural Electric taking delivery at the distribution voltage bus in a substation

Some Separation Criteria

- Serving desired customer population
- Consistent Voltage and Equipment classes
- Clear Operation and Maintenance boundaries
- Isolation for failure events

System Illustrations

Double Circuit
Transmission Line

Transmission/Substation
Connection

System Illustrations

High Voltage
Substation Equipment

System Illustrations

Substation Transformer and
Feeder Switchgear

System Illustrations

Double Circuit
Distribution Feeder

Distribution Feeder
Protection - Recloser

System Illustrations

Three-Phase Service

Single-Phase Service

Reliability

- Availability
  - Ability to supply the electrical requirements of the customers at all times, taking into account scheduled and reasonably unscheduled outages
- Resiliency
  - Ability of the electric system to withstand sudden disturbances such as short circuits or unanticipated losses of system components

Adapted from 2012 APPA RP_3 Procedure Manual

Reliability Indices

SAIDI – System Average Interruption Duration Index

$$SAIDI = \frac{Sum\ of\ Customer\ Interruption\ Durations}{Total\ Number\ of\ Customers\ Served}$$

SAIFI – System Average Interruption Frequency Index

$$SAIFI = \frac{Total\ Number\ of\ Customers\ Interrupted}{Total\ Number\ of\ Customers\ Served}$$

Reliability Enhancements

- Redundancy
- Automated Systems
- Outage Management/Monitoring/Response
- Routine and Preemptive Maintenance
- Right-of-Way Management
- Sectionalizing and Coordination
- Designs to Address Specific Regional and Community Issues

What's Next?

- Create separation alternatives
- Assess the existing system
- Reliability analysis

Questions

Does council have questions or comments on:

1. Municipalization exploration work plan?

Boulder's Climate Commitment and Energy Efficiency Initiatives

Overview

1. Lessons from 5 Years of Climate Action
2. "Climate Commitment" Priorities for 2013
3. Leading by Example:
   City Facilities and Operations
4. Energy Efficiency Program Priorities in 2013

Key Lessons

- It's a community-wide effort
- CAP tax funds one area of action;
  there are other areas and fund sources
- Energy efficiency in existing buildings is key to climate action and Boulder's energy future
- The gap between knowledge and action is BIG
- Assistance + carrots + sticks = action

Key Lessons

- City's Role:
  - Convener / facilitator / strategist / partner
  - Funder (focus on leveraging and 'seeding')
  - Regulator
  - Data manager / tracking progress
  - R&D / pilot new approaches
  - Education + outreach
  - Leading by example
- Our goal is to catalyze market transformation

Key Successes

- SmartRegs + EnergySmart + ARRA funding
- 10 for Change
- ~ 4700 residential units enrolled;
  ~2300 business services delivered
- 12+ mW of installed solar
- 82% support for CAP Tax extension!

energySMART
Your Efficiency Solutions

SMART REGS

2013 Priorities

- Refine framework principles + practices:
  - five-year goals
  - one-year program targets
- Integrate climate action in TMP and ZWMP
- Refine/confirm long-term commitment (carbon neutrality)

BOULDER'S

CLIMATE ACTION COMMITMENT

The City of Boulder, its residents, and local businesses will act to achieve carbon neutrality as quickly as possible

CARBON NEUTRALITY

FOCUS AREA	RAMP UP RENEWABLES	BETTER BUILDINGS	TRAVEL WISE	WASTE NOT	GROW GREEN	EVERY DROP
PLAN	LOCAL ENERGY ACTION PLAN		TRANSPORTATION MASTER PLAN	ZERO WASTE MASTER PLAN	URBAN FORESTRY PLAN, VISITOR MASTER PLAN, PARKS AND RECREATION MASTER PLAN	WATER UTILITY MASTER PLAN AND WASTEWATER UTILITY MASTER PLAN
5-YEAR GOALS	X% CO_2 Reduction X% Renewables	X% CO_2 Reduction X% Renewables	X% CO_2 Reduction Vehicle Miles Traveled Per Person	X% CO_2 Reduction X% of Waste Diverted	X% CO_2 Reduction Biosequestration	X% CO_2 Reduction Gallons of Water Conserved
ANNUAL TARGETS	kW of solar panels installed kWh of hydro-electricity generated	Number of SmartRegs compliant properties Number of properties using EnergySmart City Buildings	Vehicle Miles Traveled Biodiesel Commuters Bike Trails City Fleets	Waste Diverted Tons Composted	Trees Planted Land Conservation Local Agriculture	Gallons Conserved Wastewater Treated

THIS WILL TAKE THE ENTIRE COMMUNITY.

2013 Priorities

- New data tracking and reporting tools
  - CAP tax funded programs
  - New community-wide GHG protocol
- Code updates (new construction, renewables)
- Continued delivery of EnergySmart services
  - Maximize participation through May 2013
  - Leverage ARRA investments past May 2013
- Commercial Energy Rating and Reporting

Leading by Example - City Facilities and Operations

Energy Performance Contract

- **City of Boulder's EPC Program Goals**
  - **Reduce energy use, water use and costs across all city operations**
  - Upgrade aging infrastructure in a fiscally constrained funding environment
  - **Reduce GHG emissions by 20 percent**
  - Leverage ARRA, State and utility funding opportunities
  - Improve comfort, aesthetics, productivity
  - Incorporate renewable technology and maximize demand side management opportunities
  - Add/Improve building automation systems
  - **Lead by example**

EPC Financials & Benefits

Item	Total
Total Project Value	$16,232,960
- Xcel Energy Rebates – one time	($2,042,957)
- Energy Efficiency and Conservation Block Grant	($360,000)
- City Capital	($2,385,058)
Financed Amount	$11,139,262

- Stimulus funding (EECBG) only 2% of funds
- 24 of 28 (86%) of contractors in Colorado, with 13 (54%) in Boulder area
- $11.5M to subcontractors
  - $6M for labor -- 422 people employed in 3-year timeframe
  - 91 new jobs created
- McKinstry's professional staff increased from 14 to 35 in 3 years

EPC Results

Item	*Total (Annual)*
Electricity Reduction	7,883,532 kWh
Gas Reduction	180,680 therms
Water Reduction	2,796 kgals
Utility Cost Savings	**$667,614**
Maint Cost Savings	$52,615 (3-years only)
CO2 Reduction	**8,216 mtons (24.4%)**
Future Capital Avoided	$3,354,460 (one-time)
On-going Incentives: **- PV REC payments** **- Colorado Carbon Fund REC payments**	 $97,062 $50,000 total (one-time)

Awareness & Engagement

powerED program:

- Behavior change campaign for city facility occupants
- Goal is 10% reduction in energy consumption
- Partnership between McKinstry and City of Boulder

Focuses on:

peoplepowerplanet

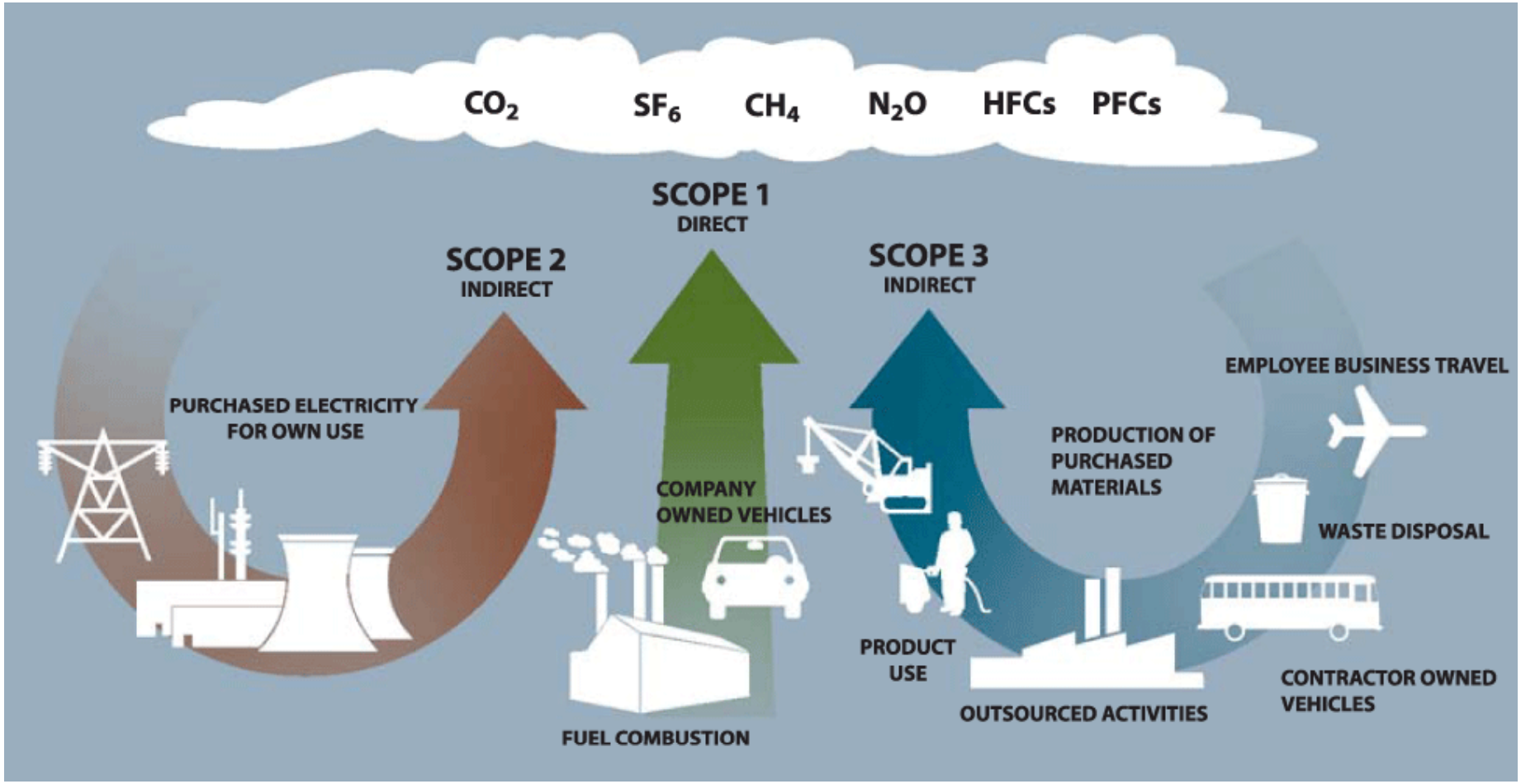
- People: engage **occupants** and increase awareness
- Process: engage **operators** and optimize systems
- Performance: energy savings progress tracking and reporting (dashboard)

Commercial Energy Rating

Energy Rating for 28 city facilities:

- Over 80% of all city facility energy use being rated
- 1st Quarter/2013 roll-out with powerEd program
- Using ENERGY STAR Portfolio Manager ratings and/or energy use intensities scores

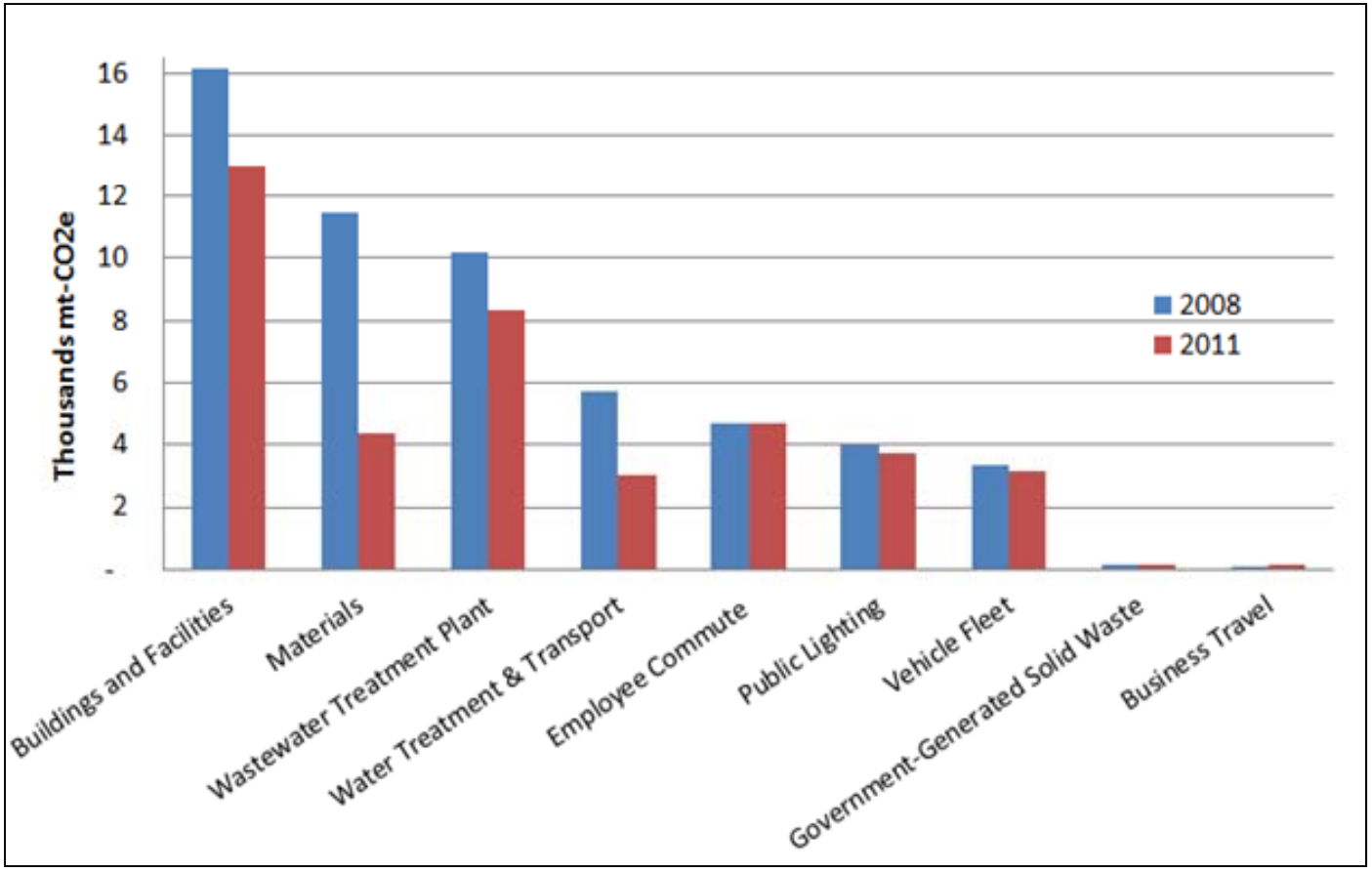
GHG Emissions Inventory



Added Scope 3 emissions to our GHG Inventory

City Facilities – Other Emission Sources

2008 & 2011 GHG Emissions by Sector



<u>Reductions</u>
Buildings – 20%
Materials – 62%
Wastewater – 19%
Water – 47%
Public Lights – 6%
Fleet – 5%

Overall: 27% decrease from 2008 to 2011

Questions

Energy Efficiency Upgrades at City Facilities

http://www.bouldercolorado.gov/index.php?option=com_content&view=article&id=13734&Itemid=2092

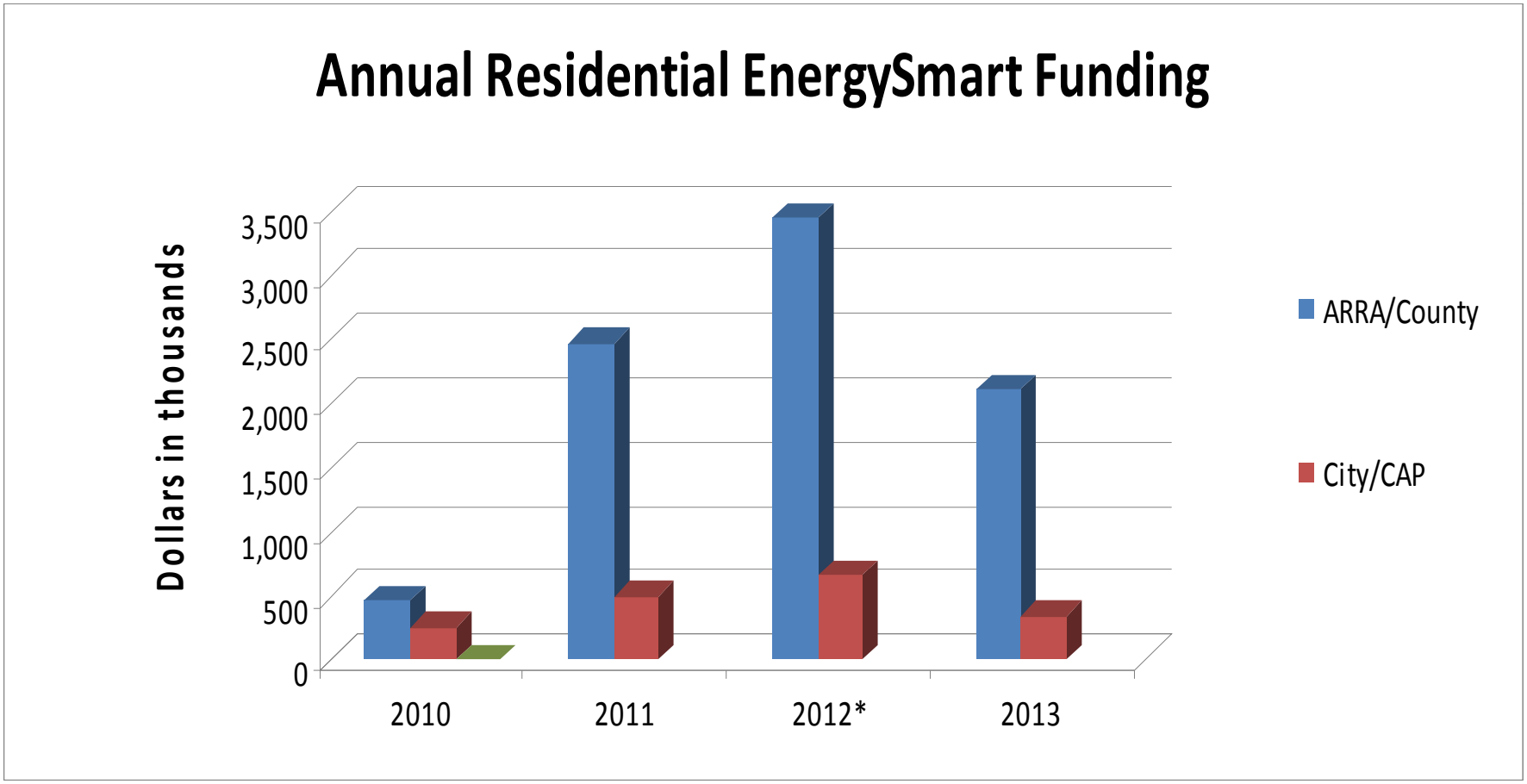
Energy Efficiency Initiatives:
2013 Priorities + Commercial Pilot Update

Energy Efficiency Initiatives:
2013 Priorities + Commercial Pilot Update

Getting Smarter

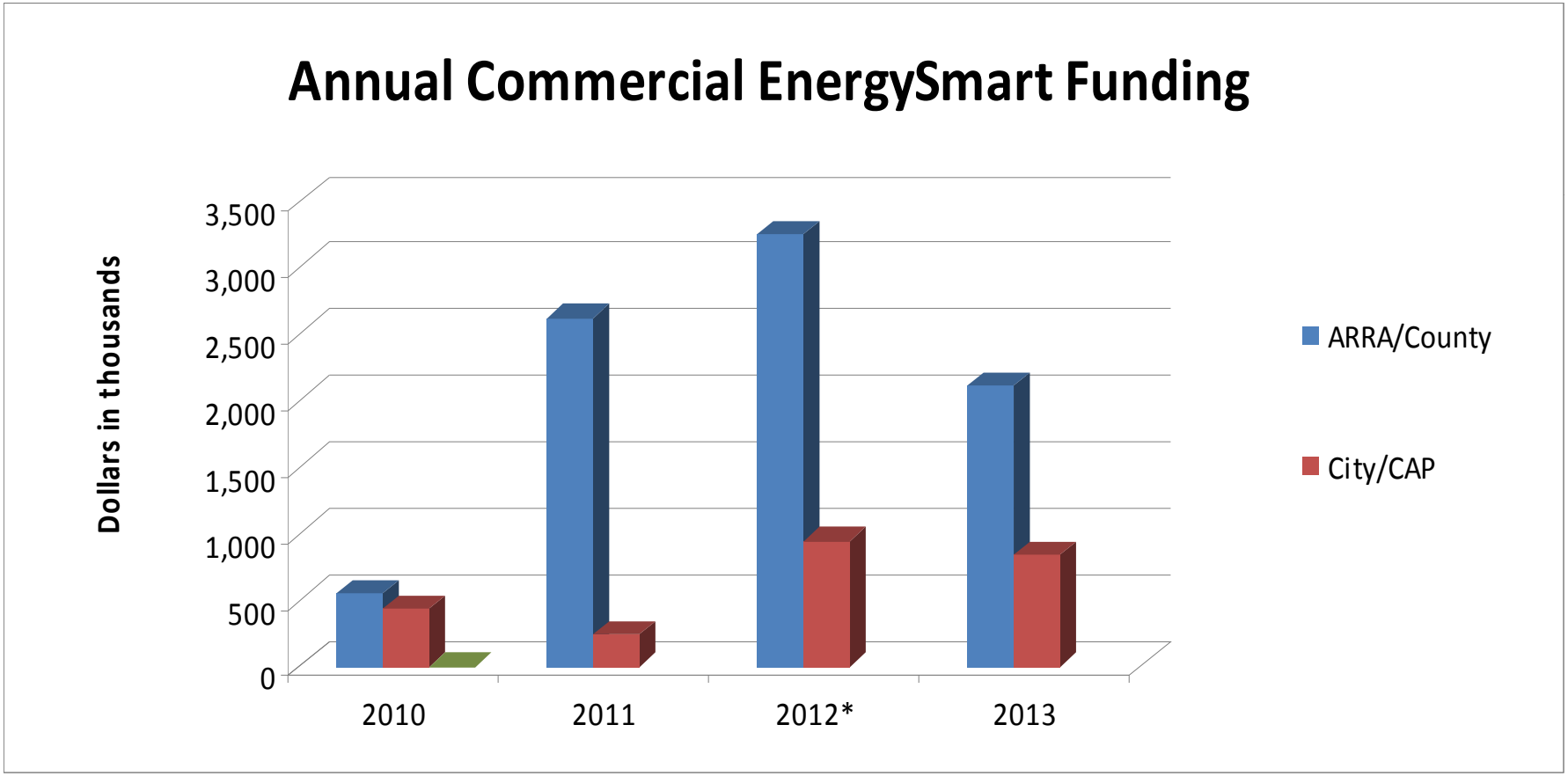
- "Two Techs and a Truck" → EnergySmart
- SmartRegs adoption; compliance by 2019
- $12 million in ARRA funding, thru May 2013
  - Countywide program infrastructure
  - Energy advisors, rebates, incentives, training
  - Loan program with Elevations Credit Union
- CAP Tax funds within city:
  - Drive higher levels of participation in all sectors
  - Support SmartRegs implementation

Annual Funding



*2012 4th Q and 2013 projected

Annual Funding



*2012 4th Q and 2013 projected

Other Efforts

- 10 for Change
- Tenant outreach and education
- K-12 education and action

10 FOR CHANGE

A new climate for business

2013 Priorities

- Commercial Sector Initiatives (55% of funds)
- Residential Programs (18% of funds)
- Data Tracking and Reporting (11% of funds)
- Market Innovations Pilot (16% of funds)

Importantly: there will be fewer $ overall for EnergySmart due to expiration of ARRA funds, so numbers will be less (though effectiveness should remain!)

Challenges

- How to drive participation absent large rebates? *(the challenge of market transformation)*
- Residential
  - Social marketing pilot (homeowners)
  - Best model to support landlord compliance with SmartRegs (with few to no rebates/incentives)
- Commercial
  - Crafting an Energy Rating and Reporting Ordinance that drives investment and innovation

Challenges

DON'T GET LEFT IN THE COLD!
Winter discounts for a limited time...
More than 80 of your Mapleton Hill neighbors realized their homes weren't as energy efficient as they thought and made improvements with EnergySmart.
Big Discounts!
For a limited time, Boulder residents qualify for 50% off insulation and air sealing and a

Energy Rating & Reporting

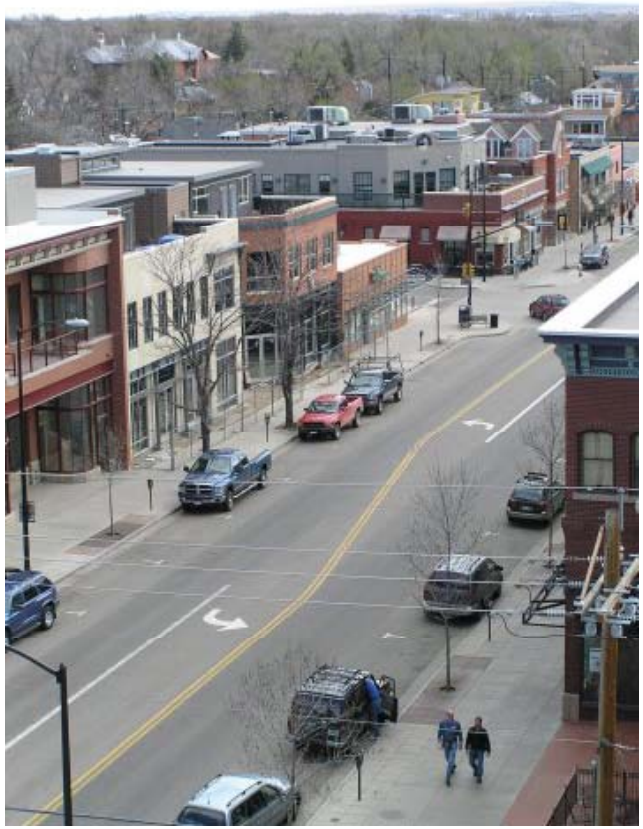
- Establishing requirement and process for commercial building owners to report energy performance rating each year

- Extensive stakeholder process
  - Public meetings
  - Working group
  - Focus groups
  - Survey

Photo Credit: RMI

Pilot Program

- Certified energy coaches rating energy performance
- Broad sample of private sector building types and sizes
- Survey of building owners, tenants, and energy coaches
- 37 buildings in pilot as of Dec. 11



Questions

Does council have questions or comments on:

2. Climate Commitment progress and next steps?
3. Energy efficiency 2013 priorities:
   - commercial initiatives
   - residential programs
   - market innovations competition
   - tracking and reporting process