Messaging for Change:

Tools to Inspire a Beautiful World

PART 1

Community-Based Social Marketing
Virginia Till - US EPA Region 8
till.virginia@epa.gov

March 10, 2020
$ave Green, Be Green - One Day Workshop for Non-Profits
Denver, CO
Who are you talking to?

- Sustainable Management of Food Lead
- **Your EPA Contact:** Recycling, Composting, Food Waste Reduction, Bridging Urban – Rural Interface, Student of Agriculture, Messaging for Change Training
- Background: Communication, Behavioral Science, Adult Education, Marketing
- @ EPA 9 years
- Local to Colorado
- Amateur Mycologist
EPA Region 8 Protects:
water, land, air, health, YOU!
THE ICEBERG MODEL

EVENTS
What is happening?

Patterns of Behavior
What trends are there over time?

Systems Structure
How are the parts related?
What influences the patterns?

Mental Models
What values, assumptions, + beliefs shape the system?

IT'S ALL CONNECTED — SYSTEMS IN ACTION
AGENDA

- Current Knowledge of Changing Behaviors
- Brief Intro
- Exercise
- Wrap-Up
Discussion: Current Knowledge

- insights/experience about changing behaviors through messaging (Community-Based Social Marketing, CBSM)
CBSM (very)
Brief Overview

“Not bad. They gave us $10.00 a pound for the Tin Man.”
RESOURCES

- cbsm.com
  (free resources: Douglas McKenzie-Mohr)
- socialmarketingservice.com
- other (google search)
What to Call This Approach

- Community-Based Social Marketing
- CBSM
- Messaging for Change
- Tools for Behavior Change
- Other?
5 Steps of C BSM

1) Select Behavior(s) & Specific Audience
2) Identify Barriers & Benefits for behavior(s)
3) Develop Customized Strategies
4) Pilot Messaging & Strategies (VITAL for success) & Evaluate Effectiveness
5) Implement on Wider Scale & Continually Evaluate
Messaging for Change Approach (B.A.B.B.S.)

- **Behavior**
- **Audience**
- **Barriers / Challenges**
- **Benefits / Offsets**
- **Strategies**
What is CBSM?

- **Focus is call to action** versus information-only
- **Tailors strategies, tools & messages** for specific audience to change behavior(s)
- **Pilots strategies & messaging** before scale-up
Why do I need CBSM?

- Builds understanding, trust, and community by improving communication.
- At the same time reducing barriers and increasing benefits for audience.
Example Scenario

Visitors to a resort area renting short-term condominium rental properties buy too much food for their trip, then waste it and throw it away before they leave. This causes a burden on the local haulers/community.
Select **Audience**

- Can **define** by demographics, location, organization, etc.
- All members of the audience **MUST have** common barriers, need similar messaging.
- **Do not combine audiences** with different barriers who need different incentives.
Select **Audience-Specific** Behavior, Barriers, and Benefits

**BEHAVIOR**
- Choose non-divisible & **end-state** behavior
  - need behavior chain?
    - behavior + behavior = end-state behavior
- Which behavior has **best** health/environmental impact?
- Which behavior = **most impact** on community?

**BARRIERS/ OFFSETS**
- Which **barriers/offsets** are: **doable** and **impactful**?
Develop Strategies

- Select strategies based on barriers & benefits
- **Strategies:** commitments, social norms, social diffusion, prompts, communication, incentives, convenience
- Pilot test your strategies, ask focus groups
Piloting (VERY important)

- Pilot = Test Run
- Don’t use participants from previous research; Minimum 2 pilot groups; Random assignment
- Create measurements for evaluation
- Calculate return on investment
- Revise until effective
Scale-Up

- Collect baseline info & impact data from pilot prior to scale-up
- Media events promote campaign & provide feedback
- Continually evaluate at various intervals over long period
Potential Barriers

- Visitors don’t realize the local impact of food they throw out.
- Visitors don’t know that unopened, excess food could be donated/eaten by others.
- Visitors don’t want to think about/don’t care about rules/impacts/the environment while they’re on vacation.
- Other?
Potential Behaviors

- Visitors can buy less food, so they waste less.
- Visitors can not open food the day before they leave, so others can eat it.
- Visitors can collect food in provided container for compost collection.
- Other?
Audience + Behavior

**Audience:** Visitors renting short-term condo rental properties in resort area during peak season.

**Desired Behavior:** Upon check-in/payment, renter pledges to put unopened, non-perishable food in decorated box on counter.
Barrier: Visitors don’t plan ahead and open food the day before they leave (taking only part of it, and wasting the remainder).

Offsets that can be communicated to audience: 1) If you plan ahead and leave unopened, extra food, local families will eat it (impacting local people). 2) Live like a local, and donate your excess food in provided box (“be cool” like the locals).
Measure Effectiveness

**Barrier:** Visitors don’t realize the local impact of food waste.

**Pilot** 1) baseline waste audit (for two properties) 2) implement messaging for behavioral intervention (at same properties) 3) perform post-messaging audit 4) tweak messaging 5) try different properties 6) customize for variances in audience 5) scale up
Strategies that Address Barrier

- **Commitment:** early adopters’ public pledge (annual visitors/group?); HOAs; sign pledge in unit

- **Prompts:** email upon reserving condo, table tent in unit, one-on-one conversations, decorated box

- **Personal Engagement:** early adopter interview posted on website, blog/newsletter, peer-to-peer messaging?
“Traditional” Educational Campaign

**Belief:** Increase knowledge = behavior change. Information is **ONLY** component.

Community-Based Social Marketing

**Belief:** Identify audience-specific barriers & address these barriers through benefits/incentives & commitments = behavior change. Information is **ONE** component, but not only component.
<table>
<thead>
<tr>
<th>“Traditional” Educational Campaign</th>
<th>Community-Based Social Marketing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wide-scale, broad audience, Difficult to measure impact; Top-Down.</td>
<td>Smaller-scale, specific community/audience; Pilots to measure impact &amp; effectiveness, then scaled up; Bottom-Up.</td>
</tr>
</tbody>
</table>
“Traditional” Educational Campaign

**Tools:** Brochures, ads, images, direct mail

Community-Based Social Marketing

**Tools:** Commitments, prompts, personal engagement
This Works!

- **Behavior:** reduce preventable food waste
- **Audience:** Consumers at home
- **Barriers:** food storage, lack of planning, lack of awareness
- **Benefits/Offsets:** save money, reduce waste, right thing to do
Pilot Strategies

Commitments
- Public Pledge

Prompts
- Eat Me First Sign
- Reminder Emails

Norms
- Graphics
- Orientation Meetings

Social Diffusion
- Peer-to-Peer Learning
- Community Highlights

Convenience and Custom Messages
- Storage Guide
- Excel Spreadsheet
- Reminders
- Free bucket
- Meal Planning Guide
Data indicate that pilot implementation could influence a 25% decrease in household food waste.
Example:
Barrier: Don’t know what goes where

Please help us to recycle as much as we can!

**RECYCLE**
- Aluminum Cans
- Steel Cans
- Glass food containers
- Glass wine & liquor bottles
- #1-7 plastic containers
- Clean cardboard
- Office paper
- Newspaper

**LANDFILL**
- Coffee Cups
- Milk/Juice boxes
- Styrofoam
- Plastic Utensils
- Plastic Bags
- Aluminum Foil
- Plastic Bottle Lids
- Kitchen glass/plates

When in doubt - throw it out!
Keep the stream clean.
Barrier: **BELIEF #1:** My regulator won’t like it; **BELIEF #2:** I’ll get sued if someone gets sick.

---

**Food Donors are Protected by Law**

To encourage companies and organizations to donate surplus food that would otherwise go to waste, a federal law was passed in 1996, known as the Bill Emerson Good Samaritan Food Act. The federal law encourages the donation of food and grocery products to nonprofit organizations for distribution to needy individuals. It also states that entities that donate apparently wholesome food to a nonprofit organization for distribution to the needy, are not subject to civil or criminal liability that arises from the condition of the food.

**What kinds of foods may be donated?**

Licensed food establishments can donate food that has not been served including any raw, cooked, processed, or prepared food, ice, beverage, or ingredient used or intended for use, in whole or in part for human consumption, with the condition that the items be wholesome. This includes packaged and prepared foods.

- **Foods that can be donated**
  - Hot food that was not served to a guest and kept at temperature and/or cooled properly (entrees, soups, etc.)
Barrier: This is a new idea that is difficult to do.
Discussion

- General Impressions
- “Aha Moments”
- Confusion / Questions
Come to Part 2 THIS AFTERNOON

**KEEP ASKING YOURSELF**

#1 - Does what I’m doing SUPPORT the end-state behavior I want the community to DO to achieve desired health / environmental / financial outcome?

#2 - Is what I’m doing addressing the particular BARRIERS this community has to DOING the desired end-state behavior?
THANK YOU

Virginia Till
till.Virginia@epa.gov
303.312.6008
Future of Solar for Income Qualified Customers in Colorado
What are the different options customers have?

- **Community Solar Garden (1 -4MW)** - income qualified residential or commercial accounts were the occupants income does not exceed 185% FPL or the home or building houses income qualified residents, subscriptions can be donated or charged a subscription fees for a locked in discount electric rate.

- **Roof-Top Residential System - CEO WAP program** will complete 250 solar systems on weatherized homes this year (3.5kW).

- **Small Site Built Generation** (100 -500kW) - new or existing affordable housing developments.

- **Renewable Connect or Windsource** - Premium prices or long term contracts but keep the RECs.
COMMUNITY SOLAR BILL CREDITS

Creating long term affordability and clean energy access

• EOC Subscription Statistics
  – 2013-2019: 684 Xcel customers at 185% Federal Poverty Level

• Clean Energy Collective, Community Energy, Clean Focus Renewables, Pivot Energy, Oak Leaf, GRID, AEP, DHA, Offer free subscriptions that cover bill savings of 50 -100% of usage charge

• Barriers : Language and design of paperwork, Lack of name recognition of developers

• 18 CSGs, 684 households including eight nonprofits, two senior living facilities, and the additional subscribers come from our energy assistance and energy efficiency program
How does EOC manage subscriptions?

**Subscription Terms and Conditions**: All subscribers are at or below 185% FPL, 4 year terms, EOC will verify income on an annual basis, resources needed are several staff members for all customer service inquires, manage tracking portal, income verification, waitlist, and outreach.

**Customer Selection**: EOC markets this product to customers in permanent poverty, medical holds, energy efficiency participants, homeless shelters, public and affordable housing.

**Subscription Turnover**: EOC ensures the gardens are fully subscribed and will create a waiting list of applicants and organizations from our nonprofit.
FEEDBACK

How do developers and participants feel?

Developers – Residential low income is administratively burdensome and a better market is nonprofits and affordable housing communities that qualify as low income subscribers

Participants – Paperwork is very complicated and confusing, confusion around program offerings, and what information to provide. In person outreach is most effective and mailers about the program have low return rates. Several participants struggle with understanding why their volumetric charges will be reduced.

Low Income Customer Services – Questions around benefit and why they are receiving this offer, where is the garden located?, frustrated with timeline to sign paperwork and receive no benefit.
LOW INCOME SOLAR ADVOCACY

- EOC has only distributed donated solar capacity
- Goal is to increase access to solar for low-income Coloradans who need it the most
- Utility Owned Low Income CSGs
  - Utility owned will remove minimum credit score, utility bill transparency on credit and charge, no long term commitments, and program adds connection with utilities most vulnerable customers
- Solar Subscription Donation -5% PUC Rule (pre2016) vs. Post2016
  - Tax deductible donations for solar – rooftop solar on homes, businesses, etc. to be able to be donated for LI subscriber Utility Owned Low Income CSGs
- Streamline process for LICS subscribers
  - Barriers to filling out paperwork and trusting developers
  - Allow EOC to be named on non-disclosure form instead of developer to avoid subscribers filling out same paperwork multiple times
  - Ease the difficulty of working with certain developers – projects changing locations, lack of communication, etc.
PROJECT OVERVIEW

Xcel-Owned CSGs

• **3** Community Solar Gardens with **100%** of the capacity dedicated to low-income residents
  • **2** gardens in Boulder to serve residents of Boulder, Larimer, Weld, Broomfield, Jefferson, Gilpin, Grand Counties
  • **1** garden in Denver to serve residents of Denver, Adams, Arapahoe, Jefferson Counties
• Each garden is **2MW** in size
  • This capacity translates to roughly **400 households** per garden
COMMUNITY SOLAR GARDENS

A more equitable solution

- Most residents are not able to obtain rooftop solar for many reasons:
  - Don’t own their home
  - Poor roof quality
  - Excessive shading from trees, buildings
  - Lack credit-worthiness to finance the equipment

- Community Solar Garden subscriptions offer a solution:
  - No equipment on the home
  - No minimum credit score
  - Long-term electricity price stability
  - Bill credits from Xcel + additional funding contributions

https://www.greensolarotechnologies.com/rooftop-solar-power-system-colorado-city-co
http://www.sharedrenewables.org/coop-energy-resources/case-studies/colorado
INCOME LIMITS

Denver

- Current income limit for Community Solar is 185% FPL
  - $23,106 - $83,345 annual income for household size of 1 to 8 persons
  - Income limits may be changing to 60% SMI (same as LEAP)
EOC ENERGY ASSISTANCE
Jan – Dec 2019

- EOC partners with numerous Denver agencies to provide energy bill payment assistance
- 2019 YTD has seen nearly 3,000 applicants in Denver county
  - 94% of applicants qualify for Community Solar by being Xcel electric customers at or below 185% FPL
• Database provides access to thousands of LI residents who may qualify for CSGs
• Add utility data consent language to the application to reduce number of forms
• Add check box allowing enrollment in CSG
Energy Burden

- **Energy Burden**: percent of income spent on home energy costs
- DOE LEAD Tool gives energy burden for CO by census tract
  - Can allow for strategic allocation of CSG subscriptions where the need is the greatest

Energy burden shown is for residents at 0-100% FPL
ENERGY BURDEN

Denver County

• For Denver county residents below \textbf{200\% FPL}, energy burden exceeds 10\% in several census tracts
Energy Burden

- Focusing on Denver County residents at 0-100% FPL:
  - Energy burden is as high as 45%
  - Majority of the burden is electricity costs, which can be offset by CSG subscriptions
SUBSCRIBER STRATEGY

LEAP Status Consideration

- Opportunity to serve customers who may not be receiving benefits such as LEAP
  - Only 19% of energy assistance applicants had received LEAP
  - Reasons for denial/ineligibility:
    - Not meeting lawful presence requirement
    - Doesn’t pay for heating costs
    - Failure to provide information
- CSG credits are also on-going, rather than a one-time assistance
CUSTOMER SAVINGS

• Projections from Xcel:
  • $0.02/kWh savings
  • Approx. 19% bill savings for the average customer

• Additional benefit from Denver funding:
  • $100,000 per year would bring the total bill savings up to 50% for the average customer
EOC’S PROGRAMS
XCEL CSG SUBSCRIBER OUTREACH

3-stage Approach

1) Agencies provide:
   - LEAP Application & EOC Application
   - EOC-developed CSG outreach flyer
     • What is a CSG, how does it work
     • Messaging: ‘you may be subscribed to a CSG, if you qualify

2) EOC letter* once selected for subscription, w/option to opt-out

3) EOC letter* once garden is online, explain bill charge/credit again

* Potential to utilize a texting service in addition to/in place of EOC letters
Breaking down a subscription

- Created solar@energyoutreach.org email account
- Needs more quantitative info re: bill credits
- FAQs sheet
- English/Spanish versions
CSG REQUIRED PAPERWORK

Streamline onboarding and reduce paperwork barrier

Developer-owned CSGs:
- Low-Income Verification
- Data Consent
- SRC Subscriber Agency Agreement

Xcel-owned CSGs:
- EOC to submit batch LIVs each month*
- Consent to disclose data is already given in LEAP applications; add to EOC application to reduced number of forms & use a checkbox to allow enrollment in CSG*
- Eliminate the SAA*

*pending approval from Xcel
DEVELOPER MARKETING EXAMPLES

Join Community Solar:
Save money and participate in advancing local, clean energy.

Community Energy Solar is providing new opportunities for low income customers to participate in clean energy. Community Energy’s Community Solar program gives you the opportunity to benefit from local solar with no cost to you and no panels on your property. Joining a Community Solar Garden through Kroll Energy’s SolarRewards Community Program allows you to subscribe to a portion of the solar garden and receive solar net metering credits for what your share produces. You get paid on your utility bill for the solar energy produced by your Solar Share. It’s that simple! You still buy and use energy from Kroll Energy as you always have, but you’ll receive a payment for your portion of the garden’s solar energy produced as a credit on your bill.

How does Community Solar work?

- We build a solar project in your community.
- You subscribe at no cost to a share of the local solar project.
- You still receive your electric bill as you usually would from Kroll Energy, and now you also get solar credits on your electric bill that save you money.

There are many benefits to joining a Community Solar program:

- No cost to you as a qualifying low income resident
- Save money on your electric bill + no annual renewal process to receive credits
- No equipment or solar panels on your property
- Help to bring new, clean renewable energy to your region

Community Energy’s Community Solar Projects:

- Over 11 community solar projects totaling 23 MW (DC)
- Community Energy is providing for a certain number of low income customers to subscribe to a solar share and receive credits at no cost.
Dear [CARE participant],

Previously, the Energy Resource Center weatherized your home to help lower your energy bill and improve your comfort and safety. This was provided to you for FREE through the Colorado Affordable Residential Energy (CARE) program. We are sending you this letter to tell you about another opportunity that can help you save additional money on your energy bill.

Our partner Community Energy is developing several solar gardens in the San Luis Valley. A solar garden is a large collection of solar panels at one location that are connected to generate electricity for Xcel Energy. Because of your past participation with the CARE program, you pre-qualify for FREE electricity from these solar gardens.

Sign up TODAY by filling out the enclosed application and returning it via mail no later than May 1, 2018 to qualify to receive a FREE monthly credit on your Xcel Energy bill starting in February 2019 for up to 20 years. The credit amount will be determined by your home energy usage – it could be as much as your entire bill.

Energy Outreach Colorado is a nonprofit organization that supports the CARE program, and is helping enroll limited-income households into this project. If you have questions about the information provided here, please contact me at jharmo@energyoutreach.org or call 303-226-7064.

Sincerely,

Jenna Harmon
Utility Programs Assistant
Energy Outreach Colorado
jharmo@energyoutreach.org
303-226-7064

---

June 7, 2018

My name is Kyle Sutphin and I work for Oak Leaf Energy Partners, a solar development company based in Denver. One of our goals as a company is to make renewable energy accessible and affordable for everyone, so we have teamed up with Energy Outreach Colorado to do just that. Currently, we are operating under a unique program created by Xcel Energy, called the Community Solar Gardens. A Community Solar Garden offers a simple way for homeowners (like you!), businesses, and governments to participate in solar with no upfront cost and no responsibility to operate or maintain the system. Instead of putting solar panels on your personal roof or building, we construct these facilities on large, undeveloped parcels of land often outside the City. Because the facilities are so big, we get better deals on equipment like panels and mounting systems, and because it costs less to build, we can pass along the savings to our subscribers. Everybody wins!

While most of our larger clients pay for their subscriptions, we’ve decided to structure the partnership with EOC such that a limited number of these clients will receive their subscriptions completely free, no strings attached. We think it is important that all Coloradans have access to renewable energy, and we are glad to be able to help reduce the energy bills of EOC’s friends and clients. This subscription won’t fully offset your electricity bill, but you’ll have a little extra money in your pocket, and you are adding a clean, prosperous American economy through your support of renewable energy.

In order to begin the process of enrolling in the program, we will need you to fill out two different forms. The first is a Data Consent Form which allows us to confirm your eligibility and verify your customer status with Xcel Energy. The second is a [Subscriber Agency Agreement] which actually allows Xcel to credit your bill each month. You may notice that the customer information and solar garden fields are marked “fee attached” – once we get your information back and verified with Xcel, we will fill in this information and send you a copy of the completed form for your records.

If you would like to participate in the program, you will need the following information (in addition to basic contact info):

- Xcel Energy Account Number
- Address where you receive Xcel energy service

You may not use a pen to sign the application. If you do not want to receive a physical copy of the application, please contact us at 720-739-7413 or Kyle_sutphin@oakleafenergy.com. If you have any questions:

Sincerely,

Kyle Sutphin
Project Developer
Oak Leaf Energy Partners
Luke Ilderton
Deputy Director
lilderton@energyoutreach.org
303-226-5059
DENVER WATER
LEAD REDUCTION PROGRAM

Group name: $ave Green, Be Green
Date: March 10, 2020
Agenda

• Denver Water - overview
• Lead Reduction Program - overview
• You, your neighborhood and what to expect
• Resources
• Q&A
BACKGROUND
Denver Water Overview

• Founded in 1918.
• Governed by five-person Board of Water Commissioners to provide separation from City of Denver.
• Water supply comes from mountain snowpack.
• Provide potable and recycled water.
• Serve 1.4 million people with only 2% of water used in the state.
• 3,000 miles of pipe.
• 4,000 square miles of watershed land.
How Lead Enters Drinking Water

• There is no lead in water delivered to Denver Water customers

• Lead can get into water as it moves through customers’ lead-containing household plumbing and service lines
A History of Lead in Drinking Water

1918
Denver Water Established

1951
Denver Water Changes Standards
- Lead banned from paint
- Denver Water allows use of galvanized steel and copper pipes instead of lead for customer-owned service lines.

1971
Denver Water Bans Use of Lead in Service Lines
- Fifteen years before a national ban would be enacted, Denver Water banned use of lead in customer-owned service lines.

1977
Lead Removed from Gasoline
- Amendments to Clean Air Act require lead be removed from gasoline by 1988.

1991
Lead Removed from Service Lines
- Denver Water identifies pH Adjustments to Reduce Corrosion
- Denver Water begins using pH adjustments to reduce likelihood of lead getting into water from customer-owned lead service lines.

1994
Denver Water Launches Lead Reduction Program
- Denver Water launches ongoing program to continue education and reduce lead in drinking water, including replacing lead service lines during construction, offering free lead testing, community meetings, school-based outreach, collaboration with community partners and more.

2011
Reduction of Lead in Drinking Water Act Passes
- Congress passes Reduction of Lead in Drinking Water Act, setting the amount of lead allowed in "lead-free" household fixtures and parts.

2016
Denver Water Seeks Variance to Orthophosphate
- Denver Water launches lead reduction program.

2018-2019
Denver Water Seeks Variance to Orthophosphate
- Denver Water studies impact of orthophosphate as well as elements of an alternative solution by requesting a variance that includes an accelerated lead service line replacement program, filter program and increasing pH for corrosion control, with final proposal due August 2019.

1991-1992
Denver Water Enhances Water Quality Testing
- EPA's 1991 Lead and Copper Rule establishes water quality testing requirements and action levels for corrosion control. In 1992 Denver Water began testing water from homes with bronze lead service lines.

2012
Denver Water Conducts Public Education Campaign and Study
- Denver Water launches extensive public education campaign and begins detailed study and analysis of optimal corrosion control methods to enhance protection for customers with lead service lines and plumbing.

2012-2017
CDPHE Designates Orthophosphate
- In response to 2012 sampling, CDPHE designates use of orthophosphate to reduce risk of lead in drinking water.

2018
EPA Approves Variance
- Denver Water will commence Lead Reduction Program beginning in 2020

2019
Lead and Copper Rule Revisions
- EPA publishes draft LCR revisions for review.

Learn More:
303-875-2444
lead@denvwater.org
denvwater.org/Lead
LEAD REDUCTION
PROGRAM OVERVIEW
Lead Reduction Program Plan 2020

Corrosion Control Treatment
- Implement pH/Alkalinity adjustment starting March 2020

Lead Service Line Inventory
- Continuous investigation to improve inventory
- Keep an up to date online map publicly available
- Estimated 64,000-84,000 LSLs

Accelerated Lead Service Line Replacement
- Begin construction in March 2020
- Target 4,477 LSL replacements
- Work areas within the City and County of Denver

Filter Program
- Begin initial distribution in March
- Complete distribution by August
- Continue filter replacement distribution until LSLs are replaced

Communications, outreach and education
- Incorporated into every program element
pH – What is it and what’s changing?

• The pH level of drinking water reflects how acidic it is.
• It is measured on a scale of 0 to 14, with 7 considered neutral.
• Raising the pH of tap water reduces corrosivity, reducing the likelihood of lead getting into water as it passes through service lines.
• Changing from 7.8 → 8.8
pH – What is it and what’s changing?

CDPHE officials say there are no health concerns for drinking water with pH levels at 8.8
pH – affect changes in taste/odor?

Raising the pH level of drinking water won’t affect its taste or odor. You may notice that the water feels more “slippery.”
pH - What about plants, trees, fish?

- Plants and trees - Denver Water has been and continues to work with irrigation and landscape experts to provide awareness and to learn more about any potential impacts from the increase. There should not be any major impacts.

- Fish - Different kind of fish prefer different ranges of pH. Consult with your veterinarian or local fish aquarium store for guidance.
Filters – Mailed to your doorstep
Filters – What & When
Filters

When do I need to use the water pitcher filter?

Use it to filter water used for drinking (including making tea and coffee), cooking (particularly when making foods like rice, beans and soup) and preparing infant formula.
ALSLR – What is it and where?

- Denver Water estimates there are 64,000 – 84,000 properties that may have lead service lines.

- It will take 15 years to replace all of them.

- Prioritizing replacement in communities who are most vulnerable and at-risk from lead exposure, underserved communities and planned construction activities.
ALSLR - What to expect during service line replacement

- Information in the mail
- Important – sign the consent form!
- In-home visit for property walk through, review the process and discuss schedule
- Lead service line replaced with copper. Replacement can take 4-8 hours.
- Flush the line in your home (instructions will be provided).
- After replacement, continue using your filter until you complete a final water quality test.
- Restoration is the final step to restore your landscape and paving to prior conditions.
Thank you

- [link] denverwater.org/Lead
- Sign up to get updates
- 303-893-2444
- [email] lead@denverwater.org
Q&A
The Renewable Denver Initiative

Empowering the Community Through Clean Energy Investments

$ave Green, Be Green: March 10, 2020

Jonathan Rogers, Renewable Energy Specialist
Where Climate and Energy fits into Denver’s operations

2019...

Mayor’s Office

Department of Public Health and Environment

Division of Environmental Quality

Air & Water Quality
Land Use & Planning
Protection & Response

Climate Action

Office of Sustainability

2020 restructuring...

Mayor’s Office

Office of Climate Action, Sustainability, and Resilience

Management and Operations
Denver’s long-term climate goal: Reduce GHG emissions 80% by 2050 from 2005 baseline
The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the science related to climate change.
Climate risks, extreme events and related impacts

Assessing the Problem in Denver,
2017 GHG Emissions by Source (mt CO₂e)

- Building Electricity Use (35%)
- On-Road Transportation and Transit (23%)
- Natural Gas (including fugitive emissions) (16%)
- Food (11%)
- Other (15%)

https://www.denvergov.org/content/dam/denvergov/Portals/771/documents/EQ/Climate/2017DenverGHGIventory_Summary.pdf
Denver’s Renewable Electricity Goals

2030 - Meet 100 percent of Denver’s community-wide electricity needs through renewable sources

2025 - Achieve 100 percent RE for municipal buildings

*Only 1.8% of the electricity used by the Denver community came from participation in renewable electricity programs in 2017
Denver’s Clean Electricity Objectives

Guiding Principles, Considerations, and Opportunities

1. Leverage Denver’s Position and Scale: Denver’s electricity consumption represents approximately 25 percent of the retail sales on Xcel Energy’s Colorado electric grid.

2. Create Community Impact: Local clean energy investments can improve community-resiliency, create job opportunities, improve air quality, and enhance the functionality of the electric system.

3. Enable Cross-Sector Decarbonization: Renewable electricity is foundational and complementary to Denver’s carbon reduction objectives.

Denver’s three action pillars for equitable electricity decarbonization

**Systemic Change**
Shifting the status quo by being active in State Regulatory proceedings and updating building codes

**Infrastructure**
Leading by example with targeted investments in distributed energy resources at City facilities

**Empowerment**
Offering energy resources and creating opportunities for community members to become advocates for and participants in the energy transition

Within each action pillar, specific tactics consider what we can “Control” vs “Influence”.
The Renewable Denver Initiative

1. Host Community-Solar Gardens on Municipal Property
2. Use holistic planning and diverse partnerships to achieve as many co-benefits as possible
About the Renewable Denver Initiative

Host Community-Solar Gardens on Municipal Property

1. Denver’s municipal properties often have more solar potential (i.e., can produce more power) than can be consumed by the host property.

2. Excess power is currently constrained and/or returned to the grid with little benefit to Denver.

3. The “Community Solar” approach makes excess power available to members of the community.

4. Solar can be deployed in a variety of configurations. The initiative is pursuing a portfolio approach.

Hiawatha Davis Rec Center (48 kW Solar Array)

Example of a solar canopy (61st & Pena Station)

Example of a ground-mounted solar array
About the Renewable Denver Initiative

Use holistic planning and diverse partnerships to achieve as many co-benefits as possible

1. Sites can co-locate with EV charging infrastructure and enable future resiliency efforts (i.e., microgrids/shelters)
2. Socio-economically and geographically distributed locations allows for direct engagement and education with members of the community and increases the equity focus of the initiative.
3. Support of City-agency partners is essential to our success.
4. The local community must support any project before we move forward with a particular site.

Establish technical, legal, and economic foundation for the Initiative

Complete

Collaborate across City agencies to identify host-sites; initiate community partnerships

Ongoing

Construct solar; offtake power for muni-facilities; use excess power to save residents $ on bills

Upcoming
## Comparison of Existing Solar vs Community Solar Solar

<table>
<thead>
<tr>
<th>Condition</th>
<th>Current Solar Arrays</th>
<th>Proposed CSG Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power is produced by solar hosted on City facilities</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>A third-party owns, operates, and maintains the solar array</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>The City buys the solar electricity from the third-party through a “power purchase agreement”</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>There can be an option for the City to own the solar panels at the end of the power purchase agreement term</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>The solar array impacts the intended use of the facility</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>The facility with solar is still connected to the electric grid</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Excess power from the solar system is</td>
<td>Dumped onto the grid</td>
<td>Subscribed to by City facilities and residents</td>
</tr>
<tr>
<td>Low-income members of the community save on utility bills</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>The size of the array can match the solar potential of the site</td>
<td>No, can be restricted</td>
<td>Yes, site can be optimized</td>
</tr>
</tbody>
</table>
What a municipally hosted CSG could look like

1. Similar to existing Denver solar deployments
2. Projects do not interfere with existing uses or purposes of any host properties
3. Solar canopies add value as shade structures and can be readily coupled with EV charging
4. Send a message that Denver is delivering on its clean energy commitments
5. Locally-sited distributed energy resources can strengthen community resilience

Example of a possible site
Central Park Rec Center
- Parking area: 99.0 thousand square feet (1.5MW)
- EV charging co-location option
- Roof space: 30.8 thousand square feet (275 kW)
- No interference with existing uses
**Expected Outcomes for 8MW of Hosted Community Solar**

**297 million kWh (20 yrs)**

- Enough electricity annually to power:
  - 8% of Municipal Electricity Requirements AND
  - 967 homes (510 of which are low-income)

**40 EV Chargers**

- Co-located with solar parking canopies across geographically and socio-economically distributed sites

**8,588 tonnes CO₂ avoided/yr**

- 1,823 cars off the road for a year, each year

**$0 Up-Front Cost to the City**

**$8.2 million in Net Savings vs Baseline Electricity Costs (20 yrs)**

Enabled by municipally hosted CSG approach:

- Government: $4.3 million
- Community: $3.9 million

*Based on current pricing estimates*
Confidence in our community and institutional support

City Collaboration

Support from industry/utility providers

- Xcel Energy
- COSSA

Support from Volunteer/Community Organizations

- Youth Sustainability Board
- Environmental Learning For Kids
- Solar Energy International
- World Resources Institute
- Rocky Mountain Institute
- Energy Outreach Colorado
What are the next steps?
First, make sure we have your email address
We can help you navigate opportunities to save on electric bills and access renewable electricity options.
There may be utility programs you haven’t heard of
Your voice matters

Be an advocate for your community and remember to VOTE
Questions

Jonathan Rogers, Renewable Energy Specialist
Jonathan.Rogers@denvergov.org
Prioritizing Energy Efficiency Upgrades
Low/No-Cost Improvements

Christie-Anne Edie
High-Performance Operations Specialist
GSA Region 8
Topics

- Understanding your Energy Bill
- Simple Payback & Life Cycle Cost Analysis
- Thermal Comfort
- 5 Key Low/No-Cost Strategies
Understanding your Energy Bill

Rate Structure
- Commercial = Usage (kWh) + Peak Demand (kW)
- Residential = Usage (peak built-in)

Reduction strategy depends on rate
**Electric Residential**

**Natural Gas Bill looks very similar**

---

<table>
<thead>
<tr>
<th>METER READING INFORMATION</th>
<th>Read Dates: 08/07/18 - 09/05/18 (29 Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MET E R D2111590</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>CURRENT READING</th>
<th>PREVIOUS READING</th>
<th>USAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Energy</td>
<td>13633 Actual</td>
<td>13322 Actual</td>
<td>311 kWh</td>
</tr>
</tbody>
</table>

---

**ELECTRICITY CHARGES**

**RATE: R Residential General**

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>USAGE UNITS</th>
<th>RATE</th>
<th>CHARGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service &amp; Facility</td>
<td></td>
<td></td>
<td>$5.41</td>
</tr>
<tr>
<td>Summer Tier 1*</td>
<td></td>
<td></td>
<td>$16.98</td>
</tr>
<tr>
<td>Trans Cost Adj</td>
<td></td>
<td></td>
<td>$0.47</td>
</tr>
<tr>
<td>Elec Commodity Adj</td>
<td></td>
<td></td>
<td>$8.22</td>
</tr>
<tr>
<td>Demand Side Mgmt Cost</td>
<td></td>
<td></td>
<td>$0.62</td>
</tr>
<tr>
<td>Purch Cap Cost Adj</td>
<td></td>
<td></td>
<td>$1.35</td>
</tr>
<tr>
<td>CACJA</td>
<td></td>
<td></td>
<td>$0.89</td>
</tr>
<tr>
<td>Renew. Energy Std Adj</td>
<td></td>
<td></td>
<td>$0.67</td>
</tr>
<tr>
<td>GRSA</td>
<td></td>
<td>- $0.95 CR</td>
<td></td>
</tr>
</tbody>
</table>

**Subtotal** $33.66

**Franchise Fee** 3.00% $1.01

**Sales Tax** $1.27

**Total** $35.94

*Rate changes seasonally: Summer & Winter*

*Demand is built into Rate*

*100%*

*Tier 2 starts @500 kWh*

*Rate almost doubles*
### Electric Commercial

#### Totalized Meter W52881

<table>
<thead>
<tr>
<th>Description</th>
<th>Current Reading</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Contributing Energy</td>
<td>139132 Actual</td>
<td>139132 kWh</td>
</tr>
<tr>
<td>Contributing Demand</td>
<td></td>
<td>328 kW</td>
</tr>
<tr>
<td>Total Energy</td>
<td>592197 Actual</td>
<td>592197 kWh</td>
</tr>
<tr>
<td>Demand</td>
<td></td>
<td>1314 kW</td>
</tr>
<tr>
<td>Billable Demand</td>
<td></td>
<td>1314 kW</td>
</tr>
</tbody>
</table>

#### Electricity Charges

**Rate: SG Secondary General**

<table>
<thead>
<tr>
<th>Description</th>
<th>Usage Units</th>
<th>Rate</th>
<th>Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service &amp; Facility</td>
<td></td>
<td>$34.40</td>
<td></td>
</tr>
<tr>
<td>Secondary General</td>
<td>592197 kWh</td>
<td>$0.004610</td>
<td>$2,730.03</td>
</tr>
<tr>
<td>Elec Commodity Adj</td>
<td>592197 kWh</td>
<td>$0.026430</td>
<td>$15,651.77</td>
</tr>
<tr>
<td>Distribution Demand</td>
<td>1314 kW</td>
<td>$5.630000</td>
<td>$7,397.82</td>
</tr>
<tr>
<td>Gen &amp; Transm Demand</td>
<td>1314 kW</td>
<td>$14.020000</td>
<td>$18,422.28</td>
</tr>
<tr>
<td>Trans Cost Adj</td>
<td>1314 kW</td>
<td>$0.480000</td>
<td>$630.72</td>
</tr>
<tr>
<td>Demand Side Mgmt Cost</td>
<td>1314 kW</td>
<td>$0.620000</td>
<td>$814.68</td>
</tr>
<tr>
<td>Purch Cap Cost Adj</td>
<td>1314 kW</td>
<td>$1.340000</td>
<td>$1,760.76</td>
</tr>
<tr>
<td>CACJA</td>
<td>1314 kW</td>
<td>$0.910000</td>
<td>$1,195.74</td>
</tr>
<tr>
<td>Renew. Energy Std Adj</td>
<td></td>
<td>$948.96</td>
<td></td>
</tr>
<tr>
<td>GRSA</td>
<td></td>
<td>- $1,190.19</td>
<td>CR</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td></td>
<td><strong>$48,396.97</strong></td>
<td></td>
</tr>
<tr>
<td>Franchise Fee</td>
<td></td>
<td>3.00%</td>
<td>$1,451.91</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$49,848.88</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Promises Total**

$49,848.88
Peak Demand (kW)

- ~2pm peak (esp. during cooling season)
- Load shifting (alternative pricing options)
Simple Payback & Life Cycle Cost Analysis

- Cheapest option now isn’t always cheapest long-run
- Savings continue past payback
- LCCA adds Maintenance costs

<table>
<thead>
<tr>
<th>Furnace</th>
<th>Current</th>
<th>New #1</th>
<th>New #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficiency</td>
<td>60%</td>
<td>96%</td>
<td>88%</td>
</tr>
<tr>
<td>Install Cost</td>
<td>$0</td>
<td>$2,500</td>
<td>$2,000</td>
</tr>
<tr>
<td>Annual NG Cost</td>
<td>$750</td>
<td>$350</td>
<td>$450</td>
</tr>
<tr>
<td>Annual Savings</td>
<td>$0</td>
<td>$400</td>
<td>$300</td>
</tr>
<tr>
<td>Payback</td>
<td>N/A</td>
<td>6.25 yrs</td>
<td>6.67 yrs</td>
</tr>
</tbody>
</table>
Electricity usually more $$$ than NG.

Projects targeting electricity typically save more $$$.

**Annual Energy (kBtu) FY 2018**

- Electric: 36%
- Natural Gas: 64%

**Annual Energy Cost FY2018**

- Electric: 75%
- Natural Gas: 25%
Rebates “Incentives”

- Check local (Xcel) utility provider
- Check State/National programs
HVAC = Biggest Energy User (Cooling + Heating)

- **Thermal Comfort** (4 Factors)
  - Temperature
  - Humidity
  - Air Flow
  - Radiation (Solar)

- Heat rises
5 Key Low/No-cost Strategies
Things you can do in the next year
1. Programmable Thermostats

- **Occupancy Schedules**
  - 7-day, 5-2 & “Smart”
  - Occupied vs. Unoccupied
  - Early Mon (start)/Fri (shutdown)
  - Holidays
  - Overrides

- **Setpoints**
  - Heating = 70
  - Cooling = 74
  - During unoc: Night/Wknd Setback 55/90
  - Location of Thermostat
1. Programmable Thermostats

- **Zones**
  - Target certain spaces & exclude others
  - Occ vs. unocc

- **Load (Need)**
  - Where are the people?
  - How many?
  - For how long?
HVAC Alternatives

- Ceiling Fans
- Evaporative Cooling
  - Good for our dry climate
- Passive Strategies
  - Trees (shade)
  - Blinds
  - Awnings/Overhangs
  - Open windows
    (free cooling)
2. (Stop) Air Infiltration

Building Envelope (Thermal Barrier)
Stopping Air Infiltration

- **Methods**
  - Weather-stripping & doors sweeps
  - Seal Intrusions
  - Vestibule/Mud Room – Transition
  - Windows don’t pay back

- **Tip:** Plan contractors for opposite season

- **Testing**
  - Thermal Imaging Camera
  - Use candle to check drafts
3. Preventative Maintenance

“A Stitch in Time”

- HVAC Filters
- Reliability-Centered Maintenance
  - “Fix-on-fail”
  - Criticality or Consequence of failure?
- Roof
  - White shingles = same price
4. Energy Monitoring

- **ES Benchmarking**
  - Performance over time
  - And against neighbors
  - Free!
  - Required by Energize Denver >25,000 SF

- **Energy Audit**
  - Optimize Operations
  - Learn Strengths/Weaknesses
NG Summer ‘Baseload’ Hot Water Heater
5. Lighting Upgrades

- **LED**
  - Same lumens from way less wattage ($60W = 9W$)
  - ~3-5 yr payback

- **Spot vs. Complete re-lamping**

- **Improved lighting quality**
  - Color Temperature – Warm vs. Daylight
  - Incandescent (emits heat) = more cooling load
  - Fluorescent ‘hum’

- **Occupancy Sensors**
  - Strategic placement – bathrooms, nothing blocking, etc.
  - Not in unsafe environments
  - Outside timers
    - $X$ # minutes or dusk-to-dawn
Key Takeaways

- **Payback**
  - Cheapest now vs. cheapest long-run
  - Electricity is more expensive than NG
    - Saving electricity usually saves more money
  - Check for rebates

- **Thermal Comfort Factors**
  - Temperature
  - Humidity
  - Air Flow
  - Radiation
5 Key Low/No-cost Strategies

1. **Programmable Thermostats** - optimize heating/cooling **setpoints** & **schedules**

2. **Air Leaks** - seal to control

3. **Preventative Maintenance** - “a stitch in time” – maintaining equipment saves money later

4. **Energy Monitoring**
   - **Benchmark** in Energy Star
   - Get an **Energy Audit**

5. **Lighting** - **LED** & **Occupancy Sensors** pay for themselves in no time
Prioritizing Building Upgrades and How to Pay for Them

Peter Rusin - Faith Energy Management

Advance Lighting Design

Boiler replacement and modern controls addition

Solar Power Options
Three Take Aways

1) How to utilize energy spend as an asset

2) The basics of Colorado PACE and how to get started / more info

3) Xcel Energy Business Financing Program (includes non-profits)
Who is Faith Energy Investors?

- A Colorado business dedicated to helping faith based organizations view their energy spend as an asset and not a mandatory budget line item.

- Financial problem solvers assisting parishes and faith based schools and affordable housing to get the most benefit out of projects.

- A partner, who’s goal is a long term relationship and the implementation of projects that reduce operating costs.
Why Faith Energy Exists

• Many Churches and schools have a backlog of capital expenditures or would like to improve their building’s efficiency but do not have a technical roadmap

• Funding energy efficiency measures requires capital that must compete with other budgetary priorities or organizational needs

• Typical energy efficiency financing benefits are often not available to faith based buildings

• Faith Energy seeks to address these issues leading to real dollar savings to 250 fund ministry jobs by 2023.
Energy Outreach Colorado Programs

Affordable Housing Rebate Program (AHRP)
• Provides above market rate rebates to low-income property owners.
• Rebates cover substantially more of the project cost than standard rebates, helping cash-strapped owners to complete retrofits
• Michael Harris, Residential Program Manager, at 303-226-7061 or at mharris@energyoutreach.org

Non-Profit Energy Efficiency Program (NEEP)
• Energy efficiency grant program for 501c3 organizations that serve low-income community members
• Common measures: HVAC, weather-stripping, programmable thermostats, aerators, pipe insulation, hot water heater
• Program aims to pay up to 100% of costs = high likelihood of bidded work reaching completion
• Brooke Pike, NEEP Program Manager, at 303-226-5060 or at bpike@energyoutreach.org
# Utility Spend as an Asset

### XYZ Not-for-Profit Organization

#### Budget to Actuals

For the Three Month Period March 31, 2XXX

<table>
<thead>
<tr>
<th></th>
<th>Approved (Jan-Dec) Annual Budget</th>
<th>Current Month (March) Actual</th>
<th>YTD (Jan-Mar) Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenue:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fees</td>
<td>$5,500.00</td>
<td>$375.00</td>
<td>$4,405.00</td>
</tr>
<tr>
<td>Grants</td>
<td>450,000.00</td>
<td>150,000.00</td>
<td>225,000.00</td>
</tr>
<tr>
<td>Other revenue</td>
<td>8,000.00</td>
<td>998.45</td>
<td>2,296.54</td>
</tr>
<tr>
<td><strong>Total revenue</strong></td>
<td>$463,500.00</td>
<td>$151,373.45</td>
<td>$231,701.54</td>
</tr>
<tr>
<td><strong>Expenses:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salaries and wages</td>
<td>426,000.00</td>
<td>35,229.11</td>
<td>105,222.13</td>
</tr>
<tr>
<td>Membership dues</td>
<td>3,500.00</td>
<td>225.00</td>
<td>985.00</td>
</tr>
<tr>
<td>Board/committees</td>
<td>6,500.00</td>
<td>626.13</td>
<td>1,256.24</td>
</tr>
<tr>
<td>Rent</td>
<td>13,200.00</td>
<td>1,100.00</td>
<td>3,300.00</td>
</tr>
<tr>
<td>Utilities</td>
<td>6,000.00</td>
<td>489.12</td>
<td>1,589.24</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>4,800.00</td>
<td>195.45</td>
<td>4,212.85</td>
</tr>
<tr>
<td>Volunteers</td>
<td>3,500.00</td>
<td>233.26</td>
<td>795.25</td>
</tr>
<tr>
<td><strong>Total expenses</strong></td>
<td>$463,500.00</td>
<td>$38,098.07</td>
<td>$117,360.71</td>
</tr>
<tr>
<td><strong>Surplus/Deficit</strong></td>
<td>$ -</td>
<td>$113,275.38</td>
<td>$114,340.83</td>
</tr>
</tbody>
</table>
## Utility Spend as an Asset

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy improvements:</td>
<td>Lighting</td>
</tr>
<tr>
<td>Total amount of Project:</td>
<td>$12,400 (after utility rebates)</td>
</tr>
<tr>
<td>Annual Energy Costs:</td>
<td>$6,000</td>
</tr>
<tr>
<td>Annual Reserve or Loan Payment:</td>
<td>$2,522 (6 years at 6%)</td>
</tr>
<tr>
<td>Annual energy cost savings:</td>
<td>$2,840</td>
</tr>
<tr>
<td>Average annual cash flow:</td>
<td>$318 (Net)</td>
</tr>
</tbody>
</table>
Utility Spend as an Asset – Example 2

Energy improvements: Boiler and Thermostat Replacement

Total amount of Project: $45,000

<table>
<thead>
<tr>
<th></th>
<th>Pre Replacement</th>
<th>Post Replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Gas Cost</td>
<td>$12,000</td>
<td>$9,000</td>
</tr>
<tr>
<td>Maintenance Cost</td>
<td>$14,000</td>
<td>$3,000</td>
</tr>
<tr>
<td>Total Annual Cost</td>
<td>$26,000</td>
<td>$12,000</td>
</tr>
</tbody>
</table>

Energy Only Payback: 15 years ($45,000 / $3,000)

Real Payback: 3.2 years ($45,000 / $14,000)
Standard for Success

- In Colorado non-profit building potential savings based on energy use (gas and electric) per square foot (sq ft)
  - Under $1 / sq ft = 5-10% savings available
  - $1- $2 / sq ft = 10-20% savings available
  - More than $2 / sq ft = 20% or more savings available

- How to calculate
  - Annual Utility Spend is $6,000
  - Square footage of Building is 4,000 square feet
  - $6000 / 4000 sq ft = $1.50 utility dollars per square foot

- Don’t Forget About Maintenance Cost!
What is Colorado PACE (C-PACE)?

C-PACE is a voluntary tax assessment-based, private financing program
- Commercial sector, including office, agricultural, multifamily, etc.
- Supports energy and water improvements that lead to utility cost savings
- Private lenders such as banks make loans which are repaid through the county assessor system
- Nonprofits can participate in program due to parcel id

New Energy Jobs Act in 2015 enabled the creation of C-PACE
- Established the New Energy Improvement District (NEID) – Statewide District
- Each Colorado has to join the district separately
- Program Administrator must review every project
Value Proposition of PACE

**Financing Benefit**
- Finance 100% of project costs
- Longer duration financing = cash flow positive projects that increase Net-Operating Income
- Reduces project cost of capital by utilizing county tax system and first lien status (lenders view the loan more secure than a mortgage)

**Building Benefit**
- Avoid unplanned capital investments
- Addresses “split incentive” under some scenarios
- Assessment/lien transfers with the property
- Reduce operating cost through savings on utilities and maintenance
Typical Improvements

- Heating/Ventilation
- Lighting
- Water Pumps
- Insulation
- Solar Panels
- Motors
- Roof
How Colorado PACE works?

- County Assessor’s Office
- Lender
- Nonprofit
- Contractor, etc.

1. County Remits Payment to Lender
2. Lender pays contractor based on work milestones and nonprofit approval
3. Lender pays contractor based on work milestones and nonprofit approval
4. County remits payment via assessment through existing tax system

Contractor installs equipment

Lighting, HVAC Contractor, etc.
Where is PACE Available?
Get More Information on C-PACE

Main Website:

www.copace.com

C-PACE Team Contact:

- Tracy Phillips
  Director, C-PACE Program
  Email: TPhillips@copace.com

Phone: (720) 933-8143
Xcel Energy has partnered with the National Energy Improvement Fund (NEIF) to provide access to capital

- Commercial, non-profit, and municipal sector, including office, agricultural, multifamily
- Supports energy improvements that lead to utility cost savings
- NEIF uses an online portal to link non-profits to private lenders
- NEIF has a national footprint and non-profits outside of Xcel service area can participate
Value Proposition of Xcel Financing

Financing Benefit

• Finance 100% of project costs
• Smaller project size can be financed - $3,000 minimum
• Online Portal can provide estimated cash flows
• Financing approvals are subject to credit review
• Easy 1-2 page financing application and approvals in 24-48 hours
• 2-7 year terms (up to 12 years in some circumstances)

Building Benefit

• Avoid unplanned capital investments
• Equipment, not building secures the loan
• Reduce operating cost through savings on utilities and maintenance
• Note NEIF can also provide PACE funding
More Information on Xcel Program

Main Website:

https://www.neifund.org/financing-businesses

Team Contact:

- Heather Braithwaite
  Vice President, Commercial Lending
  Email: hbraithwaite@neifund.org

Phone: (303)-704-5057
Three Take Aways

1) How to utilize energy spend as an asset

2) The basics of Colorado PACE and how to get started / more info

3) Xcel Energy Business Financing Program (includes non-profits)
Contact Information

Thank you for being interested in reducing your energy costs and carbon footprint!

Peter Rusin
Faith Energy Investors

Email: peter@faithenergy.net

Phone: (970) 445-0138