Business Energy and Education Program (BEEP)
Goals For Initiative

- Engage 1500 Businesses
- Use Partnerships to Leverage Resources and Expand Skillsets
- Develop Strong link between Sustainability and Economic Dev.
- Decrease Program Costs Per Business
- Provide Unanswered Training Needs
- Increase Profitability of Local Businesses
- Decrease Environmental Footprint
Program Info

- Established Initially By Partners Representing All Levels of The Community

- Maximize Use of Living Classroom – The Learning Source Retrofit

- ARRA Funding To Get Training Program Off the Ground

- Managed By The Learning Source with Key Leaders from Other Partner Agencies.

- Target Clientele – Lakewood Businesses and Local Students
Recognition of Program

- Featured as 1 of 3 Projects at the All-American Competition -
  City of Lakewood was Awarded All-American City 2011
Leverage Partnerships

- Red Rocks Community College and Other Local Colleges
- Alameda Gateway Business Association
- The Learning Source
- City of Lakewood
- Other Local Non-Profits and Agencies
Opportunity

$750,000,000,000,000  $275,000,000,000,000

66% OF ENERGY LOST

71% OF ENERGY LOST
Economic Development & Sustainability

- Opportunity In Tough Times
- 640 Million / Year Lost through Energy Inefficiency
- Eliminate The Argument
- Develop SROI Analysis with Annual Data
Efficient Program

- Use Mix Of Highly Trained Professionals and Students
- Target Low and No Cost Measures first
- Use Of Diverse Skillsets
- Every $1 in investment = $3 in savings
New Model for Training

- Take the Classroom to the Streets
- Develop Direct Pathway To Employment – Niche Creation
- Answer to Pressure that Colleges are Receiving to show Results of Employment from Graduates
New Model for Training
Examples of Success

- St John’s Hospice Care
Examples of Success

- Elks Lodge
Examples of Success

- The Action Center
Lessons Learned / Workarounds

- Work Hard to Eliminate the Traditional Arguments

- It is Not An Easy Process to Gain Access to Energy Data from Businesses And Utilities

- It is Okay to Focus on Just Low or No Cost Energy Saving Measures such as Occupancy Behavior Training, Lighting, and Energy Saving Equipment

- Look for Synergies of Services Provided in Program
Questions?
Our Team

Jeremy Lauffenburger
Commercial Energy Advisor

Sharon Procopio
Commercial Energy Program Manager

Julie Carlton
Outreach & Marketing

Tom Herrod
Grant Manager

Liz Babcock
Residential Program Manager

Todd Bevington
Commercial Energy Advisor

ENVIRONMENTAL HEALTH
Promoting Healthy Communities
Help Denver residents & businesses save energy and $$ while reducing GHG emissions, in support of the Denver Climate Action plan.

GOALS:

- Serve 6,000 homes and 1,200 businesses
- Reduce participants’ energy use by 15% or more by May 2013
  - Upgrade 1,200 homes
  - Upgrade 750 businesses
Denver’s top GHG emitters

- Commercial / Industrial Bldgs: 34%
- Residential Bldgs: 14%
- Commercial/Industrial Bldgs: 10%
- Fuel Processing: 7%
- Air Travel: 6%
- Transit: 1%
- Commercial Trucks: 4%
- Trucks and SUVs: 12%
- Cars: 7%
- City Govt Bldgs: 3%
- Food: 2%
- Cement: 10%
Business Services

- Free energy evaluations/recommendations
- Rebates and incentives ($$$)
- Recognition and promotion (“brag” packs)
- Smaller-sized Businesses can also receive
  - Start-to-finish technical assistance and project support
  - Free efficient screw-in lights (CFLs/LEDs)
# Funding Sources

<table>
<thead>
<tr>
<th>SOURCE</th>
<th>AWARD</th>
<th>PURPOSE</th>
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</thead>
<tbody>
<tr>
<td>EECBG Formula</td>
<td>$500,000</td>
<td>Small Business Energy Program Incentives &amp; Rebates</td>
</tr>
<tr>
<td>EPA CSC</td>
<td>$491,000</td>
<td>Residential, Commercial, &amp; Transportation Energy and GHG Reduction Strategies</td>
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<tr>
<td>GEO MSEI</td>
<td>$150,000</td>
<td>Commercial Energy Efficiency Model/Pilot – Colfax</td>
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<tr>
<td>GEO Match</td>
<td>$165,000</td>
<td>Commercial Program Incentives (lighting upgrades)</td>
</tr>
<tr>
<td>EECBG BetterBuildings</td>
<td>~$2 million</td>
<td>Commercial Energy Program Rebates, Contracts, Outreach, Staff Time</td>
</tr>
</tbody>
</table>
Key Program Partners

DENVER
THE MILE HIGH CITY

ENVIRONMENTAL HEALTH
Promoting Healthy Communities

GREEN BUSINESS

GreenFAX
Providing Green Alternatives for Businesses Along the Nation’s Longest Avenue

WEST COLFAX
Colfax on The Hill
Colfax Business Improvement District

MILE HIGH BUSINESS ALLIANCE

DPS Energy Challenge
facebook.com/dpsEnergyChallenge

Xcel Energy
= Lots of Moving Parts

- GEO
  - GEO Main Street Efficiency Initiative Grant a.k.a. GreenFAX
- Colfax BID
- Colfax on the Hill
- Mile High Youth Corps
- West Colfax BID
- Xcel Energy
- EPA Energy Star

- Schools/Non-Profits
  - Denver Public Schools
  - Denver Office of Strategic Partnerships Programming (NEAP, NEEP, etc.)

- Commercial/Small Biz
  - Direct Install Lighting a.k.a. Lightbulbs

- Residential
  - Groundwork Denver
  - DOSP

- DOE
  - ARRA Funding (EECBG-A, EECBG-C)

- Mile High Business Alliance (Outreach)
- Mile High Business Alliance (trade processing)
- CRC, Shaw Group, Revision
- Local Green Teams
- Xcel Energy
- Mile High Youth Corps

- Partner
  - $\$ SOURCE
    - Description

- Target
Sustaining our Efforts

1. Determine most effective services provided.
2. Determine practical value/cost to continue to provide those services.
3. Identify most feasible funding mechanisms.
4. Map our a transition plan.
5. Adapt as needed!
Long-term potential

Hundreds of business interactions/projects
2010-2013

Hundreds of relationships for ongoing improvement and future value
Start Small

- Identify key partners and stakeholders that can *connect, engage, motivate, & promote* businesses
- Research and learn from other programs
- Start with the easy stuff first (in our case, lighting)
- Use a small group of champion participants to pilot program ideas
- Monitor, evaluate, and adjust as necessary
- Use free tools and resources where you can
- Use the 80% solution method
- Think about economies of scale, i.e. how to grow?
Bluebird Theater
Ramp Up

How will we serve 600 as well as we served 30?

Small Business Program Participation

# of participants

Date


Date

Overcome Challenges

- **Time**
  - Grant roll-out process took longer than expected → ADAPT
  - Contract processes and paperwork require careful coord. → build your contract support team EARLY, push OFTEN

- **Money**
  - Fluctuating spend rates (rebates, contracts, etc) → ADJUST
  - Lots of funding sources to manage at once → PRIORITIZE, SEEK OPPORTUNITIES, BE FLEXIBLE

- **Information**
  - Reporting / Data Management demands → develop a CMS
  - Market confusion → uniform brand, clear messaging, (connect with utility, contractors, community partners)
Program Successes

- 650 participants enrolled
  - 100 Direct Install Lighting Projects
  - 230+ projects completed
  - 250+ more pending
  - 3,000+ lightbulbs replaced
  - $500,000 in rebates issued
  - Over 7.5 million kWh in energy savings annually
    - 1000+ cars of the road per year
    - Power ~48 ski lifts per season

- Community wide strategy added momentum
  - Shared website: [www.denverenergy.org](http://www.denverenergy.org)
3rd Ave Studio

- 62 incandescent light bulbs upgraded to efficient CFLs

- Savings:
  - ~15,500 kWh/yr
  - ~$1,500/yr

- Annual GHG Reduction
  - ~25,000 lbs CO2
  - 2.2 cars off the road for one year
  - Power 14 ski lifts for one day
3rd Ave Salon Direct Installation -
Actual Energy Savings

- 2011
- 2010

28% reduction (@ peak summer use)

34% reduction (less A/C required)


- 24% reduction post-upgrade

JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG

Average Daily Usage (kWh/Day)
Free Direct Install Lighting Receipt and Waiver

Business Name: 3rd Ave Studio
Address: 5575 East 3rd Ave
Premise ID#: Date: 2/24/2011

Congratulations on your new, efficient lighting. This form may serve as a reference to the type and energy use of your new lighting. When it comes time for replacement, contact a distributor listed on the following page and provide them with the bulb's Mfg#.

<table>
<thead>
<tr>
<th>Lamp Description</th>
<th>Mfg#</th>
<th>Dimmable (y/n)</th>
<th>Price per Bulb</th>
<th># of Bulbs</th>
<th>New Watts In</th>
<th>Old Watts Out</th>
<th>Hours of Operation per Week</th>
<th>Energy Demand Reduced (kW)</th>
<th>Est. Annual Energy Savings (kWh)</th>
<th>Estimated Annual $$ Savings*</th>
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<tr>
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<td>1R2014</td>
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<td>50</td>
<td>35</td>
<td>0.144</td>
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<td>$26</td>
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<td><strong>Totals:</strong></td>
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<td>$394.48</td>
<td>62</td>
<td>394.48</td>
<td>223.76</td>
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<td>3.376</td>
<td>15,556</td>
<td>$1,556</td>
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</table>

* Estimated Annual $$ Savings are based on the business' operating hours and an electric rate of: $.10 / kWh

Annual GHG Reductions (lbs. CO2): 24,889
That's equivalent to taking ~ 2.2 cars off the road for 1 yr
That's enough to power ~ 14 ski lifts for 1 day

The Denver Small Business Energy Program is funded by the Department of Energy’s American Recovery and Reinvestment Act (ARRA) and is sponsored by the City and County of Denver.
477 LED fixtures

Estimated Savings:
- ~95,000 kWh/yr
- ~$9,500/yr on bill

Annual GHG Reduction
- ~152,000 lbs CO2
  - ~13 cars off the road/yr
  - ~87 ski lifts for 1 day

Project Cost: $143K

Rebates (Xcel + City):
- ~$14K + $5K

Our accountant said we would be crazy not to switch to LED lighting based on the operating cost savings alone, said Fred Emich, partner and operator of Emich Volkswagen.
Lessons Learned

- Businesses take action when they receive:
  - PERSONAL support and guidance
  - A clear PATH to saving money
  - PERSISTENT encouragement
  - PROMOTION for accomplishments
 Lessons Learned

- Baby Steps - phases pay for phases:
  - Many businesses that receive free lighting typically follow up later to pursue additional energy projects

- Be Creative (will help overcome challenges)
- Be Nimble (adapt and make changes as needed)
- Be Patient

- Celebrate milestones & successes along the way!
Boulder County EnergySmart
Commercial PACE Lending and Beyond
2008

HB 98-1350 (May)

Boulder County Ballot Measure 1A (Nov)

yes1A.org
Affordable, Clean Energy for All
- Property Owners opt in (minimized general fund impact)
- Funds from sale of bonds
- Special Assessment upon property; repayment via tax abatement, responsibility remains with the benefitted property
- Up to full cost lent, $3000-$210,000; 5-, 10-year terms
- Lender consent, utility waivers required
ClimateSmart loan program for commercial properties

**Application & Financing Process**

1. **Property owner reviews eligible measures list**
2. **Property owner gets bids/estimates from contractor**
3. **Property owner applies for a loan (application can be found online)**
4. **County prequalifies property owner**
5. **Property owner brings paperwork to loan originator**
6. **County sells bonds (determines assessment rates)**
7. **Property owner receives notice to proceed to begin work**
8. **Work is completed and contractors are paid**
9. **Property owner begins repayment through a special assessment on their property**

save energy, save money, save energy, save money
Initial Challenges

- Limited market – owner-occupied businesses only …

Who are they?

- Larger property owners had own sources of funding, but not yet motivated to make investments, because tenants pay energy bills

- Tough economy for potential borrowers

- Fewer borrowers = higher interest rate

- Bonding → Could not state interest rate in advance
Workarounds

- Two deadline extensions
- “Bonus Rebate” of up to 70% of project cost or $10,000
- Outreach to contractors
- LOTS of staff time
- Special Bonding Conditions granted by our Bond Counsel
Administrative Hurdles

- Davis-Bacon Act (triggered by ARRA rebate)
  - Contractors had to pay higher wages
  - Contractors had to re-bid (and reveal margin)
  - Documentation burden for contractors and county staff
  - Wage determinations not available for EE/RE
  - Guidance difficult to get in a timely fashion

- OCC warning issued in July → new disclosure/acknowledgement by borrowers/lenders

  “National bank lenders should take steps to mitigate exposures and protect collateral positions. For existing mortgage and home equity loans, actions may include the following in accordance with applicable law... In the case of commercial properties, securing additional collateral”.
Successes: Diverse Projects

- 29 loans:
  - $1,737,009 In Projects Funded
  - $-259,290 In Rebates Delivered
  - $1,477,719 In Loans Originated
    - ($108,703 10-year loans) 2.92% interest / 4.27% closing costs
    - ($1,369,016 5-year loans) 1.04% interest / 8.09% closing costs

- 4 Cities: Boulder, Longmont, Lyons, Nederland
- Business, Nonprofit, Multifamily
- “Custom” projects that don’t receive utility rebates
- Longer-payback, longer-lifetime measures
CLIMATE SMART Loan Program: Heating and Cooling Upgrade at Concertos in Chocolate

"The new HVAC systems with economizers, will cool our chocolate processing area with outside air whenever the outside temperature drops to 55°F or below. We have already seen a reduction of energy cost and consumption over the summer months and expect to see larger savings with the approaching cooler weather."

- Chris Widlar
Concertos in Chocolate, LLC

CONCERTOS IN CHOCOLATE, LLC
6395 Gunpark Drive, Units R & S, Boulder, CO

BUILDING USE: 1-story multi-unit, light-industrial
SQUARE FOOTAGE: 2,000

ROOFTOP UNIT UPGRADE

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>PROJECT COST</td>
<td>$17,906</td>
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<tr>
<td>REBATES</td>
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<tr>
<td>PROJECT COST AFTER INCENTIVE</td>
<td>$7,326</td>
</tr>
<tr>
<td>ENERGY COST SAVINGS/YEAR</td>
<td>$945</td>
</tr>
<tr>
<td>PAYBACK (YEARS)</td>
<td>7.75</td>
</tr>
<tr>
<td>LBS. CO₂ SAVINGS/YEAR</td>
<td>11,848</td>
</tr>
</tbody>
</table>
CUTTING COSTS AND GREENHOUSE GAS EMISSIONS AT 1011 WALNUT

"The combination of attractive financing and quick payback from energy-saving replacement and recommissioned systems makes the business decision to participate in the ClimateSmart Loan Program a very sound and extremely practical choice. In addition to that, our high environmental and energy-efficiency standards attract the best tenants and build a good landlord-tenant relationship."

- MARK MCGEE, OWNER
1011 WALNUT STREET

1011 WALNUT LLC
1011 Walnut Street, Boulder, CO

BUILDING USE: 4-story, multi-tenant, mixed retail building
SQUARE FOOTAGE: 22,628

HEATING & COOLING AND LIGHTING UPGRADES

<p>| | |</p>
<table>
<thead>
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<tbody>
<tr>
<td>PROJECT COST*</td>
<td>$47,127</td>
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<tr>
<td>REBATES</td>
<td>$13,702</td>
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<td>UTILITY</td>
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<td>CS LP (CLIMATE SMART)</td>
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<td>PROJECT COST AFTER INCENTIVE</td>
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<tr>
<td>LBS. CO₂ SAVINGS/YEAR</td>
<td>90,101</td>
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</table>

* Full lighting costs were included in this analysis. Only incremental costs (increased cost of efficient over standard equipment) was included for the rooftop units. Energy Management System and DDC costs not included.
Solar Thermal BEER

Solar Water Heating

Efficient Heating/Cooling Units
Solar Shades
Big Ass Fans
Lighting
Direct Digital Control
Energy Management Systems

Low-E Windows and Film

Efficient Furnaces
Photovoltaics
Wall and Roof Insulation
Cool Roofs
Condensing Boilers
Daylighting
Efficient Motors and Drives
Air Sealing

EARTH)NET

BETTER BUILDINGS
MERCY MEDITUS
CACHES
DREGS
Lessons Learned

- Marketing is essential
- Launch firmly, don’t let requirements change
- Davis-Bacon burdensome to administer on many small, private projects
- Contractors will sell a good program
- Businesses and nonprofits take time to make decisions, and may not be able to follow a very complex application process
- Contractors want to work only with the business (not with the government)
Residential and Commercial
Public-private partnership
Public Loan-Loss Reserve
Private funds for lending (no Davis-Bacon!)
Revolving Loan Fund (for sustainability)
Must comply with relevant DOE regulations and/or goals

DOE Regulatory Maximums for financing:
  - 20% max of award for a Revolving Loan Fund
  - 50% of $25 million award for finance activities

5:1 leverage goal built into Funding Opportunity

Announcement (FOA)
  - Leverage consists broadly of private capital brought to the table as a result of the award.

Boulder award specifies:
  - $8.8 million for finance activities divided between credit enhancement and revolving fund and subject to above maximums.
RESIDENTIAL AND <$40,000 BUSINESS LOANS

Boulder County

BOCO

Funding Pool

Elevations Credit Union

Property Owners

CHFA

20% Loan Loss Reserve

Loan Loss Reserve Support

Full Loan Origination/Servicing
- **Loans to Non-Profits and >$100,000 Commercial**

![Diagram](image)

- **BOCO**
  - **Funding Partners**
    - **Property Owners**
    - **Funding Pool**
      - **100% of Loan Capital**
      - **Full Loan Origination/Servicing**
      - **Loan Loss Reserve Support**

- **PRI, CRA and other Investors**
  - **CHFA**
    - **20% Loan Loss Reserve**
• **Expected Residential Uptake in 2012**
  - ≈ 1,410 Boulder Homes (based on 1.88% of 75,000 owner occupied homes)
  - ≈ 2,364 Denver Homes (based on 1.78% of 132,793 owner occupied homes)

• **At an average Residential loan of $5,000**
  - $7,050,000 in Boulder
  - $11,820,000 in Denver

• **Mean Interest rates** (homeowner would be willing to pay)
  - Denver 3.4%
  - Boulder 3.8%
Expected Commercial Loan Uptake in 2012
- ≈ 180 Boulder Businesses (based on 3% of 6,000 business establishments)
- ≈ 396 Denver Businesses (based on 3.3% of 12,000 business establishments)

At an Average Commercial loan of $15,000
- $2,700,000 in Boulder
- $5,940,000 in Denver

Mean Interest rates (Business owner would be willing to pay)
- 4.7% in Boulder
- 4.4% in Denver
Loan Specifics

• Commercial Loans
  • $1,000 to $150,000+
  • 3, 5, 7 or 10 year terms
  • Add 1% interest rates to chart at right for commercial
  • Funding Partners will capitalize non-profit and loans over $40k

• Residential Loans
  • $500-$25,000
  • 3, 5, 7 or 10 year terms
  • Rates to the right ->

<table>
<thead>
<tr>
<th></th>
<th>FICO</th>
<th>36 month</th>
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<th>84 month</th>
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<tr>
<td>C-</td>
<td>580</td>
<td>5.375%</td>
<td>6.125%</td>
<td>7.125%</td>
<td>8.625%</td>
</tr>
</tbody>
</table>

• All Loans
  • Include Advisor Service
  • Must come from our Eligible Measures list
  • Can include renewables if 15% efficiency first met
  • Can be Coupled with our Rebates
  • Must be an Elevations CU Member
  • $25 deposit required
Program Marketing

- $600,000 for direct marketing of the loan program in Boulder and Denver Counties
  - Largest single-program marketing budget in County History
- Essential for getting funds disbursed
- Radio, Events, Contractor engagement, Social media
- Targeting to Elevations’ 90,000+ member base
- Always marketed alongside EnergySmart and Denver Energy Challenge advisor services
Property Owner Outreach

- Bottom-up (requests from the tenants for upgrades)
- Top-down (direct outreach to the property owner)

- Go to them: provide dedicated Advisor and hand-hold though the process.
- Understand their business model
- Use financial case studies
- Do the busywork for them (rebate apps, waivers.)

- Once you have one well-known property owner, the others will start to listen