
Removing Barriers: Getting Millions of Dollars of Long- Payback Energy Efficiency Measures On the Street

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AESP, February 2010

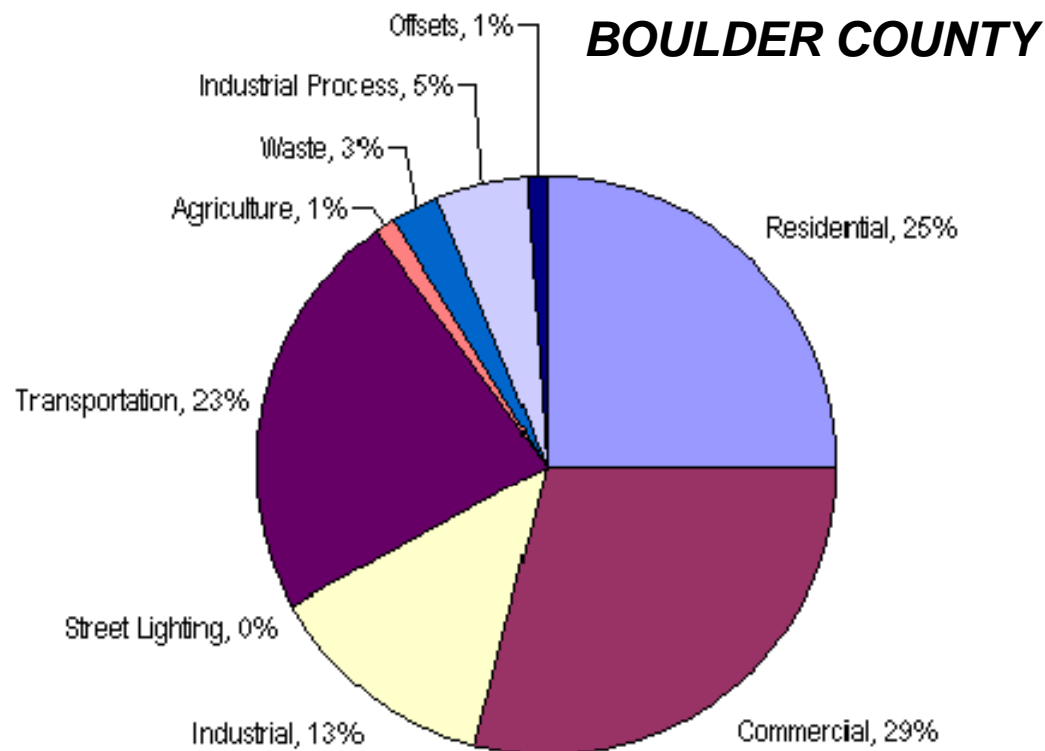


Outline of Presentation

- Context / Status Quo / Problem
- Loan program – 4 examples
 - Boulder County
 - Sonoma County
 - Palm Desert
 - Berkeley
- Summary and Lessons

Sources of GHG Emissions

- Local GHG inventories show existing buildings responsible for HALF emissions.
- Focus for utilities & communities with GHG goals.



Energy Efficiency Initiatives

- Utility programs – variety of programs, measures
 - Very strong success in lighting (short payback)
 - Other measures require greater interventions
 - Funding source
- City options?
 - Funding sources limited
 - Can't afford high rebates, costly interventions

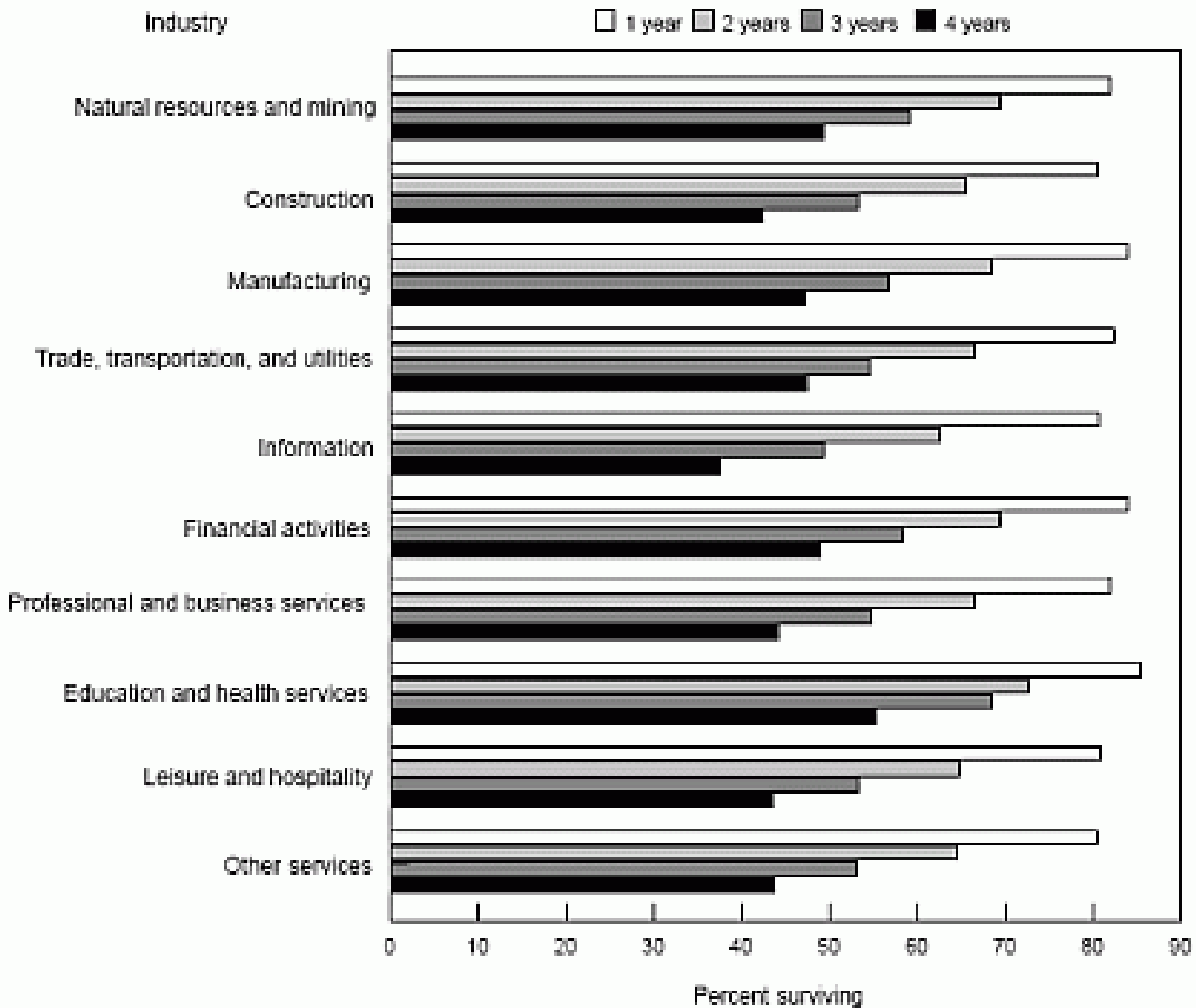
Participation Decision

- Horizon issue
 - Math may show payback of 5, 10, 15, 20 years BUT with any significant risk that
 - household MAY move or
 - business MAY fail,
 - no investment occurs - **unless utility buys down payback to fewer years** than the potential move/failure (rebate, etc.).
- Rational behavior, but
- → Opportunity for savings over the short AND long term are lost. Lose opportunity for progress toward GHG goals.

Mobility in the US

- **Homes:** About 40 million people move annually in the US. Nearly 3/4 of the US population moves an average of once every 5 years (wiki)
- **Businesses:** The data show that 66 percent of new establishments were still in existence 2 years after their birth, and 44 percent were still in existence 4 years after (BLS).
- Rational decision-making...

Chart 2. Survival rates of new establishments from second quarter of 1998, by sector



What can a City (with limited funds) do?

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... a Brainstorm!

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Bill the property, not the occupant.

Viabile Option Theoretically

- Bill to pay back loan through property tax
 - Can bill / pay back over decades
 - Payments AND ENERGY BILL SAVINGS for each successive owner for the time they live there / own business – stays with building
 - Basically paid out of their energy savings.
 - Direct increase to property value also (McKinsey 2009), citing 3 way win (investors / owners, environment, and economy)
- Math for long payback works, opening door for renewables too.

Advantages

- Removes barriers
- Accelerates implementation
- Alternative or augmentation to private funds
- Encourages investment in long pay-back measures
- Provides economic stimulus
- Savings on water and other bills
- Improves emissions & environment.

Is it Legal?
What is the potential?
Where to get the funds?
Administration?
Raising interest?
Application & Requirements?
And so on...

How did they do it?

Boulder County example

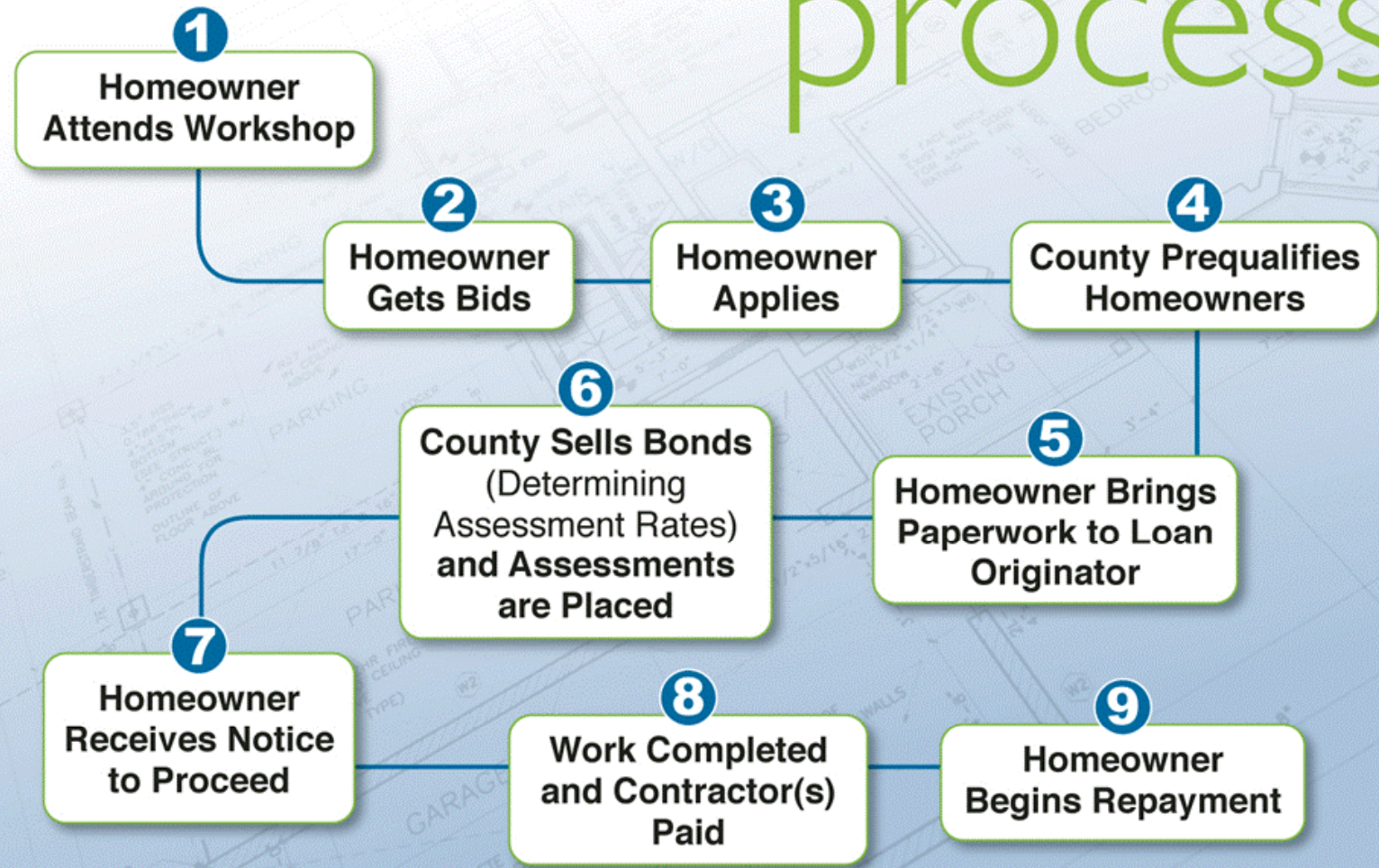
Boulder County

- Aggressive about Sustainable Energy Plan
 - environmental ethic,
 - Kyoto targets,
 - long-term carbon neutrality goal
 - GHG inventory showed ½ from existing buildings
 - This program now cornerstone of SEP

Boulder County

- ClimateSmart Loan
- Funding authorized by County ballot
 - go to bond market to raise pool of money to lend to residential & commercial properties
 - All 10 incorporated passed ordinances to participate
- How it works
 - Eligibility period announced, solicit applications, ID money to be borrowed, sell that amount in bond market.
 - A+ rating; 6.68% & 6.8% for open; 5.3% & 5.8% for income-qualified (2 tranches - spring and fall 2009)
 - Conservative – 1 year/6 mo reserve; 99.9% repayment

ClimateSmart loan program application & financing process



saveenergysavemoneysaveenergysaveenergysavemoney



Program Design - Residential

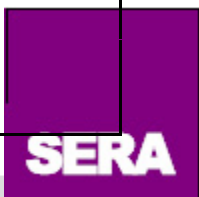
- \$3K to 20% of statutory value of home, or \$50K
- Income-qualified can borrow up to \$15K
- Sign utility release for tracking performance
- Must attend workshop
- Measures must be “affixed” to property
- EE and renewable measures (40)
- No match required
- Complements rebate and incentive programs – alert participants to these
- Special assessments placed on property for payback
- Approved or any contractor
- Average life across traunch must be 15 yrs

Program Design - Commercial

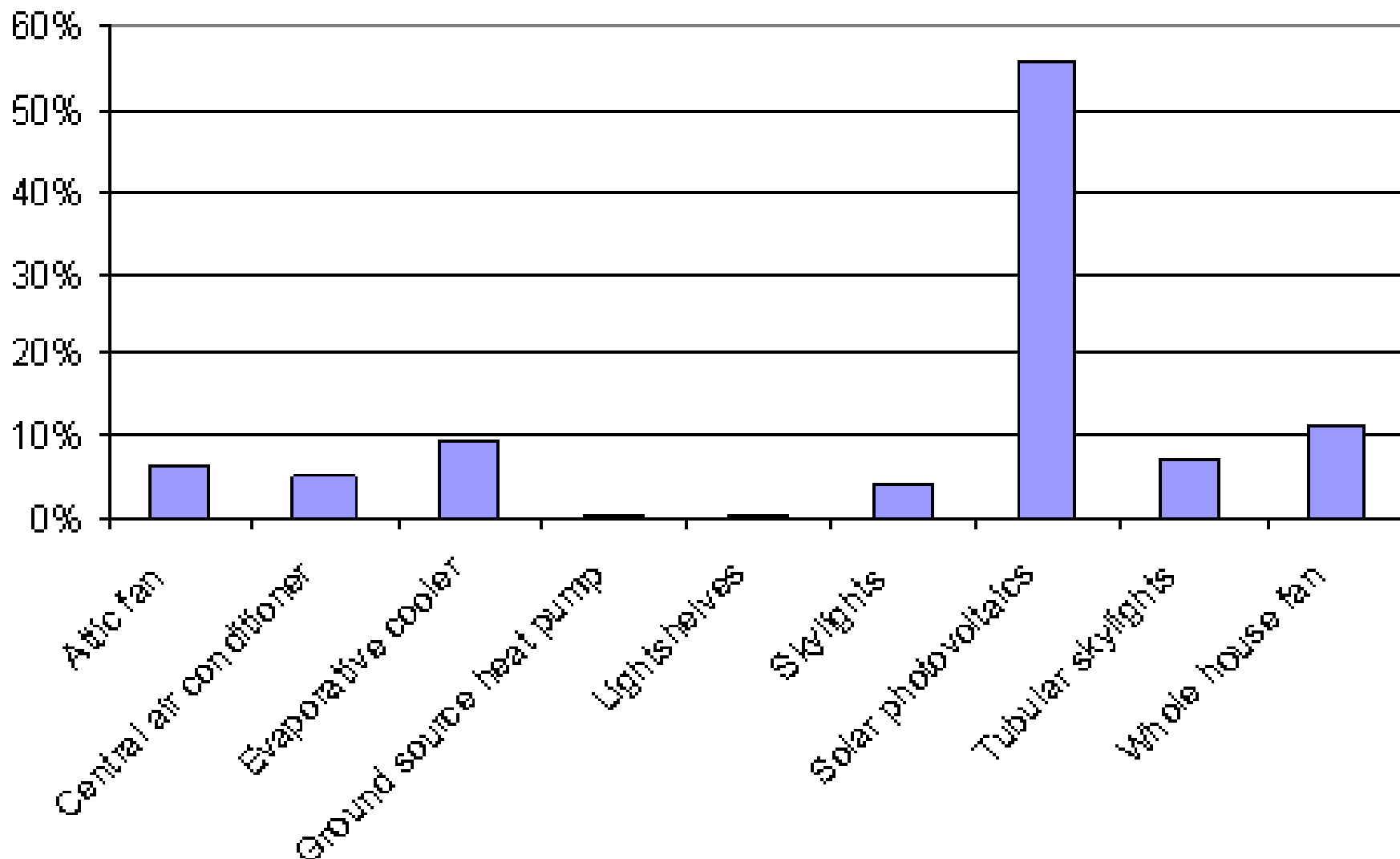
- Being refined
- Performance (modeled) path or prescriptive
- EE and renewable measures
- Stakeholder group to review applications
- Range up to \$200K – too many large projects makes bonds unratable
- Sign utility release
- Must attend workshop
- Measures must be “affixed” to property
- EE and renewable measures (40)
- No match required
- Complements rebate and incentive programs – alert participants to these
- Special assessments placed on property for payback
- Approved or any contractor
- Average life across traunch must be 15 yrs
- Applications due 3/15/1

Eligible Measures - Residential

Energy Efficiency Measures	Renewable Energy Measures
<ul style="list-style-type: none"> ● Air sealing and ventilation ● Insulation ● Space heating and cooling ● Water heating ● Lighting ● Daylighting ● Windows, doors, and skylights ● Reflective roof ● Pool equipment and landscaping (open only) 	<ul style="list-style-type: none"> ● Solar water heating ● Solar electric (PV) ● Small wind ● Wood or pellet stoves ● If homeowners want renewable measures, they must also invest in some minimum energy efficiency as well.



Electric Measures Installed



Leading Gas Measures Installed

- Attic insulation
- Exterior windows and glass doors
- Air sealing
- Wall insulation
- High efficiency furnace
- Insulating exterior doors
- Many others

Lessons Learned

- Administration: County cost \$300K; \$75 application fee; 1-2% “origination fee” added; cost of issuance about 3% of bond amount; “funds”
 - Advantages to bring in more cities / counties – working on state law
- Participants needed much contact / staff time
- Linking with other programs (audits, etc.) very beneficial to (help) assure good decisions about measures

Sonoma County

Sonoma County

- Goal – 25% below 1990 emissions by 2015
 - Would take \$1-2 Billion to retrofit 80% of homes to 30% reduction for goal (200 homes / day, impossible)
- Energy Independence Program
 - Source of funds – treasury pool of County funds – County approval for 3% of existing \$1.9 million aggregated funds
 - Charged 7% for fair return & administrative costs
 - First in line as tax or collection lien, in front of mortgage; no need for credit history-prop value
 - Open year-round, not “periodic” application periods

Sonoma County

- Lend up to 10% of value; even if burns down, property still worth at least 10%
- \$2.5K minimum; 5 year loan if \$5K; 10-20 if larger; residential & business
- Licensed contractors
- No mandatory measures; EE, water, and clean generation measures
- Application: estimates, application review, contract signed / lien; permit final / disbursement / check.
- 900 applications to date, \$20 million (\$9 installed; \$11 ready; total \$30 million in applications)
- Most installed: solar, windows, HVAC, cool roofs, insulation, water measures

Palm Desert

- Energy Independence Program
- Used \$2.5 million from General Fund to fund initially – additional rounds through bond sales
- Interest rate 7%; \$40 loan fee.
- Open application period; Minimum \$5K; max \$100K; over \$30K requires agreement by mortgage holder or bank; 1-20 years payback at borrower choice
- Second in line for repayment behind County taxes
- 1 internal staff handles administration

Palm Desert

- 220 loans (6 comm'l) for \$7.5 million to date
- Average \$25K-\$50K residential; commercial up to \$500K (next biggest \$30K)
- 70% of money to solar; next windows & A/C

Berkeley

- Berkeley First!; solar / renewable focus
- Began November 2008
- Concept endorsed by Biden for national retrofit program
- No up-front workshops; no approved contractors
- \$25 application fee; eligibility just check taxes and utility bills “paid up”
- 13 applicants, \$200K; high withdrawals, high free-ridership
- Small city; difficult to go to bond market; working with Alameda County and ABAG next round

Design Options So Far

- **Who:** Counties and cities
- **Source of funds:** Bonds, City funds, general fund
 - Bonds require periodicity... not available “all the time” (pro/con) and some interest rate uncertainty for applic.
- **Aggregation / authority:** more cities to make more cost-effective; check statutes
- **Education:** only required in Boulder
- **Measures:** only renewable for some; broad for most.
- **Coverage:** Residential, low income, commercial (schools, government)

Summary

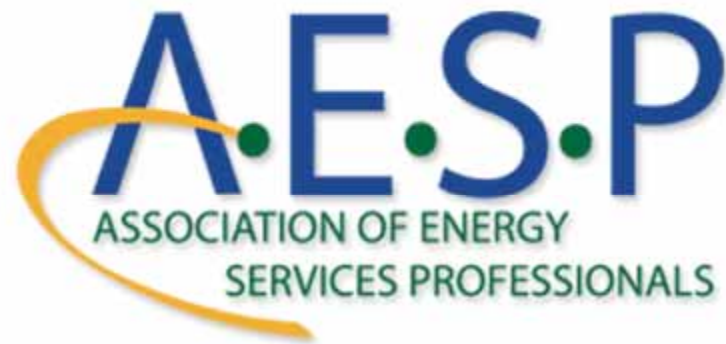
- Huge investment needed to reach Kyoto
- Cities needed different funding method
- Reluctance in installing long-payback measures – rational, but...
- Payback with property a game-changer
- 4 examples → \$33 million in a year in LONG payback measures (windows, cool roofs, PV+), without (significant) net cost – paid by USER
- Important for Federal Government to get involved and allow greater flexibility for tax exempt bonds for these types of programs
- Cities in the game – don't have to wait and hope for utility, PUC to help reach goals

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