



Residential Property Owners Workshop

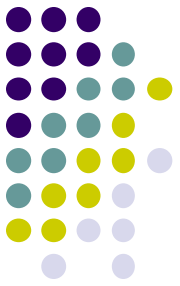
March 2009





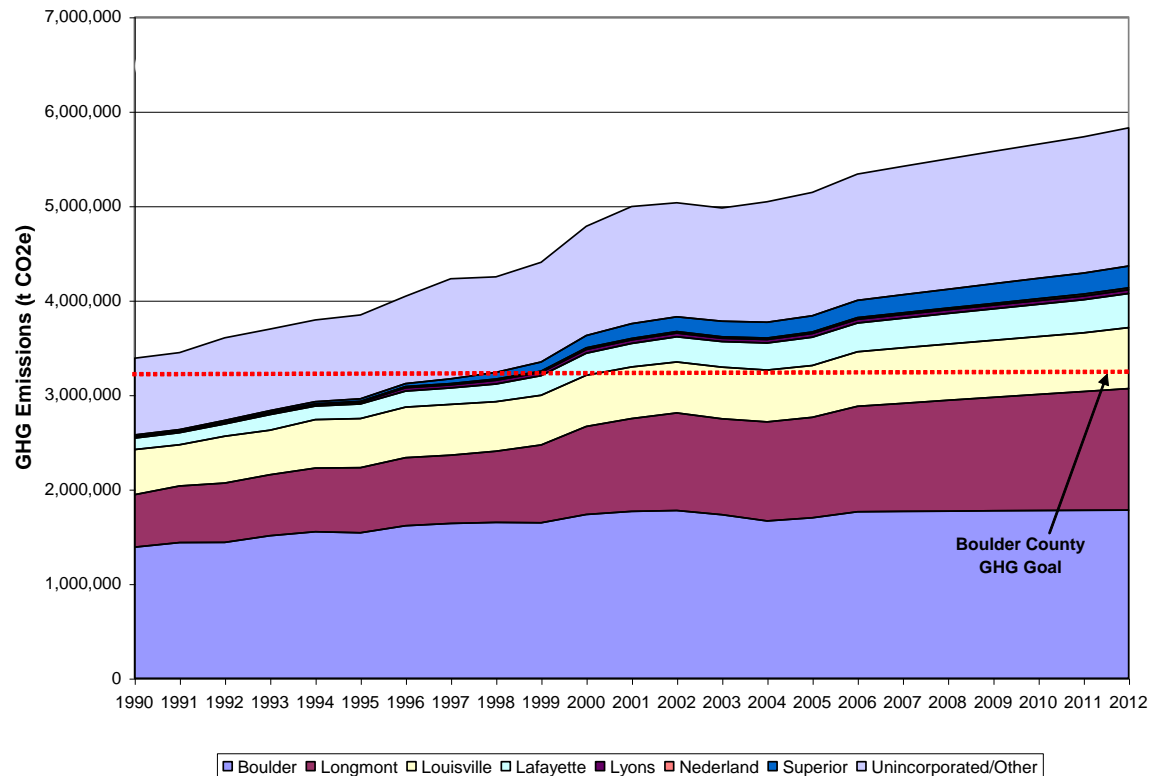
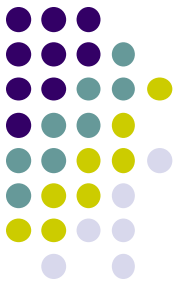
Workshop Agenda

- Background on ClimateSmart Loan Program
- Program structure and Timeline
- Energy Efficiency and Supply
- Eligible Measures
 - Energy Efficiency
 - Renewable Energy
- Recap
- Questions

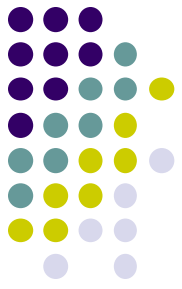


Why did Boulder County and partner municipalities create the ClimateSmart Loan Program?

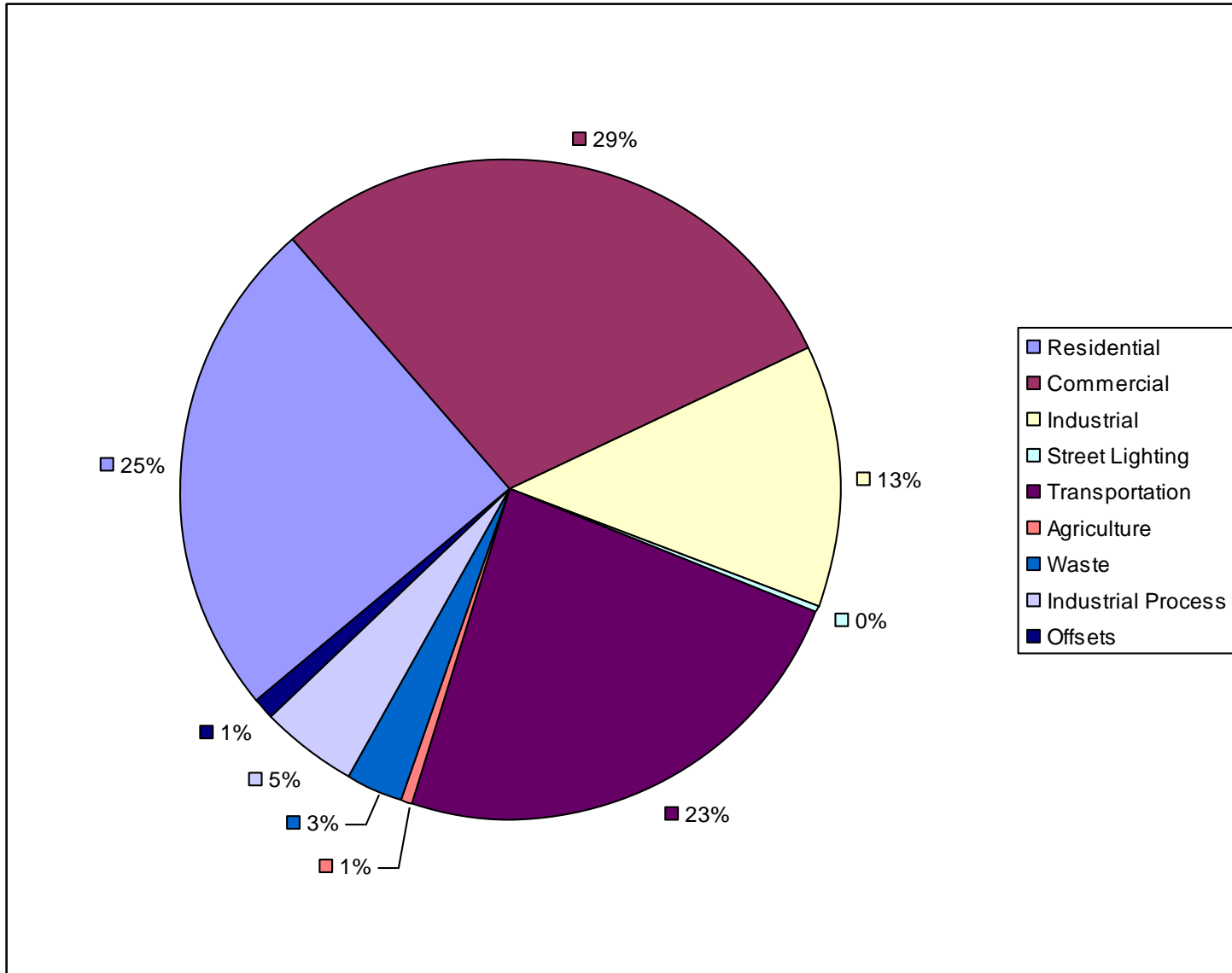
GHG Inventory Results:

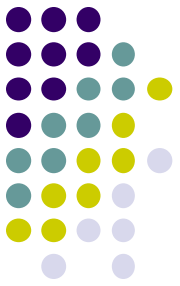


- Large increase in GHG emissions across the county.
- 2012 trajectory = **85% above** 1990 Kyoto target.
- Long term carbon neutrality goal.



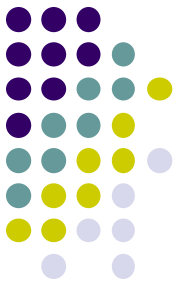
Boulder County's Emissions by Sector





Program Basics

The ClimateSmart Loan Program is a program of Boulder County and the following partner municipalities:



- Boulder
- Erie
- Jamestown
- Lafayette
- Longmont
- Louisville
- Lyons
- Nederland
- Superior



Program Purpose

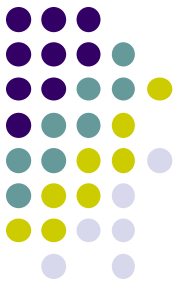
- To help residential and commercial property owners reduce their environmental impact and likely save money, by providing full financing for energy efficiency improvements and installation of renewable energy technologies.
- Authority: HB 08-1350 and County Ballot Measure 1A

Program Basics



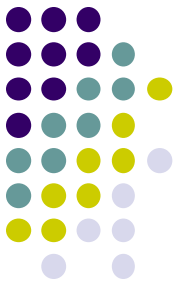
- Energy efficiency and renewable energy (RE/EE) measures
- Countywide pool of funds obtained through sale of bonds
- Up to the full upfront cost of improvements is loaned
- Property owners opt in (no general fund allocation)
- Special assessment placed on property—easy payment via property tax statement – repayment responsibility remains with the benefitted property
- Complements rebate and incentive programs

Monitoring and Research



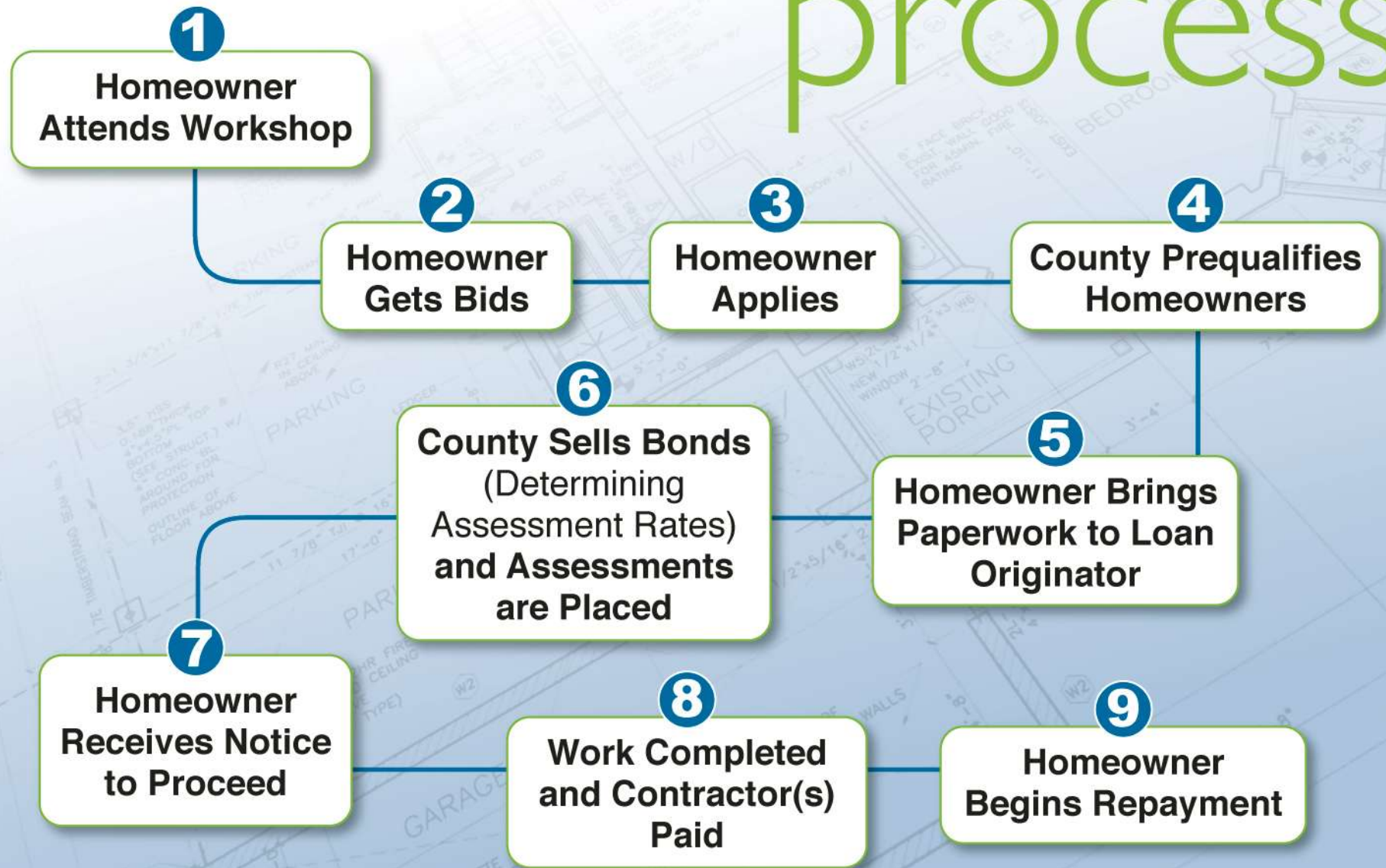
- Participants will be required to sign a utility bill waiver so we can monitor the impact of the program
- We will monitor the distribution of loans throughout the county (but there is no pre-assigned geographic allocation of loans) for this first round

Size of Residential Program

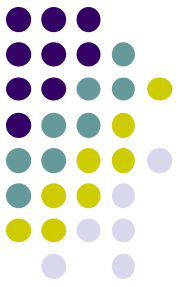


- \$40 million already approved by voters through Ballot Measure 1A
- The County has apportioned \$28 million for residential properties and \$12 million for commercial properties
- Assuming an average loan size of \$10k, the program can provide 2800 residential loans

ClimateSmart loan program application & financing process



Program Timeline



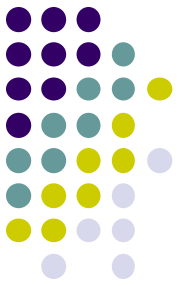
- **3/09-31: Homeowners attend workshops, and obtain bids and written estimates**
- **4/1-10: Apply online.** County prequalifies applications and obtains initial sizing
- **~ 4/13-27: Homeowners notified of prequalification, document verification and loan origination.** County initiates bond sale process
- **~ 4/28: Bond sale**
- **~ 5/5 or 7: Resolutions related to bond and special assessments go before the Board**
- **~ 5/8: Homeowners notified to proceed and start work**
- **~ 11/4: End of 180-day window for work to be completed**

Working with Contractors/Vendors/Installers



- Bids or written estimates (including “not to exceed” amount) due at time of application
- Bid may only include eligible measures
- Property owner must complete the application
- Contractors paid only upon completion of work and homeowner acknowledgement
- Payment will go directly to contractor from loan originator

Time to Complete Work



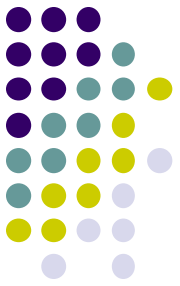
- 180 days
- Provides sufficient time for work to be completed
- Limits the County's administrative costs

Required Permits/Inspections



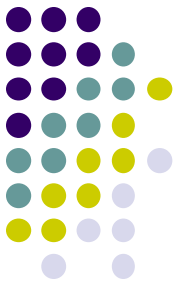
- Work funded through the program is subject to all applicable laws and regulations, including municipal, county, and/or state laws and regulations

Process if Demand Exceeds Supply

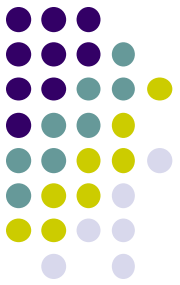


- In the event that demand in the first application round exceeds \$28 million:
 - Priority for homes that have had audits with blower-door
 - Priority for applications that include efficiency measures
 - Then sorted by time/date stamp based on application submission

Loan Origination



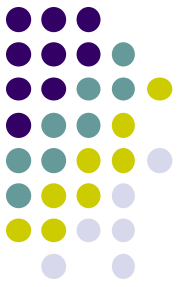
- Originators will provide in-person meetings with property owners
- Originators will assist borrowers in completing other program documents such as the required contract with the County and verification of estimate/bid and income
- Private sector partners are being screened and will be announced after loan applications are completed online



Loan Types

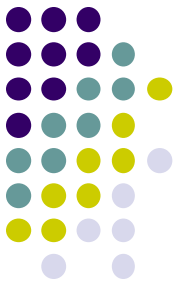
- **Open Loans** – can be applied to primary or rental properties
(funded by taxable bonds)
- **Income Qualified Loans** – lower interest
– primary residences only
(funded by tax-exempt bonds)

Income Qualification (for tax-exempt bond funded loans)



Based on Form 1040, line 22; Form 1040EZ, line 4; Form 1040A, line 15 for entire household, using most recent filing. AMI below is for 2008 (2009 AMI may change slightly, anticipated 3/31 notification from feds).

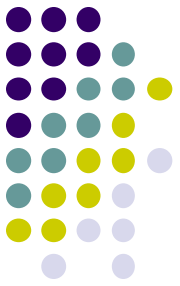
Persons in Household	115% of AMI
1	\$70,035
2	\$80,040
3	\$90,045
4	\$100,050
5	\$108,100
6	\$116,035
7	\$124,085
8	\$132,020



Residential Loan Sizes

- Minimum: \$3,000 per home
- Maximum:
 - Open Loans (funded by taxable bonds): 20% of statutory actual value of property or \$50,000, whichever is less
 - Income Qualified Loans (funded by tax-exempt bonds): \$15,000, as per federal law
 - Income Qualified Loans may be combined with Open Loans up to the Open Loan maximum

Estimated Assessment Rates



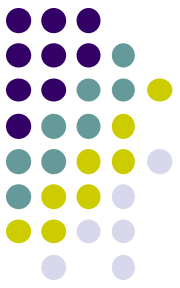
Term	Open (taxable)	Income Qualified (tax-exempt)
15 year	7.67%	6.15%

Bond market interest rates change daily

Compared with Conventional Private Loans:

- Debt is tied to property, not to borrower
- Longer repayment period (lower annual payments)
- “Not to exceed” assessment rate of 6.75% for the Income Qualified Loans and 8.75% for the Open Loans
- Easier to obtain than private loans in current market

Bond Interest Rates Vs. Assessment Rates



- Rates set at the time of bond sale.
- Bond sale as early as April 2009
- Assessment rates (rate paid by property owner) will be up to 1% higher than the bond interest rates
- Interest rates are higher than when 1A was referred to the ballot, however, they are trending down

County Administrative Costs



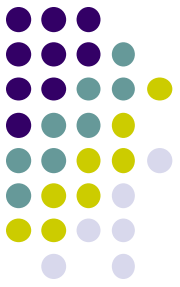
- One time “cost of issuance” for the bonds - less than 3% of the bond amount
- County costs for organizing and administering the program approximately \$100k to 110k /yr
- General fund (tax) dollars will not support the program
- Borrowers will support the program through:
 - non-refundable \$75 application fee –paid when you apply
 - origination fee (1-2% of loan value) –paid to originator
 - small portion of assessment rate (covers cost of issuance)

Repayment by Property Owners



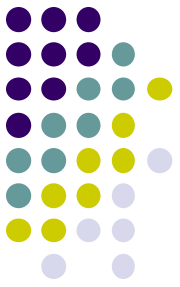
- Options:
 - Annual amount due, same options as with property taxes (two equal half payments due the last day of February and June 15th, or the whole payment on April 30th)—if property is subject to an escrow account, assessment will most likely be included in adjusted escrow payments
 - Full remaining balance on loan
 - No partial prepayment (Colorado law as applied to County Treasurers Offices)

Owners of Multiple Properties



- If you own and are applying for a loan for multiple properties, you need to see the registration table to list your other addresses
- Income Qualified Loans may only be applied to primary residences

Homeowners' Associations

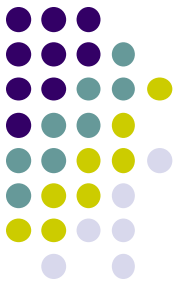


- HOAs in general will probably not qualify as the association usually does not own the common elements or limited common elements of the condominiums/townhomes
- Owners of individual units may apply for loans for their own unit if the condominium/townhome declaration permits owner alterations
- HOAs may contact the County Attorney's Office if they believe they qualify

Rebates and Incentives



- Lists available at front table (grouped by utility provider)
- The County will not deduct the ITC (Federal) amounts from loans (property owners can if they wish – consult your tax advisor)
- Solar * Rewards (Xcel) payments shall be deducted from amount requested
- Otherwise, rebates/incentives may be deducted from requested amount at homeowners' discretion



Energy Basics

Energy: Efficiency and Supply



- Energy efficiency is often cheaper than renewable supply
- Efficiency: less energy used to provide the same level of light/heat/cooling
- Efficiency measures often result in greater comfort in the home
- Efficiency before supply

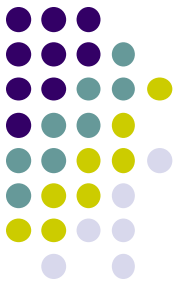
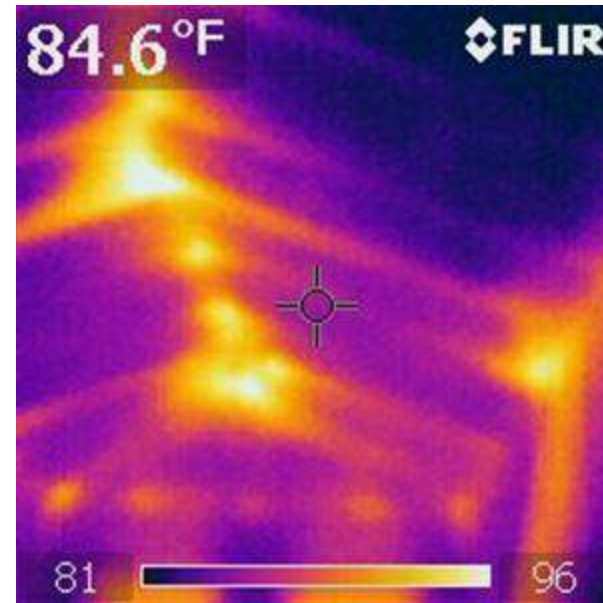
Efficiency First

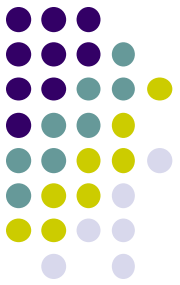


- 60% of US homes are under-insulated or uninsulated.
 - If your home was built before 1980, it may fall into this category.
- Air leakage is one of the leading causes of energy waste in homes.
 - Plugging those leaks can save 5% to 30% on home heating and cooling bills – an average of \$450 per year for an American household

Energy Audit

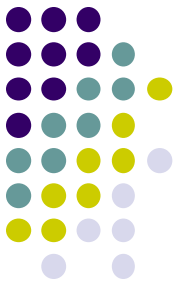
- Give you a personalized set of recommendations to lower your energy bill
- Understand your energy usage
 - Gas vs. electric usage
 - Building envelope and equipment evaluation
 - Ways to save energy and money for free by changing your behavior





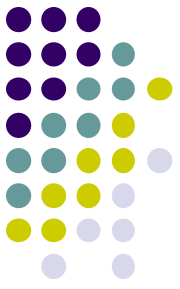
Eligible Measures

Eligible Measures



- Fixtures to property
- Useful life must average 15 years or more under normal conditions (by tranche, not property)
- Minimum standards (on eligible measures list)
 - Attic example: upgrade to R-38 is the minimum value we will cover--R-50 is ok as well, but R-24 is not
 - Some items must be part of a package or may only be replacements

Eligible Measures: Energy Efficiency



- 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)

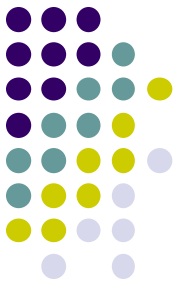
Air Sealing



- Heated and cooled air can leak out of a home in some obvious (and not-so-obvious) ways.
 - Through attic bypasses via dropped ceilings, floor plenums, interior walls, etc.
 - Around windows & doors
 - Through ducts (increases house pressures, leading to infiltration or exfiltration)
 - Around plumbing & electrical penetrations
- Blower door test required before and after air sealing

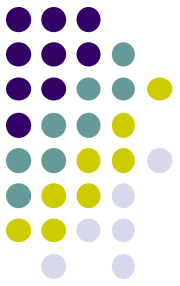


Ventilation



- Heat-recovery ventilation saves heating energy and improves air quality
- If the blower door test reveals that the house has become tighter than .35 nACH, mechanical ventilation will be required to maintain air quality

Attic Insulation



- Maximize insulation levels
 - Attics to R-38 Minimum
 - Gap-filling insulation (foam or blown cellulose) also reduces air leakage



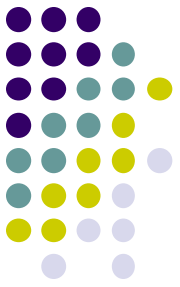
Wall Insulation



- Maximize insulation levels
 - Walls to R-19, or fill wall cavity
 - Can fill from outside or inside
 - Gap-filling insulation (foam or blown cellulose/fiberglass) also reduces air leakage
 - Rigid insulation under siding reduces thermal bridging, air leakage
 - Crawlspace and basement



Windows and Doors



- Windows
- Doors
- Skylights
- Daylighting – tubular skylights, light shelves
- No new openings – replacements only, except for solar tubes
- Must be combined with insulation or air sealing



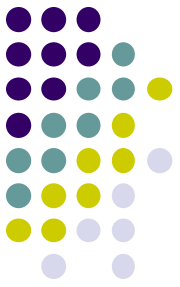


High Efficiency Heating

- Efficient heating and cooling equipment can save up to half of the energy required
- All gas fired (natural or propane) forced air furnaces must have a minimum 90% AFUE, plus sealed combustion.
- If home design precludes direct venting, an upgrade to minimum 80% AFUE is eligible.
- Tightening of the home may require ducting the combustion air of old equipment or replacing with direct-vent new equipment



Water Heating



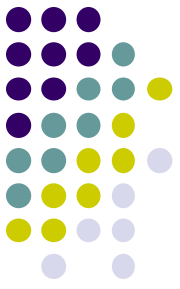
gas tankless



efficient gas

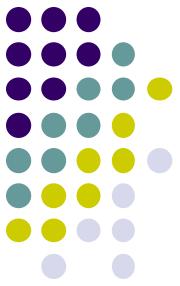
- On-Demand/Tankless
- High Efficiency
Natural Gas Storage
- Venting can be an issue for efficient gas appliances

Cooling



- Evaporative cooling is 3-4 times as efficient as air conditioning
- High-efficiency air conditioner to replace existing A/C
- May not add a new air conditioner
- Roofing material:
 - Light-colored shingles
 - Energy-Star rated metal roofing

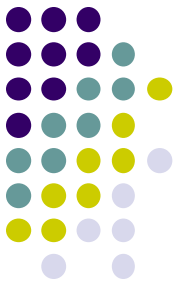
Heat Pumps



- Heat pumps provide both heating and cooling
- Ground-source heat pumps can also provide hot water
- Heat pumps are electric, but have the effective carbon emissions and operating cost impact of natural gas

Other Efficiency Measures

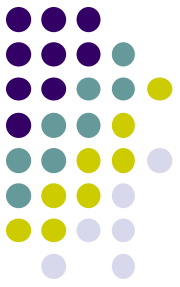
Not funded through ClimateSmart Loan Program



- Appliances
 - Refrigerator efficiency has improved 60%.
 - Dishwashers
 - Clothes washers
 - Freezers
- Compact fluorescent lighting is 75% more efficient than incandescent, and lasts much longer. Plan for proper disposal at HHW (Household Hazardous Waste) facility
- LED lighting
- Low-flow showerheads



Eligible Measures: Renewable Energy



- Solar Hot Water
- Solar Electric (PV)
- Small Wind
- Wood or Pellet Stoves

Solar Hot Water (Solar Thermal)



- Hot water and/or space heating
- Rooftop
 - New systems
 - Replacement/repairs for orphan systems
- Pools
- Hot tubs



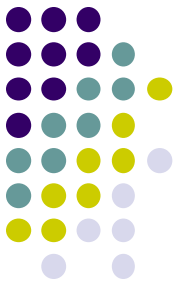
Solar Electric PV (Photovoltaic)



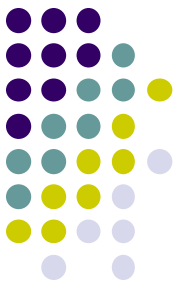
- Net metering: meter may run backwards in sunny seasons
- Can produce much or all of the electricity you use
- In Xcel service territory, homeowners can receive \$3.50/watt in rebates and RECs. Limited rebates available from other utilities.



Small Wind



More appropriate for some areas of the County than others

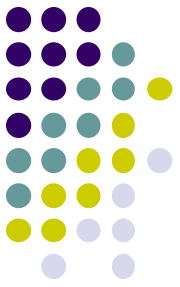


Wood or Pellet Stoves

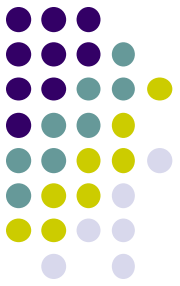
- High efficiency fireplaces and inserts
- Advanced combustion/gasification wood or pellet stoves
- New installations allowed only in fully electric homes



Value of Combining Measures

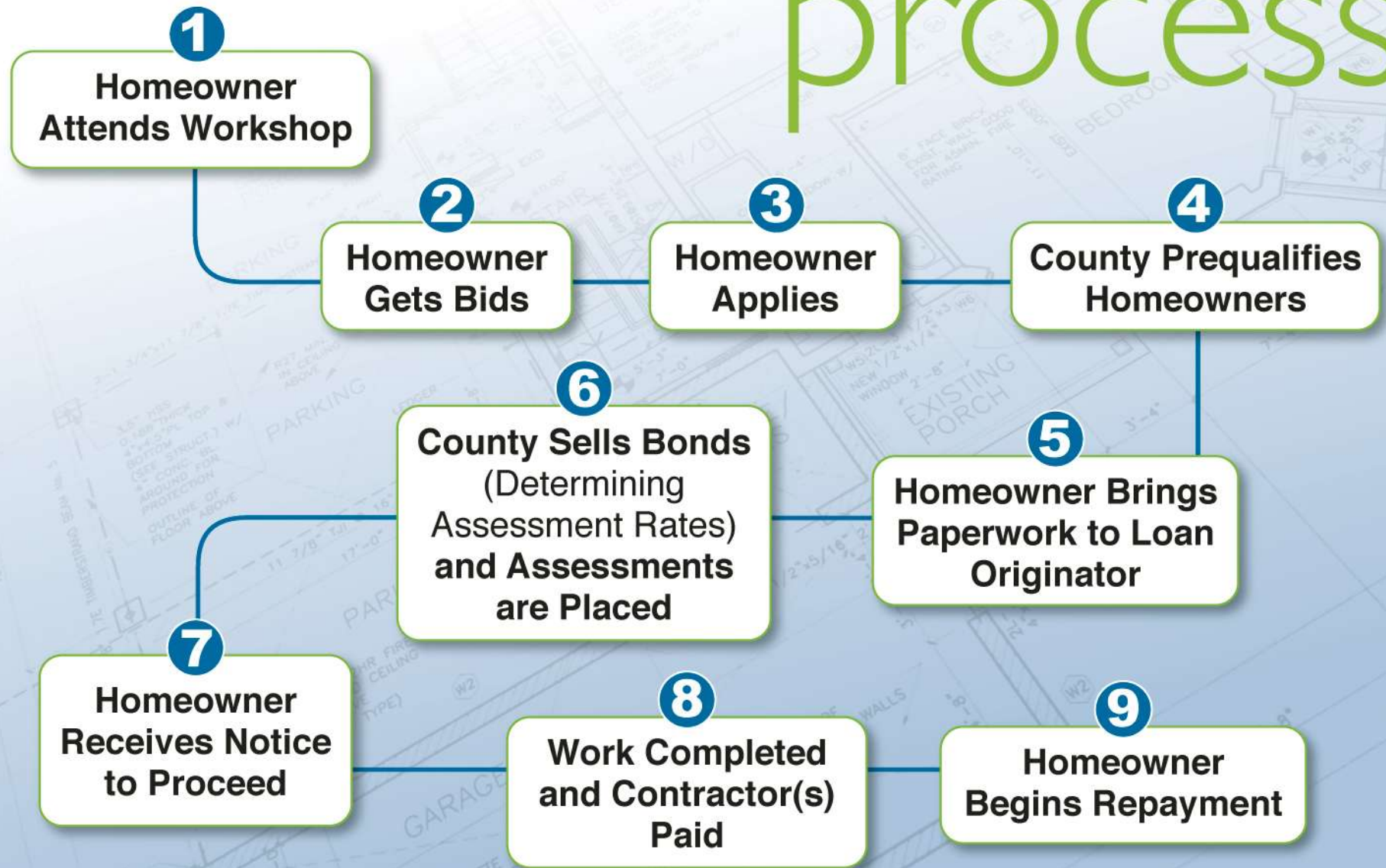


- Windows and wall insulation go together
- Insulation/air sealing and heating/cooling systems complement each other
- Energy efficiency partners with renewable energy:
 - Efficient cooling and photovoltaics
 - Heat pumps and photovoltaics



Process Recap

ClimateSmart loan program application & financing process

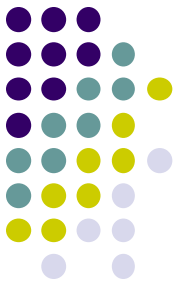




Important Dates

- 3/9-3/31: Required property owner workshops
- 4/1-4/10: Application period—written estimates/bids required
- Paperwork verification, loan origination, bond sale
- Early May: targeted “start work” date
- Early November: target “work completed” date

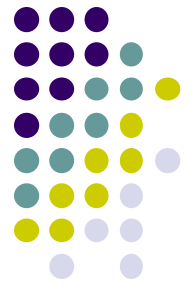
Contact Information



www.climatesmartloanprogram.org

climatesmart@bouldercounty.org

303.441.4565





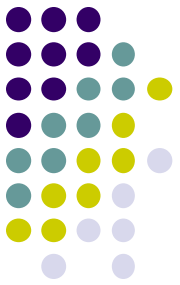


Table 1: Potential Measures Identified Through Energy Assessment

Measure	Annual kWh Savings	Annual Therm Savings	Annual Energy Cost Savings	Capital Cost*	Rebates and Incentives	Federal Tax Credits**	Out of Pocket Cost	Simple Payback (yrs)
Insulation: Attic, Walls, Perimeter	273	753	\$ 858	\$3,550	\$300	\$355	\$2,895	3.4
Air sealing: ducts, envelope	141	416	\$ 473	\$1,500		\$150	\$1,350	2.9
Replace A/C with Evap. Cooler	950	0	\$ 105	\$1,600	\$200		\$1,400	13.4
Windows	84	206	\$ 236	\$8,500		\$200	\$8,300	35.2
HVAC settings	32	130	\$ 147	\$120			\$120	0.8
Fridge Replacement	500	0	\$ 55	\$750			\$750	13.6
Hot Water - low flow and setback	0	54	\$ 6	\$30			\$30	5.1
Lighting - 20 CFLs	403	0	\$ 44	\$20			\$20	0.5
Plug Load - timers/strips	300	0	\$ 33	\$35			\$35	1.1
Clothesline Use (75% time)	360	0	\$ 40	\$20			\$20	0.5
Solar Electric – 1.5kw	2189	0	\$ 241	\$ 12,000	\$ 5,250	\$ 2,025	\$4,725	19.6

* Costs are estimates and not guaranteed

** Federal tax credits are dependent upon individual's tax burden.

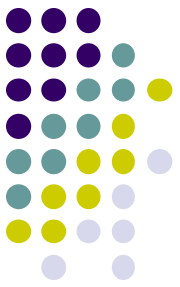
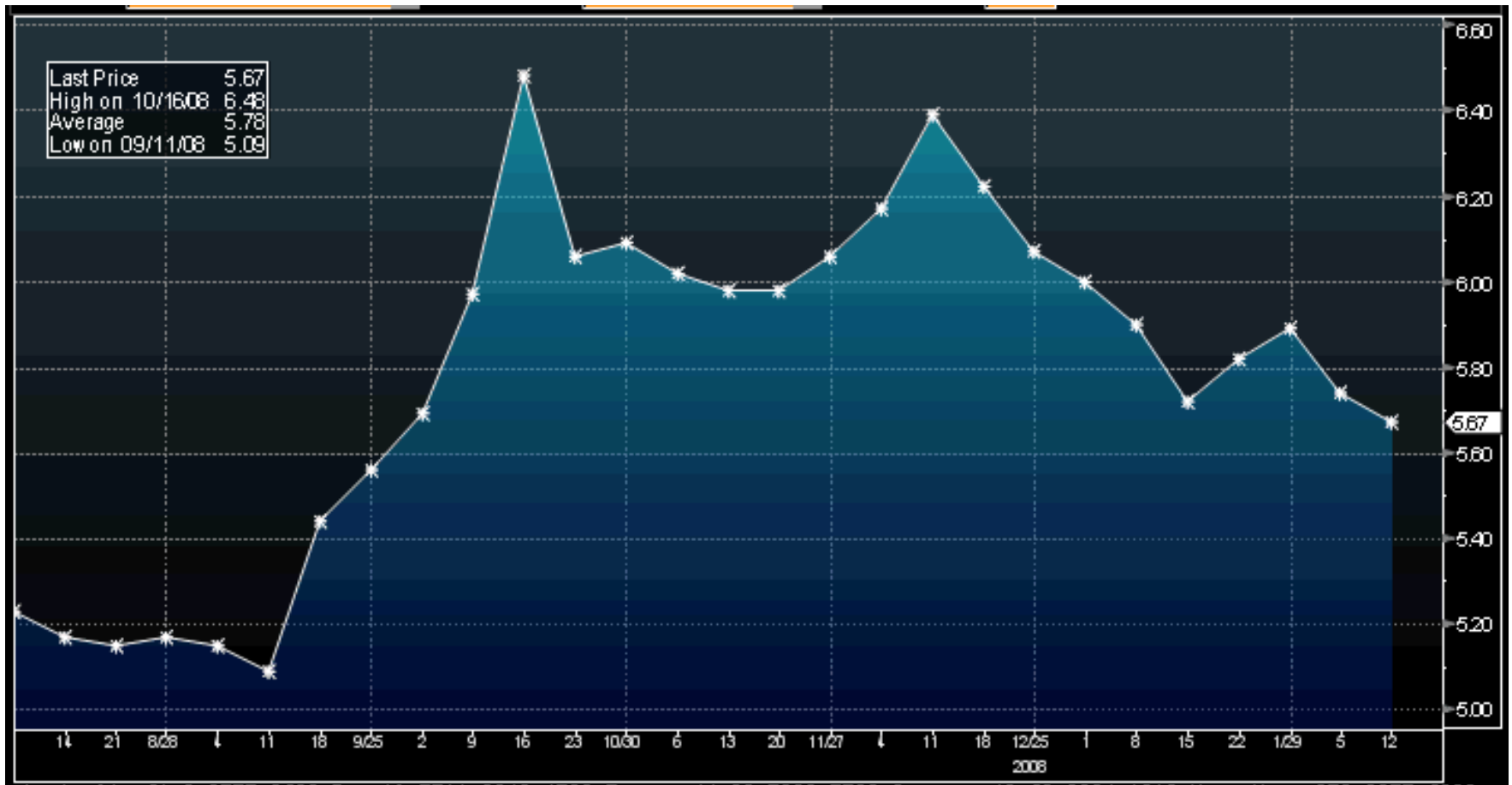
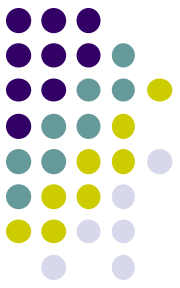


Table 2: Packages of Measures, Financing Option, and Energy Cost Savings

Package Retrofit Options	Annual GHG emission reductions (mtCO2)	% GHG emissions reductions from baseline	Rebates and Tax credits	Out of Pocket Cost	Climate Smart Loan Amount	Estimated Annual Loan Payment*	Annual Energy Cost Savings**	Payback (yrs)
1. Package A: Includes all measures in Table 1 EXCEPT solar electric	10	53%	\$1,205	\$14,920	\$14,770	\$1,512	\$1,714	8.7
2. Package A: Includes all measures in Table 1 EXCEPT solar electric	10	53%	\$1,205	\$14,920	\$14,770	\$1,659	\$1,714	8.7
3. Package B: Includes all measures in Table 1 + 1.5kW Solar Electric	12	64%	\$7,775	\$19,645	\$21,670	\$2,485	\$1,955	10.0

* Option 1 Assumed 15 year loan at 6.5% (tax exempt loan); Options 2 & 3 assumed 15 year loan at 8.0% ** Packaged energy cost savings are less than the sum of the parts due to interactions between measures.

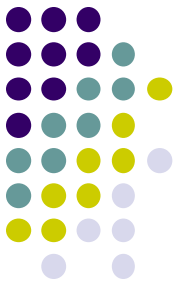
- Tax-exempt municipal revenue bonds
- 25 Year Revenue Bond Index: A+ to AA- bonds
- Period displayed: 8/07/08 through 2/12/09
- Less than 1.4% difference between high and low



County Role



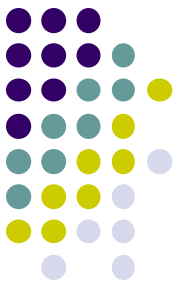
- Form countywide LID
- Refer ballot measure and manage bond sale process
- Receive VCA assignments and carry forward
- Program design with municipalities
- Market program with municipal and other partners
- Place special assessments and collect payments
- Continue to work at state and federal levels



Role of Municipalities

- Opt into LID by Municipal Ordinance
- Assign some or all of VCA, if applicable
- All municipalities except Ward are on schedule to participate
- Market program to residents and businesses

Bond Sale and Potential Rate Cap



- The BOCC has approved waiting up to 60 days, after loan approval and bond sizing, to attempt to time the sale when market conditions are most favorable
- The BOCC has approved a “not to exceed” assessment rate of 6.75% for the Income Qualified Loans and 8.75% for the Open Loans, however, the County will examine all opportunities to deliver the lowest assessment rate possible