



CHEERS®

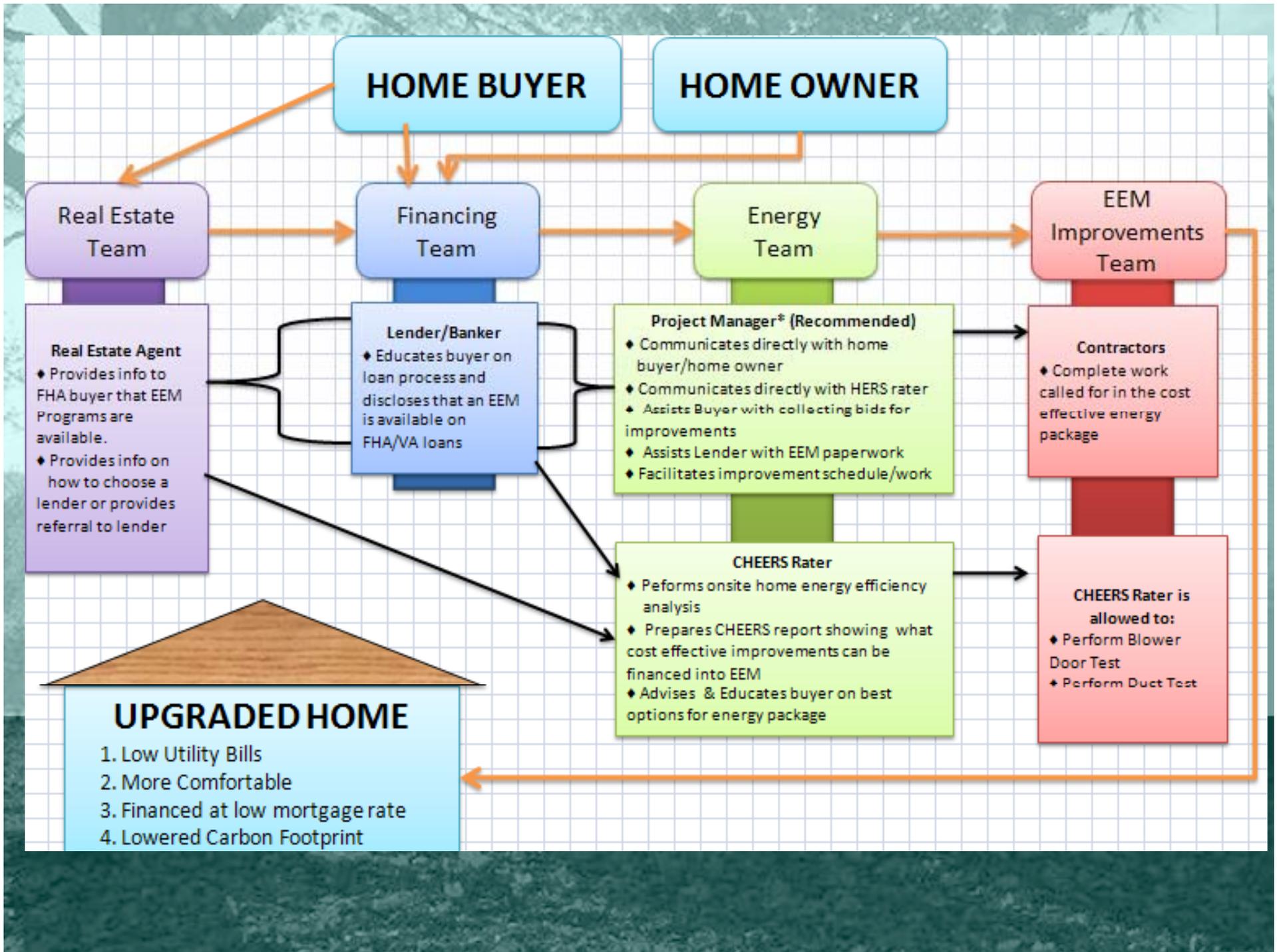
**California Home Energy
Efficiency Rating Services**

History of CHEERS®

- ◆ CHEERS® is a California HERS Provider
- ◆ CHEERS® was formed in October 1990
- ◆ CHEERS® Existing Home Program began in 1992 producing HERS Reports for the ML 93-13 letter EEM Pilot program
- ◆ CHEERS® Rating Reports fulfill the HERS Report requirement for FHA's Energy Efficient Mortgage

Training Courses Offered by CHEERS®

- ◆ **New Construction HERS Rater training**
- ◆ **Solar Verification training for New Solar Homes Partnership**
- ◆ **Federal Tax Credit Verification on Energy Efficient New Homes**
- ◆ **Existing Homes Rater training – will become known as “California Whole House Home Energy Rater” training under the CEC’s HERS Phase II Regulations**
- ◆ **Advanced Energy Efficient Mortgage Training**
- ◆ **All training courses are listed at www.cheers.org**



HOME BUYER

Real Estate Team

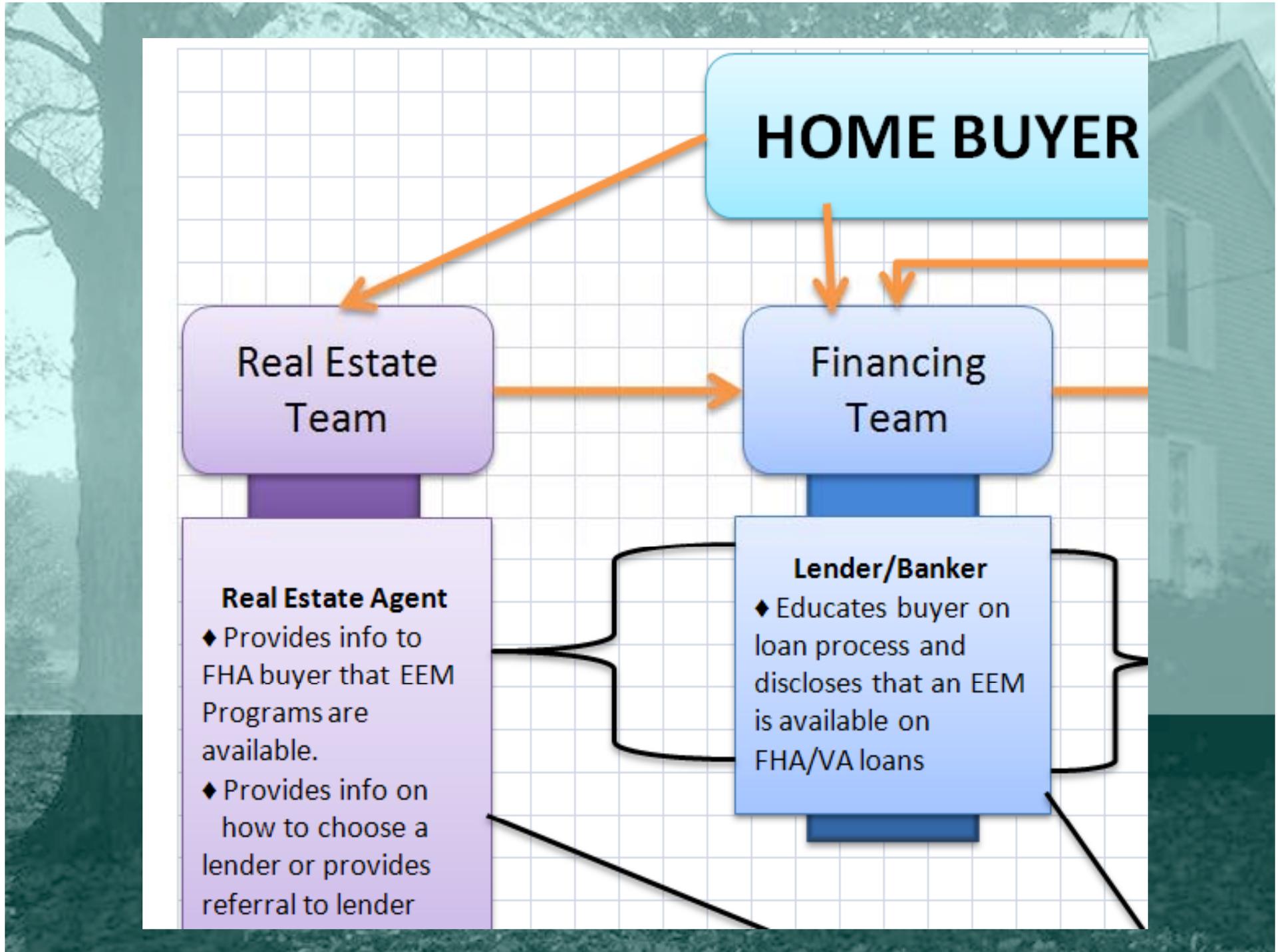
Financing Team

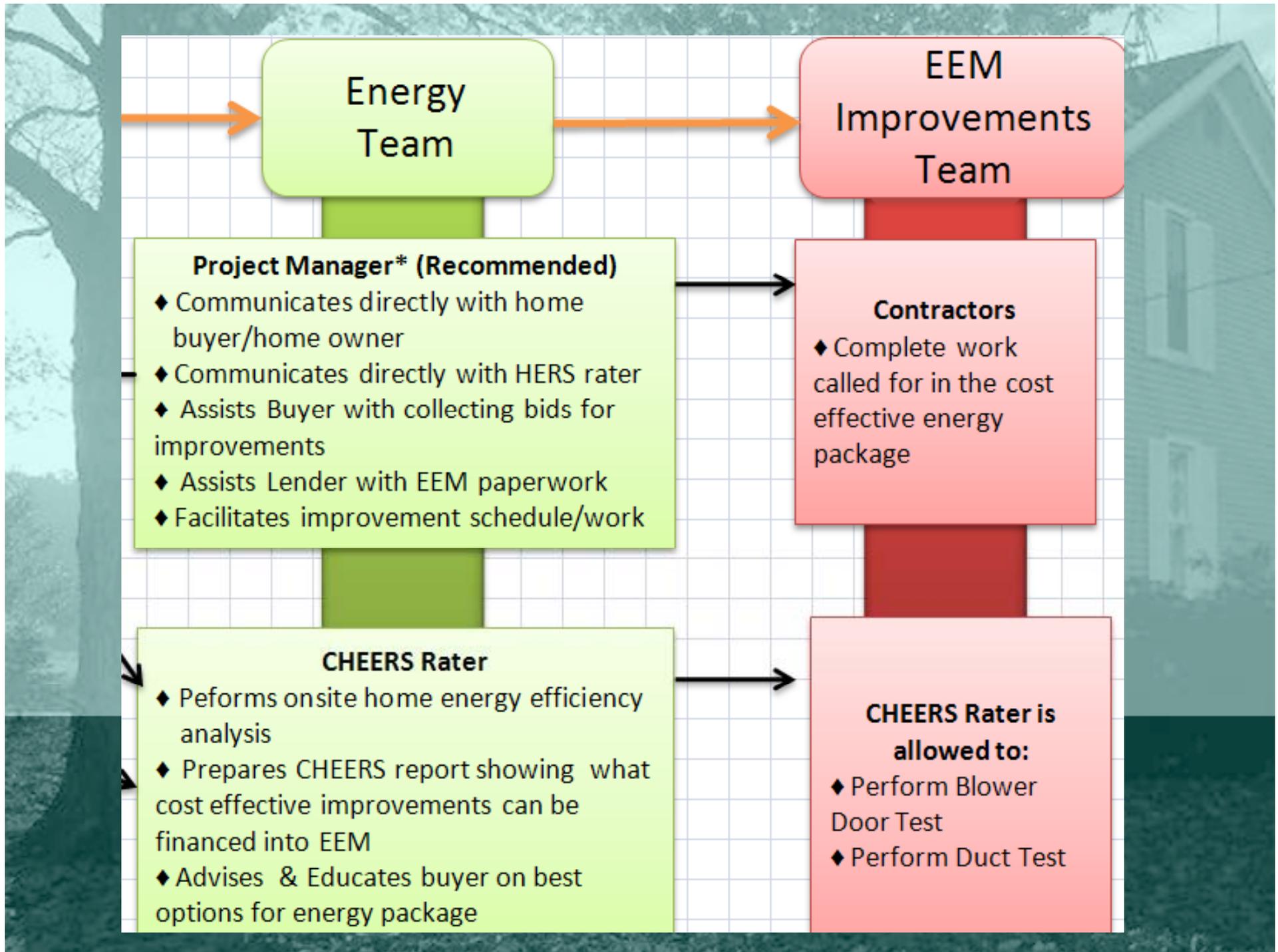
Real Estate Agent

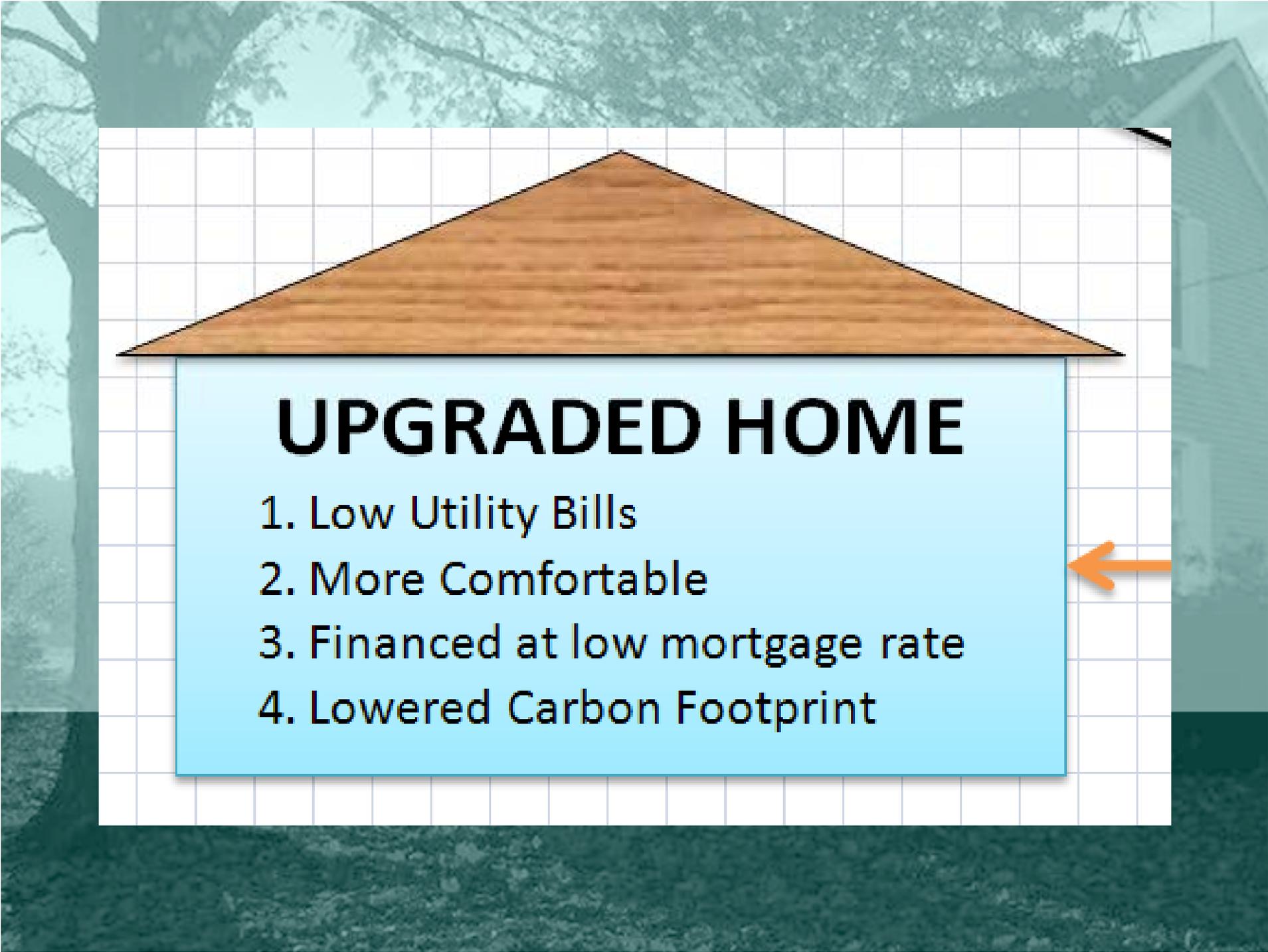
- ◆ Provides info to FHA buyer that EEM Programs are available.
- ◆ Provides info on how to choose a lender or provides referral to lender

Lender/Banker

- ◆ Educates buyer on loan process and discloses that an EEM is available on FHA/VA loans







UPGRADED HOME

1. Low Utility Bills
2. More Comfortable
3. Financed at low mortgage rate
4. Lowered Carbon Footprint

What is a CHEERS[®] Rating?

- **The CHEERS[®] Rating is a detailed evaluation of a home's energy features**
- **The rater will typically spend 1-3 hours going through the home collecting the data necessary**

What does the Rater look at?

- **Insulation levels of the walls, attic and floors**
- **The equipment of the home, including the hot water heater, the furnace, air conditioner and appliances**
- **The type of windows and doors**
- **The Rater will also measure and draw the home to scale, noting the orientations**

What does the Rater look at?

- **The Rater will assign efficiencies to the equipment present**
- **The Utility company rate information is also taken into account**
- **The Rater might also perform some diagnostic testing on the home including duct testing and blower door**

Duct Testing

- **Studies show that the average duct system has a leakage factor of 30%**
- **Duct testing and sealing offer one of the best opportunities to increase a home's energy efficiency**
- **Energy loss is not the only concern, indoor air quality can also be affected by leaky ducts**



Blower Door Testing

- **Blower Door tests are used to measure the air tightness level of the building envelope**
- **This test is used to diagnose air leakage problems, estimate natural infiltration rates and estimate efficiency losses**



Generating the Rating Report

- **Once all the data is gathered, it is fed into the CHEERS Software**
- **The software generates a report with detailed information about the home**
- **The CHEERS Report format will be changing with the new HERS II regulations**

**CHEERS Rating Report**

Prepared for: California Consumer

CHEERS Certificate ID: EH25-4DAP960006	Rater: Jana Maddux	Rater ID: CCNDM612920	Date of Rating: 10/14/2008
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Site Address: 123 Energy Hog Road
CA City, CA 12345

Customer: California Consumer
123 Living Green Blvd.
CA City, CA 12345

Owner: CA Home Seller
456 Lives Out of Town Road
CA City, CA 12345

About Your Home

Program:	FHA
Interest Rate:	6.50%
California Climate Zone:	CZ12
Year Built:	1980
Electric Utility:	Electric SMUD RSG S
Gas Utility:	Gas PG&E S
Cond. Floor Area:	1847
Volume:	14776
Front Orientation:	0
Stories:	1
Type:	Single Family

Energy use and measure savings calculated using EnergyPro (Version: 4.111).
Data imported from transfer file: 'CA Consumer Oct 08.dat'

Recommended Improvements	Useful Life	Annual Savings	Lifecycle Savings / Present Value	Estimated Cost to Install
Upgrade Roof Insulation	30.0	\$236	\$3,077	\$823
Upgrade Wall Insulation	30.0	\$619	\$8,081	\$1,250
Seal HVAC Ducts	30.0	\$330	\$4,304	\$650
Reduce Building Leakage	30.0	\$46	\$594	\$350
Upgrade Windows	30.0	\$317	\$4,138	\$5,500
Upgrade HVAC System	30.0	\$1,155	\$15,086	\$6,875
Upgrade Lighting	7.0	\$34	\$187	\$200
Totals:		\$2,736	\$35,468	\$15,648

Annual Operating Costs	Existing	Improved
Heating	\$4340.12	\$2106.29
Cooling	\$581.59	\$143.60
Water Heating	\$327.57	\$320.48
All Other Uses	\$187.48	\$130.73
Total	\$5436.76	\$2701.10

Existing HERS Score:	514.2
HERS Score with Improvements:	254.5
Percentage Improvement:	50.5%

A ZERO energy home has a HERS score of "0". A home built to the 2005 California Title 24 Energy Code has a HERS score of 100.

Disclaimer: The estimated operating costs shown in this report are dependent upon many factors. The construction and conservation features of the home clearly is important. Equally important is the thermostat setting. How the thermostat is used, appliance use, and occupant interaction all influence the annual operating cost. The estimates provided in this report are based on typical conditions, your actual usage will vary.

**HERS Features Report**

Prepared for: California Consumer

CHEERS Certificate ID: EH25-4DAP960006	Rater: Jana Maddux	Rater ID: CCNDM612920	Date of Rating: 10/14/2008
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Results - Existing	Score	Fuel Use	Fuel Cost	Elec Use	Elec Cost	Total Cost
Heating		2910.9	\$4,151.19	0	\$0.00	\$4,151.19
Cooling		0	\$0.00	4813.3	\$581.59	\$581.59
Water Heating		229.7	\$327.57	0	\$0.00	\$327.57
Other		0	\$0.00	3115.2	\$376.41	\$376.41
Totals	514.2	3140.7	\$4,478.90	7928.5	\$958.00	\$5,436.90

Results - Improved	Score	Fuel Use	Fuel Cost	Elec Use	Elec Cost	Total Cost
Heating		1437.5	\$2,005.62	0	\$0.00	\$2,005.62
Cooling		0	\$0.00	1298.4	\$143.60	\$143.60
Water Heating		229.7	\$320.48	0	\$0.00	\$320.48
Other		0	\$0.00	2092.2	\$231.40	\$231.40
Totals	254.5	1667.2	\$2,326.10	3390.6	\$375.00	\$2,701.10

Construction Feature Summary

Feature	Orientation	Area (sq. ft.)	Energy Features Existing	Energy Features Improved
Wall	Front (0)	388	R-0	R-13
Wall	Left (90)	250	R-0	R-13
Wall	Rear (180)	388	R-0	R-13
Wall	Right (270)	250	R-0	R-13
Roof	Front (0)	1847	R-11	R-38
Window	Front (0)	50	U: 1.28 SHGC: 0.8	U: 0.31 SHGC: 0.31
Window	Left (90)	50	U: 1.28 SHGC: 0.8	U: 0.31 SHGC: 0.31
Window	Rear (180)	50	U: 1.28 SHGC: 0.8	U: 0.31 SHGC: 0.31
Window	Right (270)	50	U: 1.28 SHGC: 0.8	U: 0.31 SHGC: 0.31

Heating/Cooling System

Heating	Existing	Improved
Equipment	Furnace	Furnace
Efficiency	AFUE 0.65	AFUE 0.92
Equipment	Split	Split
Efficiency	SEER 8 EER N/A	SEER 14 EER 12.00

Water Heater

	Existing	Improved
Type	Gas	Gas
Tank Capacity	Storage - 40 gal	No Change
Energy Factor	0.62	No Change
Recovery Efficiency	0.76	No Change
Distribution	StandardNoPipeIns	No Change
Auxiliary	Solar	No Change
Solar Fraction	0.0	60.0

Duct System

Location	Existing	Improved
Location	Attic	No Change
R-Value	2.1	No Change
Leakage	517.20	77.60

Other Features

	Existing	Improved
Reduced Infiltration	6504 CFM	725 CFM (min) 1604 CFM (max)
High Efficacy Lighting	0%	100%
Dishwasher (E.F.)	0.30	No Change
Refrigerator	1000 kWh	No Change

Utility Rates

Type	Name	Season	Service Charge	Tier 1 Rate	Tier 1 Threshold	Tier 2 Rate	Tier 2 Threshold	Tier 3 Rate	Tier 3 Threshold
Electricity	Electric SMUD RSG S	Winter	\$5.00	\$0.099	700	\$0.157	1000	\$0.176	0
Electricity	Electric SMUD RSG S	Summer	\$5.00	\$0.093	700	\$0.157	1000	\$0.176	9999
Gas	Gas PG&E S	Winter	\$0.00	\$1.244	61	\$1.468	999	\$1.468	0
Gas	Gas PG&E S	Summer	\$0.00	\$1.244	15	\$1.468	999	\$1.468	0



CHEERS Rating Report

Prepared for: California Consumer

CHEERS Certificate ID: EH254DAF960006	Rater: Jana Maddux	Rater ID: CCNJM612920	Date of Rating: 10/14/2008
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Site Address: 123 Energy Hog Road
CA City, CA 12345

Customer: California Consumer
123 Living Green Blvd.
CA City, CA 12345

Owner: CA Home Seller
456 Lives Out of Town Road
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About Your Home	
Program:	FHA
Interest Rate:	6.50%
California Climate Zone:	CZ12
Year Built:	1980
Electric Utility:	Electric SMUD RSG S
Gas Utility:	Gas PG&E S
Cond. Floor Area:	1847
Volume:	14776
Front Orientation:	0
Stories:	1
Type:	SingleFamily

Energy use and measure savings calculated using EnergyPro (Version: 4.411).

Data imported from transfer file: 'CA Consumer Oct 08.dat'

Recommended Improvements	Useful Life	Annual Savings	Lifecycle Savings / Present Value	Estimated Cost to Install
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CHEERS

HERS Features Report

Prepared for: California Consumer

CHEERS Certificate ID:
EH254DAF960006

Rater:
Jana Maddux

Rater ID:
CCNJM612920

Date of Rating:
10/14/2008

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Heating		2910.9	\$4,151.19	0	\$0.00	\$4,151.19
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Other		0	\$0.00	3115.2	\$376.41	\$376.41
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Water Heating		229.7	\$320.48	0	\$0.00	\$320.48
Other		0	\$0.00	2092.2	\$231.40	\$231.40
Totals	254.5	1667.2	\$2,326.10	3390.6	\$375.00	\$2,701.10

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Heating/Cooling System

	Existing	Improved
Heating		
Equipment	Furnace	Furnace
Efficiency	AFUE 0.65	AFUE 0.92
Cooling		
Equipment	Split	Split
Efficiency	SEER 8 EER N/A	SEER 14 EER 12.00
Duct System		
Location	Attic	No Change
R-Value	2.1	No Change
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Water Heater

Type	Existing	Improved
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Distribution	StandardNoPipeIns	No Change
Auxilliary	Solar	No Change
Solar Fraction	0.0	60.0

Other Features

	Existing	Improved
Reduced Infiltration	6504 CFM	725 CFM (min) 1604 CFM (max)
High Efficacy Lighting	0%	100%
Dishwasher (E.F.)	0.30	No Change
Refrigerator	1000 kwh	No Change

What determines cost effectiveness?

Recommended Improvements	Useful Life	Annual Savings	Lifecycle Savings / Present Value	Estimated Cost to Install
Upgrade Roof Insulation	30.0	\$236	\$3,077	\$823
Upgrade Wall Insulation	30.0	\$619	\$8,081	\$1,250
Seal HVAC Ducts	30.0	\$330	\$4,304	\$650
Reduce Building Leakage	30.0	\$46	\$594	\$350
Upgrade Windows	30.0	\$317	\$4,138	\$5,500
Upgrade HVAC System	30.0	\$1,155	\$15,086	\$6,875
Upgrade Lighting	7.0	\$34	\$187	\$200
Totals:		\$2,736	\$35,468	\$15,648

After the Rating report is complete

- **Once the borrower has decided on a cost effective package, bids are gathered**
- **Contractors should be made aware of the EEM Program**
- **The package with bids is submitted to underwriting**

After the Rating report is complete

- **The funds for the upgrades are held back at close**
- **The funds should be verified before work begins**
- **“Usually” the CHEERS Rater returns to verify the upgrades have been installed**
- **Money is then released from escrow**
- **Real world EEMs take less than 30 days after close to complete**

EEM Case Study

- **Bryon & Rachael Soules, 1st Time Homebuyers purchase a home at auction**
- **Expressed interest in the Energy Efficient Mortgage**



- Home built in 1948
- No wall insulation
- R11 insulation in the attic
- Duct system was very leaky
- Single pane Windows





CHEERS Rating Report

Prepared for: Bryon & Rachael Soules

CHEERS Certificate ID: EH254DAF960018	Rater: Jana Maddux	Rater ID: CCNJM612920	Date of Rating: 3/1/2008
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Site Address: 

Customer: Bryon & Rachael Soules


Owner: Bryon & Rachael Soules


About Your Home

Program:	FHA
Interest Rate:	6.10%
California Climate Zone:	CZ12
Year Built:	1948
Electric Utility:	Electric SMUD RSG S
Gas Utility:	Gas PG&E S
Cond. Floor Area:	949
Volume:	7592
Front Orientation:	90
Stories:	1
Type:	SingleFamily

Energy use and measure savings calculated using EnergyPro (Version: 4.411).
Data imported from transfer file: '030109 Soules.dat'

Recommended Improvements	Useful Life	Annual Savings	Lifecycle Savings / Present Value	Estimated Cost to Install
Upgrade Roof Insulation	30.0	\$140	\$1,900	\$826
Upgrade Wall Insulation	30.0	\$539	\$7,337	\$1,164
Seal HVAC Ducts	30.0	\$132	\$1,795	\$300
Upgrade Windows	30.0	\$267	\$3,638	\$5,173
Totals:		\$1,077	\$14,670	\$7,463

Annual Operating Costs	Existing	Improved
Heating	\$1080.89	\$356.22
Cooling	\$502.50	\$163.95
Water Heating	\$238.11	\$223.84
All Other Uses	\$129.02	\$129.32
Total	\$1950.52	\$873.33

Existing HERS Score:	307.3
HERS Score with Improvements:	138.4
Percentage Improvement:	55.0%

A ZERO energy home has a HERS score of "0". A home built to the 2005 California Title 24 Energy Code has a HERS score of 100.

EEM Case Study

- **Purchase price of the home: \$131,250**
- **EEM allowable amount: 6,562**
- **Total of all Contractor bids: 7,463**
- **Weatherization Program: 900**



The FHA Weatherization Program

- ◆ **Allows financing of “thermal improvement” upgrades when the EEM funds are not enough**
- ◆ **Items that would qualify: Dual Pane Windows, insulation, weather stripping, etc.**
- ◆ **Borrower must qualify for additional amount**
- ◆ **Borrower must put additional down**



The CHEERS® EEM Support Center

- **CHEERS® pro-actively promotes & supports the FHA EEM Program**
- **We provide EEM support for Realtors, Lenders, Underwriters, Consumers, Raters & Contractors**
- **Offers advanced training on EEMs**



Jana Maddux

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