MEMORANDUM

DATE: August 19, 2019

SUBJECT: Home Energy Audit Program

TO: Commissioners Flanagan and Goins, Solar and Green Building Committee Members
Patrick Tallarico, Manager, Office of Sustainability

FROM: David Freedman, Solar and Green Building Committee Member

---

At the Committee's June meeting we discussed home energy efficiency labels and agreed to investigate a voluntary pilot program. If approved by the Committee and Commission, the City would provide up to $10,000 to fund a rebate program available to homeowners that participate in an energy audit program.

Berkeley and Portland have energy audit requirements. Both programs use the Home Energy Score based on US Department of Energy (DOE) standards. The Home Energy Score Report estimates home energy use and associated costs and provides cost-effective energy solutions to improve the home's efficiency. Each Home Energy Score is shown on a simple one-to-ten scale, where a ten represents the most efficient homes. A sample Home Energy Score Report is included as Attachment 1.

Berkeley's Building Energy Saving Ordinance (BESO) requires an audit prior to sale of a house of up to four dwelling units or whole building under 25,000 square feet (https://www.cityofberkeley.info/BESO/). The report is filed with the city and a filing fee is charged ($79 for a house of up to four dwelling units or building under 5,000 square feet and $152 for a building 5,000 to 24,999 square feet). Berkeley requires energy assessors to register with the City and posts a list of the registered energy assessors. Berkeley does not include energy efficiency suggestions in its report as the ones generated using the DOE software are not aligned with the city's recently adopted electrification ordinance. Berkey does not subsidize the report but allows transfer of BESO compliance from seller to buyer at the time of sale. The deferral requires the buyer to complete an energy assessment within 12 months of the sale date.

Portland requires the audit at the time of listing of a single-family house (https://www.pdxhes.com/). The score must be included in the listing or advertising and displayed at the house. Portland estimates the cost to be between $150-$250 per audit and offers a free assessment to households whose income is at or below 60 percent of median family income for the local area.

Currently, there are no DOE-certified assessors of the Home Energy Score in the Coachella Valley. One home inspector in Palm Desert hopes to obtain the certification by the end of September. This inspector currently provides a home energy report using the template of the International Association of Certified Home Inspectors (InterNACHI). A sample InterNACHI report is available at http://energytool.nachi.org/my-report/268b94e-mpiolh. The report estimates the home's yearly energy usage, pinpoints potential energy inefficiencies, develops recommendations for energy improvements and determines potential energy savings based on a typical family's energy usage. The inspector charges $175 for the report on a stand-alone basis or $100 if included with a home inspection.

In addition to the DOE and InterNACHI home energy audit standards, California has its own standard home energy audit performed by qualified HERS raters, called a “Whole House Rating” or commonly referred to as a “HERS II” test. The audit (or rating, because it generates a score) creates a computer model of the home, but once done it can be useful for recommending upgrades and improvements. The audit can take four to eight hours and cost from $300 to $600 depending on level of detail and service the homeowner requires. The rating score represents the energy use of the home relative to a house that meets the 2008 Energy Code. A score of 120 means the house uses 20% more than a house that meets the 2008 Energy Code. A score of 75 means it uses 25% less. A Zero Net Energy house would get a score of zero. As the California Energy Commission does not mandate this report in connection with new construction, additions or alterations, there are no current plans to update the software to tie it to the 2019 Energy Code that enters into effect on January 1, 2020. A sample HERS II report is included as Attachment 2.

A comparison of the three standards for home energy audits (DOE, InterNACHI and HERS) is included as Attachment 3. At the September 3 Committee meeting, Patrick and I would like to get your feedback on:

1) Preference for one program over another.

2) Picking one program versus giving the homeowner a choice of programs eligible for a rebate.

3) Rebate amount (e.g., a $10,000 program could fund a $100 rebate for 100 audits).

4) Should this program should be linked to the home buying process, and if so, how.

This type of program could serve as a precursor to a more robust program that could be done when the City makes the switch to Desert Community Energy (DCE). The program would be subject to DCE Board approval and input from DCE’s Community Advisory Committee, but the City’s initial work could provide important lessons learned about the effectiveness of such a program.

Better Buildings
U.S. DEPARTMENT OF ENERGY

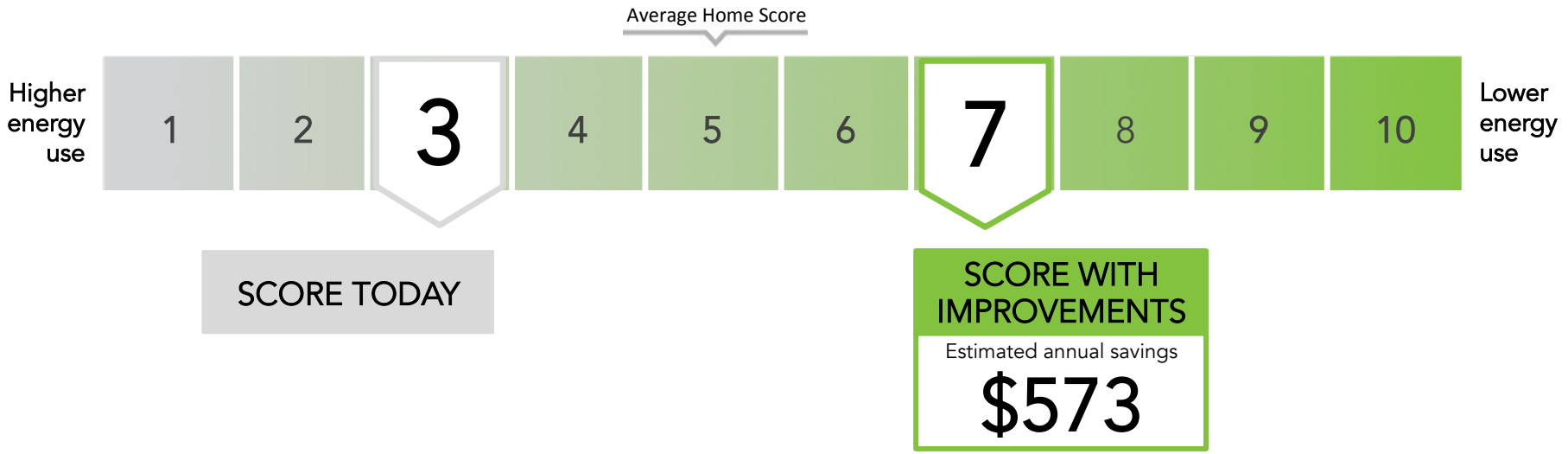
Attachment 1

Home Energy Score

12345 Honeysuckle Lane
Smithville, AR 72466

SCORE TODAY 3

CONDITIONED FLOOR AREA: 1,500 ft²
YEAR BUILT: 1970



The U.S. Department of Energy's Home Energy Score assesses the energy efficiency of a home based on its structure and heating, cooling, and hot water systems. For more information visit HomeEnergyScore.gov.

ASSESSMENT: Official | December 22, 2016 | ID# 1234567

U.S. DEPARTMENT OF ENERGY

12345 Honeysuckle Lane
Smithville, AR 72466

SCORE TODAY 3

Home Facts

The Home Energy Score's Home Facts includes details about the home's current structure, systems, and estimated energy use. For more information about how the score is calculated, visit our website at HomeEnergyScore.gov.

About This Home

ASSESSMENT	
Type	Official
Assessor ID	#1234567
Scoring tool version	v2016
HOME CONSTRUCTION	
Year built	1970
Number of bedrooms	3
Stories above ground level	1
Interior floor-to-ceiling height	10
Conditioned floor area	1,500 ft^2
Direction faced by front of house	North
Air sealed?	No
Air leakage rate	6,500 CFM50

Estimated Annual Energy Use

ENERGY BY TYPE	
Total	204 MBtus
Score basis	141 MBtus
Electricity	11,956 kWh
Natural gas	519 therms
Propane	226 gallons
COST BASIS	
Electricity	$0.091 / kWh
Natural gas	$1.153 / therms
Propane	$2.171 / gallon
Energy cost per square foot	$1.45 / ft^2
DEFINITIONS & CONVERSIONS	
MBtu	Million British thermal units; generic energy unit
kWh	Kilowatt-hour; electricity unit
Therm	100,000 Btu; heat energy unit
Electricity conversion	1 MBtu = 293 kWh
Heat conversion	1 MBtu = 10 therms

12345 Honeysuckle Lane
Smithville, AR 72466

SCORE TODAY 3

Home Facts

The Home Energy Score's Home Facts includes details about the home's current structure, systems, and estimated energy use. For more information about how the score is calculated, visit our website at HomeEnergyScore.gov.

Roof / Attic

ROOF / ATTIC 1

Attic floor area	500 ft²
Roof construction	Roof with Radiant Barrier / Composition Shingles or Metal / R-0
Roof color	Medium dark
Attic: ceiling type	Unconditioned attic
Attic floor insulation	R-25

ROOF / ATTIC 2

Attic floor area	1,000 ft²
Roof construction	Standard Roof / Composition Shingles or Metal / R-0
Roof color	Medium dark
Attic: ceiling type	Unconditioned attic
Attic floor insulation	R-9

Foundation

FOUNDATION / FLOOR 1

Floor area	500 ft²
Foundation type	Slab-on-grade foundation
Foundation walls insulation	R-0

FOUNDATION / FLOOR 2

Floor area	1,000 ft²
Foundation type	Unconditioned basement
Floor insulation above foundation	R-0
Foundation walls insulation	R-0

Walls

WALL CONSTRUCTION	TYPE / EXTERIOR FINISH	INSULATION VALUE
Front	Wood frame with Optimum Value Engineering (OVE) / Brick Veneer	R-19
Back	Wood frame / Wood, Asbestos, Fiber Cement, Shingle, or Masonite	R-0
Right	Concrete block or stone / Stucco	R-3
Left	Wood frame with rigid foam sheathing / aluminum siding	R-3

12345 Honeysuckle Lane
Smithville, AR 72466

SCORE TODAY 3

Home Facts

The Home Energy Score's Home Facts includes details about the home's current structure, systems, and estimated energy use. For more information about how the score is calculated, visit our website at HomeEnergyScore.gov.

Windows & Skylights

WINDOW AREA	
Front	70 ft²
Back	90 ft²
Right	40 ft²
Left	30 ft²

WINDOW CONSTRUCTION	PANES	FRAME	GLAZING or U-VALUE & SHGC
Front	Single	Aluminum	Clear
Back	Double	Wood or Vinyl	Solar-controlled low-E
Right	Double	Aluminum w/ thermal break	Insulating low-E, argon gas fill
Left	Triple	Wood or vinyl	Insulating low-E, argon gas fill

SKYLIGHTS ROOF / ATTIC 1			
Present?	Yes		
Area	30 ft²		
Type	Single	Aluminum	Tinted

SKYLIGHTS ROOF / ATTIC 2	
Present?	No

12345 Honeysuckle Lane
Smithville, AR 72466

SCORE TODAY 3

Home Facts

The Home Energy Score's Home Facts includes details about the home's current structure, systems, and estimated energy use. For more information about how the score is calculated, visit our website at HomeEnergyScore.gov.

Systems

HVAC SYSTEM 1	
Percent conditioned area served	33%
Heating type	Electric heat pump
Heating efficiency value	7.8 HSPF
Cooling type	Electric heat pump
Cooling efficiency value	12 SEER

DUCT SYSTEM 1	INSULATED?	SEALED?	PERCENT OF DUCTS IN THIS LOCATION
Unconditioned attic	Yes	No	100%

HVAC SYSTEM 2	
Percent conditioned area served	67%
Heating type	Central gas furnace
Heating installation year	2009
Cooling type	Central air conditioning
Cooling installation year	2009

DUCT SYSTEM 2	INSULATED?	SEALED?	PERCENT OF DUCTS IN THIS LOCATION
Unconditioned basement	No	No	50%
Unconditioned attic	No	No	25%
Conditioned space	No	No	25%

HOT WATER	
System type	LPG storage
Installation year	1997

12345 Honeysuckle Lane
Smithville, AR 72466

SCORE TODAY 3

Recommendations

The Home Energy Score's Recommendations show how to improve the energy efficiency of the home to achieve a higher score and save money. When making energy related upgrades, homeowners should consult with a certified energy professional or other technically qualified contractor to ensure proper sizing, installation, safety, and adherence to code. Learn more at HomeEnergyScore.gov.

REPAIR NOW. These improvements will save you money, conserve energy, and improve your comfort.

- **Air Tightness:** Have a professional seal all the gaps and cracks that leak air to save **$110** / year
- **Ducts 1:** Add insulation around ducts in unconditioned spaces to at least R-6 to save **$43** / year
- **Attic 2:** Increase attic floor insulation to at least R-19 to save **$57** / year
- **Ducts 2:** Add insulation around ducts in unconditioned spaces to at least R-6 to save **$23** / year
- **Ducts 2:** Have a professional seal all the gaps and cracks that leak air to save **$74** / year

REPLACE LATER. These improvements will help you save energy when it's time to replace or upgrade.

- **Windows:** Choose those with an ENERGY STAR label to save **$61** / year
- **Water Heater:** Choose one with an ENERGY STAR label to save **$159** / year
- **Electric Heat Pump:** Choose one with an ENERGY STAR label to save **$32** / year

Comments

Current local incentives may make this house a good candidate for a new water heater.

California Home Energy Audit Certificate

Energy Impact

Greenhouse Gas Emissions
CO_2 = 3.86 tons/year

Energy Consumption

Electricity (kWh/year)	
Heating	772
Cooling	603
Water Heating	0
Lights	623
Appliances	2,992
Total	4,990

Natural Gas (therms/year)	
Heating	155
Cooling	0
Water Heating	194
Lights	0
Appliances	17
Total	366

Operating Cost ($/year)

Electricity	$588
Gas	$366
Total	$954

Renewable Energy Production
Electricity 0

Ancillary Energy Uses

Electricity	0
Gas	0

Official Home Energy Audit in conformance with the requirements of the California Energy Commission
www.energy.ca.gov

Site Information

Address
1301 Bidwell
Folsom, CA 95630

General Information

Conditioned Floor Area	1,184 ft²
Conditioned Volume	9,476 ft³
Bedrooms	2
House Type	SingleFamily
Foundation Type	Slab on Grade

Energy Efficiency Features

Insulation

Ceiling	R-30
Wall	R-13
Floor Over Crawlspace	None
Slab Edge	None, 0

Windows

SHGC	0.63, 0.67, 0.83
U-Factor	0.66, 0.84, 1.19

Heating System

GasFurnace Ducted	0.95 AFUE
Electric Heat Pump DuctlessFan	9 HSPF
Electric Heat Pump DuctlessFan	9 HSPF

Cooling System

Split A/C Ducted	14.5 SEER
Split A/C Ductless	18 SEER
Split A/C Ductless	18 SEER

Ventilation System
None

Water Heating System
1 - 50 Gal GasFired (0.6 EF)

Information on Compliance With Other Programs:
N/A

Qualifying Information:
BPC NOT AUTHORIZED

Software estimates are based on typical occupancy patterns which may be different from your household use patterns. As a result, these software estimates may not match the household's energy actual consumption. Occupant's energy use patterns may change after energy efficiency upgrades.

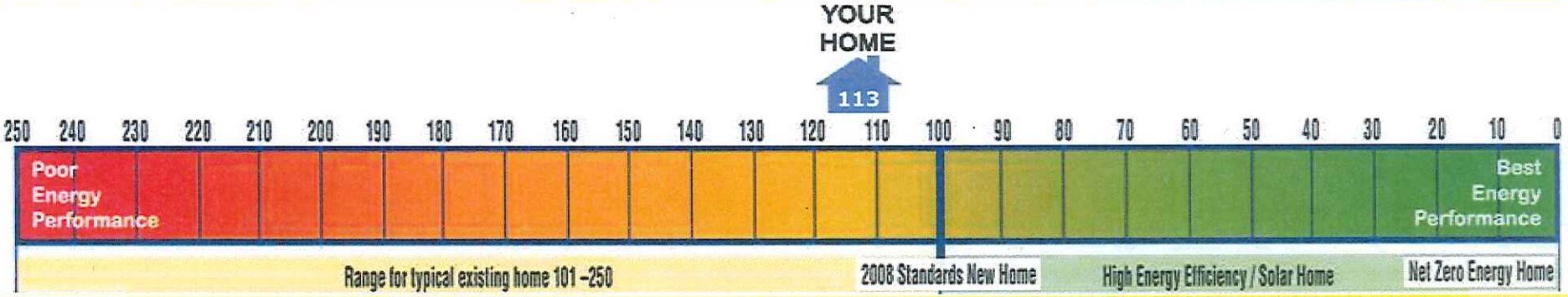
HERS Provider:
CalCERTS, Inc
31 Natoma St Suite 120
Folsom, CA 95630
916-985-3400
www.calcerts.com

Rating Information

Rating Number:	CC11-1798847021
EnergyPro Version:	5.1.9.1
Certified Rater:	John Rater USR999999
	John Rater's HVAC Folsom, 95630
Rating Date:	March 26, 2014

ELECTRONICALLY SIGNED by
John Rater
at CalCERTS, Inc
Energy Auditor Signature
Date: _____

California Home Energy Rating Certificate



Information on Compliance With Other Programs:

N/A

Qualifying Information:
BPC NOT AUTHORIZED

Software estimates are based on typical occupancy patterns which may be different from your household use patterns. As a result, these software estimates may not match the household's energy actual consumption. Occupant's energy use patterns may change after energy efficiency upgrades.

CalCERTS inc.

Energy Impact

Greenhouse Gas Emissions
CO_2 = 3.86 tons/year

Energy Consumption

Electricity (kWh/year)	
Heating	772
Cooling	603
Water Heating	0
Lights	623
Appliances	2,992
Total	4,990

Natural Gas (therms/year)	
Heating	155
Cooling	0
Water Heating	194
Lights	0
Appliances	17
Total	366

Operating Cost ($/year)

Electricity	$588
Gas	$366
Total	$954

Renewable Energy Production
Electricity 0

Ancillary Energy Uses

Electricity	0
Gas	0

Site Information

Address
1301 Bidwell
Folsom, CA 95630

General Information

Conditioned Floor Area	1,184 ft²
Bedrooms	2
House Type	SingleFamily
Foundation Type	Slab on Grade

Energy Efficiency Features

Insulation

Ceiling	R-30
Wall	R-13
Floor Over Crawlspace	None
Slab Edge	None, 0

Windows

SHGC	0.63, 0.67, 0.83
U-Factor	0.66, 0.84, 1.19

Heating System

GasFurnace Ducted	0.95 AFUE
Electric Heat Pump DuctlessFan	9 HSPF
Electric Heat Pump DuctlessFan	9 HSPF

Cooling System

Split A/C Ducted	14.5 SEER
Split A/C Ductless	18 SEER
Split A/C Ductless	18 SEER

Water Heating System
1 - 50 Gal GasFired (0.6 EF)

Official Home Energy Rating
in conformance with the requirements of the California Energy Commission
www.energy.ca.gov

HERS Provider:
CalCERTS, Inc
31 Natoma St Suite 120
Folsom, CA 95630
916-985-3400
www.calcerts.com

Rating Information

Rating Number:	CC11-1798847021
EnergyPro Version:	5.1.9.1
Certified Rater:	John Rater USR999999 John Rater's HVAC Folsom, 95630
Rating Date:	March 26, 2014

ELECTRONICALLY SIGNED by
John Rater
at CalCERTS, Inc

Rater Signature Date

Rating Number: CC11-1798847021 EnergyPro Version: 5.1.9.1 Rating Date: March 26, 2014

Explanation of Energy Features

General Information

Your **2** bedroom, **Single Family** home built in **1985** has **1,184** square feet of Conditioned Floor Area, and has a volume of **9,476** cubic feet. Conditioned floor area means how large is the part of your home that is served by your heating and cooling system. Your garage is not conditioned floor area. A porch that is outside or an added room that has no duct work in it are also examples of unconditioned floor area. The number of bedrooms and whether yours is a single family home or a multifamily home are factors that are used to help estimate energy usage and occupancy behavior.

Home energy software estimates are based on typical occupancy patterns and thermostat settings, hot water use, appliance use, and other factors, which may be different than your household's use patterns. As a result consumers are cautioned that these software estimates may not match the household's actual energy savings. It's also possible that your energy use patterns may change after energy efficiency upgrades as household members adjust to new equipment and changed comfort conditions.

Energy Efficiency Features in Your Home

Insulation is used to help slow down the gain or loss of heat in your home. Insulation can be installed in walls, attics (called "ceiling insulation"), around the ducts and along the edge of the slab, or under the floor. More insulation is better, if it is installed properly. Insulation is measured in R-Value, so the higher the R number, the better the insulation. The insulation in your Ceiling is **R-30**; the insulation in your Walls is **R-13**; the insulation in your Crawlspace is **None**; the insulation on your Slab Edge is **None, 0**.

Windows are an important energy feature. After all, a window is just a large hole in the wall, so it is an important factor in saving energy. The window frame transfers heat directly into and out of your home, and it needs to keep unwanted air from leaking around the window into your home. The glass may be single or dual pane (dual pane is more energy efficient) and the glass may have some special characteristics that add even more energy efficiency. Your home has windows with SHGC Ratings of **0.63, 0.67, 0.83** and U-Factors of **0.66, 0.84, 1.19**.

The Heating System is one of the highest users of energy in your home, depending on the climate where you live. It is very important for both comfort and health and safety. Your home has **3** systems. System #1 has a **Gas Furnace** with an **AFUE** of **0.95**. System #2 has a **Electric Heat Pump** with an **HSPF** of **9**. System #3 has a **Electric Heat Pump** with an **HSPF** of **9**. AFUE means "Annual Fuel Utilization Efficiency". This is just a fancy term for how energy efficient is the heating system...just like "miles per gallon" of your car. Of course, the better miles per gallon your car gets, the less fuel you have to buy, so it is the same with your heating system, which translates to lower utility bills.

The Cooling System is also a very high energy user, again, depending on whether you live in a hot or cold climate area. Your home has **3** systems. Cooling system #1 is a **Split A/C** and has a **SEER** value of **14.5**. Cooling system #2 is a **Split A/C** and has a **SEER** value of **18**. Cooling system #3 is a **Split A/C** and has a **SEER** value of **18**. SEER is the "miles per gallon" number for air conditioners. SEER stands for "Seasonal Energy Efficiency Ratio".

A Ventilation System is used to provide fresh air, circulate it, and remove stale air at a specific rate. Your home Does Not Have a ventilation system.

The Water Heating System in your home is another pretty large user of energy, especially if it is older, leaky or has little or no insulation on it or in it. There are many different types of water heating systems. The most common is a "storage tank" that uses gas to heat the water and then keep it in the tank until it is needed. The efficiency of a hot water heating system is usually stated by the "energy factor". The higher the number, the more efficient the system is. The Hot Water Heating System in your home is a **Gas Fired**, and the Energy Factor is **0.6**.

Custom Alternatives and Recommendations

The list of Recommended Custom Improvements indicates how each individual improvement affects the energy efficiency of your home. The list below shows you the savings that are possible if you make each of the Recommended Improvements independently. In order to see how each improvement will affect your energy efficiency if all were installed, we suggest you run a Standard Report.

Improving only your home's **Roof Insulation** to **R-49.0** will improve your home's HERS Index Score to **110** and provide an individual estimated annual savings of **$16**.

Improving only your home's **Building Leakage** to a CFM of **1860** will improve your home's HERS Index Score to **111** and provide an individual estimated annual savings of **$22**.

Improving only your home's **Appliances** by getting a Dishwasher with an **Energy Factor** of **0.67** and by getting an indoor refrigerator that uses **450** will improve your home's HERS Index Score to **109** and provide an individual estimated annual savings of **$32**.

Improving only your home's **Domestic Hot Water Heater** to a **Gas Fired** with a **0.0 Gallon Capacity** and an EF Rating of **0.840** will improve your home's HERS Index Score to **106** and provide an individual estimated annual savings of **$68**.

Improving **ALL of the Above Improvements** to your home will improve your home's HERS Index Score to **96** and provide an individual estimated annual savings of **$136**.

DETAILED DATA SUMMARY

Project Name	Building Type: ☒ Single Family ☐ Multi Family	Date
1301 Bidwell *Folsom, CA 95630*		*3/26/2014*

OPAQUE SURFACE DETAILS

Surface Type	Area	U-Factor	Insulation					Azm	Tilt	Status	Joint Appendix 4	Location/Comments
			Cavity	Exterior	Frame	Interior	Frame					
Wall	*304*	*0.102*	*13*					*130*	*90*	*Existing*	*4.3.1-A3*	*Zone 1*
Door	*22*	*0.5*						*130*		*Existing*	*4.5.1-A3*	*Zone 1*
Wall	*100*	*0.102*	*13*					*220*	*90*	*Existing*	*4.3.1-A3*	*Zone 1*
Wall	*92*	*0.102*	*13*					*220*	*90*	*Existing*	*4.3.1-A3*	*Zone 1*
Wall	*40*	*0.102*	*13*					*130*	*90*	*Existing*	*4.3.1-A3*	*Zone 1*
Wall	*344*	*0.102*	*13*					*310*	*90*	*Existing*	*4.3.1-A3*	*Zone 1*
Door	*60*	*0.5*						*310*		*Existing*	*4.5.1-A3*	*Zone 1*
Slab	*944.5*	*0.73*	*0*					*0*	*0*	*Existing*	*4.4.7-A1*	*Zone 1*
Roof	*944.5*	*0.031*	*30*					*355*	*18*	*Existing*	*4.2.1-A20*	*Zone 1*
Wall	*96*	*0.102*	*13*					*40*	*90*	*Existing*	*4.3.1-A3*	*Zone 2*
Wall	*80*	*0.102*	*13*					*130*	*90*	*Existing*	*4.3.1-A3*	*Zone 2*
Door	*20*	*0.5*						*130*		*Existing*	*4.5.1-A3*	*Zone 2*
Slab	*120*	*0.73*	*0*					*0*	*0*	*Existing*	*4.4.7-A1*	*Zone 2*
Roof	*120*	*0.031*	*30*					*130*	*18*	*Existing*	*4.2.1-A20*	*Zone 2*
Wall	*96*	*0.102*	*13*					*40*	*90*	*Existing*	*4.3.1-A3*	*Zone 3*
Wall	*80*	*0.102*	*13*					*310*	*90*	*Existing*	*4.3.1-A3*	*Zone 3*
Door	*20*	*0.5*						*310*		*Existing*	*4.5.1-A3*	*Zone 3*
Slab	*120*	*0.73*	*0*					*0*	*0*	*Existing*	*4.4.7-A1*	*Zone 3*
Roof	*120*	*0.031*	*30*					*355*	*18*	*Existing*	*4.2.1-A20*	*Zone 3*

FENESTRATION SURFACE DETAILS

ID	Type	Area	U-Factor[1]	SHGC[2]	Azm	Status	Glazing Type	Location/Comments Type
1	*Window*	*16*	*0.66*	*0.63*	*130*	*Existing*	*U=0.66 SHGC=0.63*	*Zone 1*
2	*Window*	*18*	*1.19*	*0.83*	*130*	*Existing*	*U=1.19 SHGC=0.83*	*Zone 1*
3	*Window*	*8*	*0.66*	*0.63*	*130*	*Existing*	*U=0.66 SHGC=0.63*	*Zone 2*
4	*Window*	*0.8*	*0.84*	*0.67*	*130*	*Existing*	*U=0.84 SHGC=0.67*	*Zone 2*
5	*Window*	*0.8*	*0.84*	*0.67*	*130*	*Existing*	*U=0.84 SHGC=0.67*	*Zone 2*
6	*Window*	*8*	*0.66*	*0.63*	*310*	*Existing*	*U=0.66 SHGC=0.63*	*Zone 3*

(1) U-Factor Type: 116-A = Default Table from Standards, NFRC = Labeled Value

(2) SHGC Type: 116-B= Default Table from Standards, NFRC = Labeled Value

EXTERIOR SHADING DETAILS

ID	Exterior Shading Type	SHGC	Window		Overhang				Left Fin			Right Fin		
			Hgt	Wd	Len	Hgt	LExt	RExt	Dist	Len	Hgt	Dist	Len	Hgt
1	*BugScreen*	*n/a*	2	8	1.5	0.5	32	15						
2	*BugScreen*	*n/a*	4.5	4	1.5	1.3	22	27						
3	*BugScreen*	*n/a*	2	4	1.5	0.5	48	3						
4	*None*	*n/a*												
5	*None*	*n/a*												
6	*BugScreen*	*n/a*	2	4	5	1.2	5.7	20.5						

DETAILED DATA SUMMARY

Project Name	Building Type: ☒ Single Family ☐ Multi Family	Date
1301 Bidwell *Folsom, CA 95630*		*3/26/2014*

BUILDING ZONE INFORMATION

System Name	Zone Name	Floor Area (ft^2) New	Existing	Altrered	Removed	Volume	Year Built
HVAC 1	*Zone 1*		*945*			*7556*	*1985*
HVAC 2	*Zone 1*		*120*			*960*	*1985*
HVAC 3	*Zone 1*		*120*			*960*	*1985*
	Totals	*0*	*1185*	*0*	*0*	*9476*	

HVAC SYSTEMS

System Name	Qty.	Heating Type	Min. Eff.	Cooling Type	Min. Eff.	Thermostat Type	Status
HVAC 1	*1*	*GasFurnace*	*0.95 AFUE*	*SplitAirConditioner*	*14.5 SEER*	*Setback*	*Existing*
HVAC 2	*1*	*ElectricHeatPump*	*9 HSPF*	*SplitAirConditioner*	*18 SEER*	*Setback*	*Existing*
HVAC 3	*1*	*ElectricHeatPump*	*9 HSPF*	*SplitAirConditioner*	*18 SEER*	*Setback*	*Existing*

HVAC DISTRIBUTION

System Name	Heating	Cooling	Duct Location	Duct R-Value	Ducts Tested?	Status
HVAC 1	*Ducted*	*Ducted*	*Attic, Ceiling Ins, vented*	*4.2*	☒	*Existing*
HVAC 2	*DuctlessFan*	*Ductless*	*n/a*	*n/a*	☐	*Existing*
HVAC 3	*DuctlessFan*	*Ductless*	*n/a*	*n/a*	☐	*Existing*
					☐	
					☐	

WATER HEATING SYSTEMS

System Name	Qty.	Type	Distribution	Rated Input (Btu)	Tank Cap. (gal)	Energy Factor or RE	Standby Loss or Pilot	Ext. Tank Insul. R-Value	Status
WHS 1	*1*	*GasFired*	*Kitchen*	*40000*	*50*	*0.6*	*n/a*	*n/a*	*Existing*

MULTI-FAMILY HEATING DETAILS

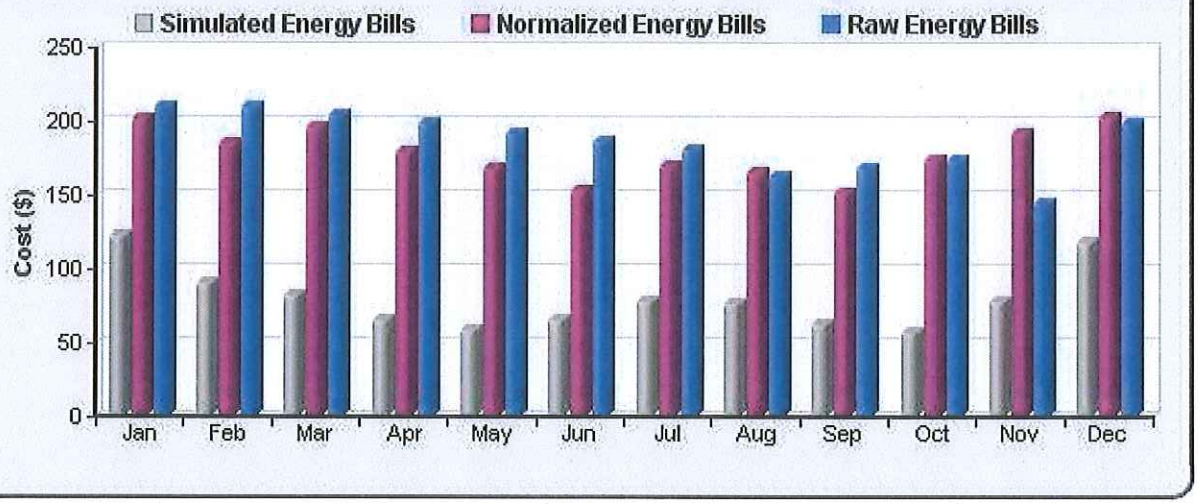
Control	Qty	HP	Eff Prem	Hot Water Piping Length (ft) Plenum	Outside	Buried	Add ¼" Ins
			☐				☐
			☐				☐
			☐				☐
			☐				☐
			☐				☐

HYDRONIC HEATING SYSTEM PIPING

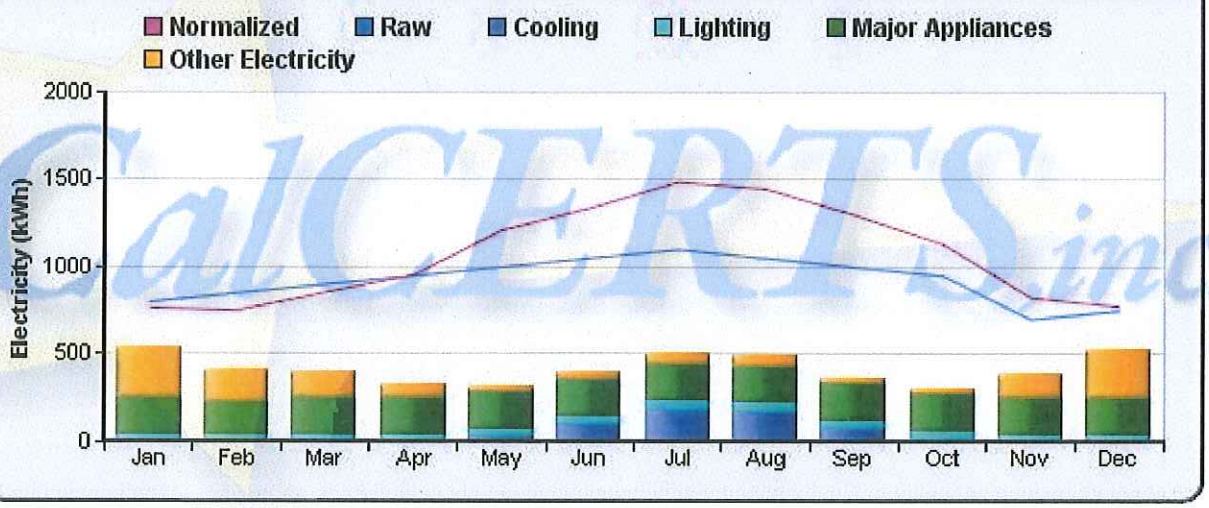
System Name	Pipe Length	Pipe Diameter	Insul Thick

California Home Energy Consumption Analysis

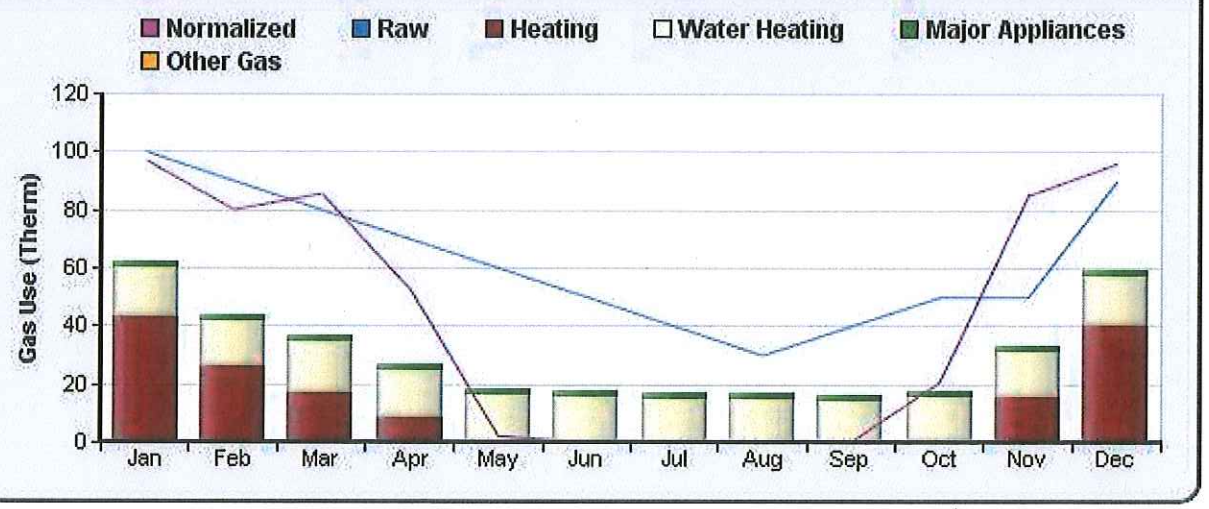
Energy Cost



Electricity Use



Gas Use



California Home Energy Consumption Analysis

TABULAR REPORT

Month	Electricity		Gas		Total Cost
	Cost	kWh Used	Cost	Therms Used	
Jan	$90.00	800	$120.00	100	$210.00
Feb	$102.00	850	$108.00	90	$210.00
Mar	$108.00	900	$96.00	80	$204.00
Apr	$114.00	950	$84.00	70	$198.00
May	$120.00	1000	$72.00	60	$192.00
Jun	$126.00	1050	$60.00	50	$186.00
Jul	$132.00	1100	$48.00	40	$180.00
Aug	$126.00	1050	$36.00	30	$162.00
Sep	$120.00	1000	$48.00	40	$168.00
Oct	$114.00	950	$60.00	50	$174.00
Nov	$84.00	700	$60.00	50	$144.00
Dec	$90.00	750	$108.00	90	$198.00

Utility Rates

Type	Electricity	Electricity	Gas	Gas
Name	SMUD RSE, RSC	SMUD RSE, RSC	PG&E G1 R	PG&E G1 R
Season	SMUD RSE, RSC Winter	SMUD RSE, RSC, RSG Summer	PG&E G1 R Winter	PG&E G1 R Summer
CO2	.69	.69	11.65	11.65
Meter Charge	$7.20	$7.20	$0.00	$0.00
Tier 1 Rate	$0.097	$0.105	$0.981	$0.981
Tier 1 Threshold	1120	700	55	14
Tier 2 Rate	$0.179	$0.186	$1.24	$1.24
Tier 2 Threshold	0	0	0	0
Tier 3 Rate	$0	$0	$0	$0
Tier 3 Threshold	0	0	0	0

Energy Upgrade Recommendations

Project Name	Documentation Author
1301 Bidwell *Folsom, CA 95630*	*CalCERTS*

Recommended Improvements	Description	Annual Individual Savings	Annual Cumulative Savings
Roof Insulation	*49.0*	*$16*	*N/A***
Building Leakage	*2.0 SLA / 1860 CFM*	*$22*	*N/A***
Appliances	*Indoor Ref: 450 kWh Dishwasher: 0.67 EF*	*$32*	*N/A***
Domestic Hot Water Heater	*Gas Fired / 0.0 gal / 0.840 EF*	*$68*	*N/A***
All Improvements		*N/A***	*$136*

** This Report utilized the CUSTOM (Individual) Process. Cumulative savings is not available by individual Measure.

Annual Results	Electricity (kWh)			Fossil Fuel (therms)		
End Use	**Existing**	**Improved**	**Savings**	**Existing**	**Improved**	**Savings**
Space Heating	772	765	7	155	139	16
Space Cooling	603	509	95	0		
Fans	535	484	51	0		
Pumps	0			0		
Domestic Hot Water	0			194	132	63
Indoor Lighting	577	577	0	0		
Outdoor Lighting	46	46	0	0		
Appliances	2,457	2,095	362	17	17	0
Ancillary	0			0		
Renewables	0			0		
TOTAL	**4,992**	**4,477**	**515**	**367**	**288**	**78**

CO_2 (lbs/year)	Existing	Improved	Savings
Electricity	3,444	3,089	355
Fossil Fuel	4,271	3,358	913
TOTAL	**7,715**	**6,447**	**1,268**

Average Demand (kW)	3	2.72	0.29
TDV Energy (kBtu/ft²-yr)	119.05	101.23	17.83
Energy Cost	$954	$818	$136

Climate Zone:	12
Floor Area:	1,184
Type:	SingleFamily

TDV % Savings:	**15%**

The estimated operating costs shown in this report are dependent upon many factors. The construction and conservation features of the home clearly are 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. For investor owned utility rebate purposes, the site converted BTU % savings are 17.9%.

CalCERTS Certificate ID:	CC11-1798847021	Date: March 26, 2014
CalCERTS Rater Name:	John Rater	CalCERTS Rater ID: USR999999

Customer Information	
Name:	Whole House Class
Address:	1301 Bidwell
City / State / Zip:	Folsom, CA 95630

CalRATEpro

Cost Summary

Recommended CUSTOM Improvements	Useful Life	Annual Savings	Lifecycle Savings / Present Value	Estimated Cost to Install
Roof Insulation	30	$15.56	$216.29	$1,000.00
Building Leakage	30	$21.90	$304.41	$1,000.00
Appliances	30	$31.61	$439.38	$700.00
Domestic Hot Water Heater	15	$67.97	$671.24	$1,800.00
All Improvements	30	$135.75	$1,886.85	$0.00

DISCLAIMER: Annual Savings estimates vary based on features installed and Occupant Behavior. Present Value estimate is based on estimated Useful Life and estimated Annual Savings. Your actual results will vary.

THIS REPORT IS NOT FOR EEM USE

Signature: _____

Attachment 3

Home Energy Audit Report Comparison Chart

Report Name	Home Energy Score	HERS II Rating	Home Energy Report
Certifying Entity	Department of Energy	CalCERTS / CHEERS	InterNACHI
Currently available in Coachella Valley	No	Yes	Yes
Includes rating	Yes	Yes	No
Rating linked to house sale / listing	Yes	No	No
Rating system	1-10 (higher is better)	0-250 (lower is better)	None
Diagnostic testing	Blower door optional; cannot enter duct blaster measurement into Home Energy Score	Blower door, duct blaster	None
Number of data inputs	50+	50+	About 40
Field work + data input time	1.25 hours	4 – 8 hours	10 minutes, if done as part of a general home inspection; less than one hour, if done as a stand-alone inspection service
Estimated cost	$150 – $250	$300 – $600	$100 with concurrent home inspection, $175 without
Estimated Annual Energy Use	Yes	Yes	Yes
Energy Efficiency Recommendations	Yes	Yes	Yes
Estimated Energy Efficiency Cost Savings	Yes	Yes	Yes