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The NEW AI Residential Green and Energy Efficient Addendum Auto Populate it with HERS

Presented by:

James Murrett, MAI, SRA, 2018 AI President

And

Sandra K. Adomatis, SRA, LEED Green Assoc., NAR Green Designee

February 26, 2018

1:30 pm – 3:00 pm

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Meet the speakers



**James L. Murrett, MAI, SRA
AI 2018 President**



**Sandra K. Adomatis, SRA, LEED
Green Assoc., NAR Green**



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Objectives



- List the updates to the AI Res. Green & EE Addendum (AIGREEA)
- Highlight the changes that enhance its market value
- Describe the HERS information that is “Big Data”
- Relate the HERS to Valuation
- Discuss latest studies of marketing to sales price premiums

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James Murrett, MAI, SRA

Summary of Updates to the AIGREEA 820.05



- Reorganization of data to align with the real estate agents' forms
- Mapped to Real Estate Standards Organization (RESO) Dictionary and to Mortgage Industry Standards Maintenance Organization (MISMO) Dictionary
- Remove data that was less acknowledged by market
- Added energy storage to the Solar Page and ownership descriptions that categorize solar PV as personal property or real estate
- Added signature line of person completing each page
– allows for more than one person to complete

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Are you running your business through the rear view mirror?



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Why an update to the AIGREEA?



- The market is changing and so is building science
- Mapping to data standards used by the industry improves the value of the document
- Feedback from users prompted changes – we must listen to the users of our services

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7 Technological Innovations May Conquer Real Estate Industry in 2018



Technology has conquered almost every industry field and now it is time for the real estate industry to rise and shine. Technology has made it easy for both real estate agents and potential homebuyers to buy and sell properties without exerting so much effort like the old conventional ways. Next we give you the 7 technological innovations that are expected to conquer the real estate world in 2018 and will help move things along and set new trends in the business.

Source: <https://www.reso.org/7-technological-innovations-may-conquer-real-estate-industry-2018/>

Guest blog by: Jamie Moulton

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7 Technological Innovations May Conquer Real Estate Industry in 2018



1. Drone Land Surveying
2. Virtual reality real estate
3. 360 video real estate tour
4. Smart Home Technology
5. Blockchain
6. Beacon Technology
7. Artificial intelligence

Source: <https://www.reso.org/7-technological-innovations-may-conquer-real-estate-industry-2018/>

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Do you know who this is?



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RESO Importance to AI and RESNET



The Deadline for MLSs to Adopt the RESO Data Dictionary Version 1.6 is August 4th, 2018 – is your MLS Ready?

Benefits of Data Dictionary Implementation

•**Simplified Data Integration:** Data Dictionary structured data can move between systems without losing information; Data translation costs are reduced because of consistent data definitions and usage; and it is easier for MLS's, Brokers, technology partners and other third parties to develop new, data-driven applications and services that serve Realtors® across North America.

<https://www.reso.org/data-dictionary/>

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NEREN Regional MLS Initiative



HELIX will hold 3rd party verified energy efficiency and green building ratings, scores, and certifications.

Realtors and appraisers will be able to access that data through the MLS.

Available in 2018.

Efficiency
Vermont

U.S. DEPARTMENT OF ENERGY
Home Energy Score

VT Home
Energy Profile

RESNET
HERS
INDEX

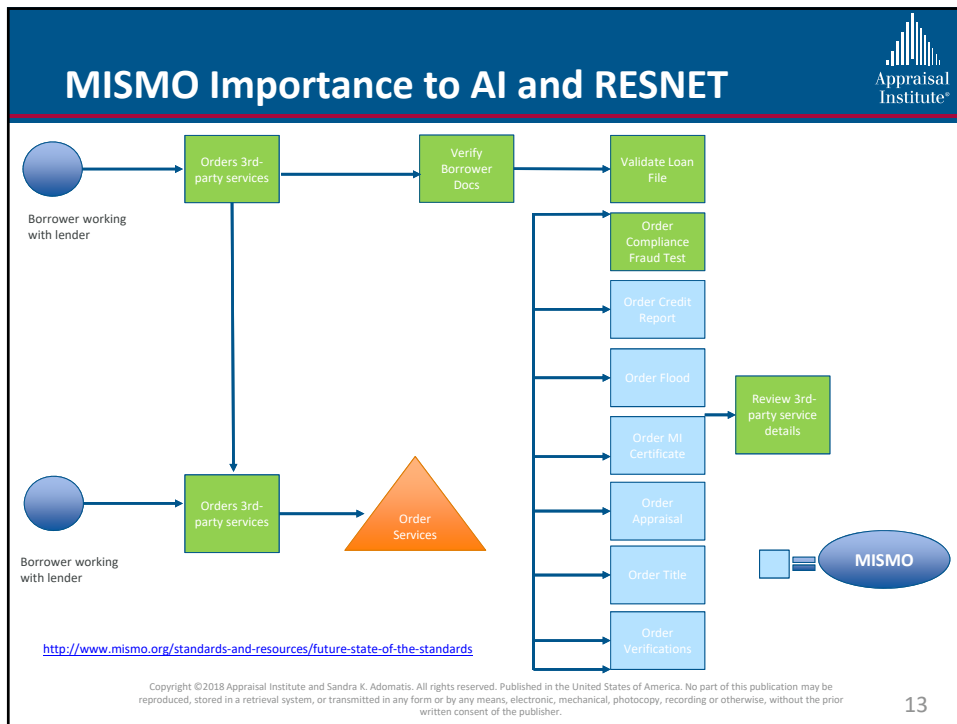


HELIX



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Fannie Mae Says

Energy Efficient Improvements

- An energy-efficient property is one that uses resource-effective design, materials, building systems, and site orientation to conserve nonrenewable fuels.

Source: Fannie Mae Selling Guide dated December 19, 2017
Part B; Subpart B-4; Chapter B4-1; Section B4-1.3 Appraisal Report Assessment - Page 556

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Who should complete the Addendum?



- The person(s) with the most knowledge of what is behind the walls.
- Builder,
- Energy or green rater,
- Architect,
- Solar installer, or a combination of one or more of these professionals.
- Appraisers can complete the Addendum if they have all the documentation to know what is behind the walls or proposed.

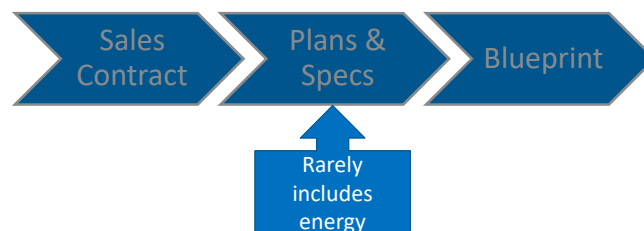
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Why doesn't the appraiser complete Addendum?



- In most cases, appraisers are not given enough documentation to allow them to complete the Addendum. The typical new construction borrower comes with the three following documents.



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Why don't appraisers complete the Addendum?



- If a full HERS report, Building Professional Institute (BPI) report, and/or, full green scoring sheet is given to the appraiser, the Addendum can be completed in less than 30 minutes. They need a trusted source!



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HERS Report – “Big Data”



- Appraisers are not trained in building science
- Appraisers do not have tools to diagnostically test energy features
- Appraisers cannot see behind the walls
- Liability is too great for appraisers to guess at the energy efficiency. We NEED your report!

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Sandra K. Adomatis, SRA

Appraisal Standards



- Appraisers must identify characteristics that are relevant to the type and definition of market value and the intended use of the appraisal. Those items include **locational, physical, legal, and economic** attributes of the property.
- The market is interested in energy efficient homes for the economic attributes they give in lower energy savings and the physical comfort they give through better indoor air quality and rooms with even temperatures.

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Fannie Mae Guideline Says ...



- Special energy-saving items **must** be recognized in the appraisal process and noted on the appraisal report form. For example, when completing the appraisal report (Form 1004), special energy-efficient items are to be addressed in the Improvements section in the **Additional features field**. The nature of these items and their contribution to value will vary throughout the country because of climactic conditions, differences in utility costs, and overall market reaction to the cost of the feature.
- Some examples of special energy-efficient features may include, but are not limited to, energy efficient ratings or certifications, programmable thermostats, solar photovoltaic systems, low-e windows, insulated ducts, and tank-less water heaters.

Source: Fannie Mae Selling Guide dated **December 19, 2017**
 Part B; Subpart B-4; Chapter B4-1; Section B4-1.3 Appraisal Report Assessment -
 Page 556

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Additional Features Field on 1004 Form



Additional features (special energy efficient items, etc.). The AI Residential Green and Energy Efficient Addendum included in this report describes the energy and green features that make this home a high-performance property.

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"Big Data" in HERS Report



Part II—Energy-Label

Energy-Label Labels disclose the state of the home's energy assets.	RESNET's-HERS Rating (0-to-150): <input type="checkbox"/> Sampling-Rating <input type="checkbox"/> Projected-Rating <input type="checkbox"/> Confirmed-Rating	Estimated-energy-savings-for-this-home: \$ ____/year ____ CkWh-rate-dated ____/____/____ Energy-Savings-includes-electricity, heating & Cooling. Score below 100 indicates energy costs are expected to be lower than average code-built home. HERS Index Report occupancy estimates energy cost based on number of bedrooms plus one. Only a "confirmed-rating" is diagnostically tested.
	DOE's-Home-Energy-Score Score (1-to-10): <input type="checkbox"/> Official-Score <input type="checkbox"/> Unofficial-Score	Estimated-energy-savings-for-this-home: \$ ____/year ____ CkWh-rate-dated ____/____/____ Energy-Savings-includes-electricity, heating & Cooling. Score above five indicates energy costs are expected to be lower than average local home. Home-Energy-Score estimates energy cost based on state-average energy rates and the home's energy features.
	Other-Energy-Score Range (____ to ____): Describe-energy-label-system:	Estimated-energy-savings: \$ ____/year ____ C-kWh-rate-dated ____/____/____ Describe-energy-label-system:
	Date-Verified: ____/____/____ Score-or-Rating-Version: ____ Organization-URL: <input type="checkbox"/> www.resnet.us/ <input type="checkbox"/> www.homeenergyscore.gov <input type="checkbox"/> Other: ____	ABOVE-VALID-ONLY-IF-CHECKED: <input type="checkbox"/> Verification-reviewed-on-site <input type="checkbox"/> Verification-attached-to-this-report

Important the type of Rating is given. While the Rating box says 0 to 150; If your rating is -12 just insert the -12 in the space.

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EFFICIENCY FEATURES (Water, Energy, and Environmental. See types defined in glossary).

The following items are considered within the appraisal analysis of the subject property:

Insulation	<input type="checkbox"/> Fiberglass-Blown-In <input type="checkbox"/> Foam-Insulation <input type="checkbox"/> Cellulose <input type="checkbox"/> Fiberglass-Batt-Insulation <input type="checkbox"/> R-Value: ____ Wall: ____ Ceiling: ____ Other (Describe): ____	
Building-Envelope	Envelope-Tightness: ____ Unit: ____ CFM25 ____ CFM50 ____ ACH50 ____ ACH-natural Instructions: Insert the rating as a number that could be 0.5 to 7 ACH50 or higher. The lower the number, the more air-tight the envelope. Building Codes for area show maximum Envelope-Tightness allowed based on the climate zone. Not all areas have adopted a building code. http://bcap-energy.org/	
Windows	<input type="checkbox"/> ENERGY-STAR <input type="checkbox"/> Low-E <input type="checkbox"/> High-Impact <input type="checkbox"/> Storm <input type="checkbox"/> Double-Pane <input type="checkbox"/> Tinted <input type="checkbox"/> Solar-Shades <input type="checkbox"/> Triple-Pane <input type="checkbox"/> Other (Describe): ____ (% Of lighting LEDs): ____	
Day-Lighting	<input type="checkbox"/> # Of Skylights: ____ <input type="checkbox"/> # Of Solar-Tubes: ____ (% Of lighting LEDs): ____	
ENERGY-STAR® Appliances	ENERGY-STAR®: <input type="checkbox"/> Dishwasher <input type="checkbox"/> Refrigerator <input type="checkbox"/> Washer/Dryer <input type="checkbox"/> Other: Energy Source: <input type="checkbox"/> Propane <input type="checkbox"/> Electric <input type="checkbox"/> Natural Gas <input type="checkbox"/> Other: Note: ENERGY-STAR® appliances do not result in an ENERGY-STAR® Home.	
Water-Heaters	<input type="checkbox"/> ENERGY-STAR <input type="checkbox"/> Size: ____ gallons <input type="checkbox"/> Tankless <input type="checkbox"/> Solar (next page) <input type="checkbox"/> Heat-Pump <input type="checkbox"/> Coil	
HVAC & Related Equipment	<input type="checkbox"/> High-Efficiency HVAC SEER: ____ Efficiency Rating: ____ AFUE: ____ *Annual-Fuel-Utilization-Efficiency <input type="checkbox"/> Heat-Pump Efficiency Rating: ____ COP: ____ HSPF: ____ SEER: ____ EER: ____ Thermostat/Controllers? ____ Yes ____ No Programmable-Thermostat? ____ Yes ____ No Auxiliary-heat-source? ____ Yes ____ No Radiant-Floor-Heat? ____ Yes ____ No Geothermal? ____ Yes ____ No Electric-Vehicle-Ready? (car charger) ____ Yes ____ No	
Indoor-Environmental-Quality	<input type="checkbox"/> Energy (ERV) or Heat-Recovery-Ventilator (HRV) <input type="checkbox"/> Other Measured Whole-House-Ventilation-Device (See glossary) <input type="checkbox"/> Humidity-Monitoring-Device-installed <input type="checkbox"/> Non-Toxic-Pest-Control <input type="checkbox"/> Radon-System: ____ Active ____ Passive	
Water-Efficiency	<input type="checkbox"/> Reclaimed-Water-System (Describe): ____ <input type="checkbox"/> Greywater-reuse-system <input type="checkbox"/> Water-Saving-Fixtures <input type="checkbox"/> Rain-Barrels-Used-in-Irrigation Cistern-size: ____ gallons Location-of-cistern: ____	
Utility-Costs	Annual-Utility-Cost: \$ ____/year, based on: ____/____/____ to ____/____/____ (full year). Includes (check all that apply): <input type="checkbox"/> Electric <input type="checkbox"/> Heating <input type="checkbox"/> Water <input type="checkbox"/> Other: ____ # Of Occupants: ____	

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Home Energy Rating Certificate

Property: HERS
 Rating Type: Confirmed
 Rating Date: 1/26/17
 Registry ID: 610366043
 Certified Energy Rater:
 Rating Number:

SC

HERS Index: 71

General Information

Conditioned Area	2227 sq. ft.	House Type	Single-family detached
Conditioned Volume	21643 cubic ft.	Foundation	Slab
Bedrooms	4		

Mechanical Systems Features

Water Heating:	Instant water heater, Natural gas, 0.80 EF, 0.0 Gal.
Cooling:	Air conditioner, Electric, 14.0 SEER
Heating:	Fuel-fired air distribution, Natural gas, 80.0 AFUE
Duct Leakage to Outside:	82.00 CFM25
Ventilation System:	None
Programmable Thermostat:	Heat=Yes; Cool=Yes

Building Shell Features

Ceiling Flat	R-38.0 w/RB	Slab	R-0.0 Edge, R-0.0 Under
Sealed Attic	NA	Exposed Floor	NA
Vaulted Ceiling	R-30.5 w/RB	Window Type	U-Values: 0.340, SHGC: 0.230
Above Grade Walls	R-13.5	Infiltration Rate	1686 Cg: 1686 CFM50
Foundation Walls	NA	Method	Blower door test

Lights and Appliance Features

Percent Interior Lighting	60.00	Range/Oven Fuel	Electric
Percent Garage Lighting	0.00	Clothes Dryer Fuel	Electric
Refrigerator (kWh/yr)	575	Clothes Dryer EF	2.67
Dishwasher Energy Factor	0.65	Ceiling Fan (cfm/Watt)	0.00

Estimated Annual Energy Cost

Use	MMBtu	Cost	Percent
Heating	29.4	\$467	28%
Cooling	13.4	\$144	8%
Hot Water	7.6	\$153	9%
Lights/Appliances	23.8	\$727	43%
Photovoltaics	-0.0	\$-0	-0%
Service Charges		\$205	12%
Total	74.1	\$1697	100%

Criteria


This home meets or exceeds the minimum criteria for the following:

So Much Good Data Here that we often never see

REHRate - Residential Energy Analysis and Rating Software v14.6.1
 This information does not constitute any warranty of energy cost or savings. © 1985-2015 Houston, Boulder, Colorado.
 The Home Energy Rating Standard Disclosure for this home is available from the rating provider.

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Verified Energy Improvements

Part-III—Verified-Energy-Improvements¶

Verified-Energy-Improvements¶	Explain energy-related improvements: ~~~~~¶		
	Cost-of-improvements: ~\$ ~~~~~¶		
Only-include-improvements-with-verified-documentation.¶	Date-Verified:¶ _/_/____	Certificate-of-Efficiency-Improvements-Version: ~~~~~¶ Organization-URL: ~~~~~ Other: ~~~~~ <input type="checkbox"/> energystar.gov/homeperformance ¶	ABOVE-VALID-ONLY-IF-CHECKED:¶ <input type="checkbox"/> Verification-reviewed-on-site¶ <input type="checkbox"/> Verification-attached-to-this-report...

Existing homes often have energy efficient upgrades that may have a certificate to verify the improvements. In the white section that says **Explain energy-related improvements**, list the features that have been made. If more space is needed, carry the description to the comment section at the end of **Part IV** or attach a list of improvements. Include the **cost of the improvements** listed including labor and materials to allow appraisers to use a cost approach to value the energy efficient features.

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Example of comments referencing HERS Importance



Comments¶
Include source for information provided in this section.¶

If a property is built green but not formally certified, it still deserves proper description and analysis to value the features. The market analysis is of the structure's physical, economic, and locational attributes and not an analysis of its label alone. Provide additional information that illustrates how this property exceeds local building code. This document is intended for new construction or existing homes that have been retrofitted to include higher energy or green features.¶

"The local building code is 2009 IECC. This structure is built to a higher standard than the 2009 IECC and is 32% more energy efficient than the local building code. The HERS Rating for this same house only built to the 2009 IECC standards in this market would be 77 at this location and this structure has a HERS Rating of 45. This house has an estimated energy savings of \$850 annually as a result of the upgrades. The savings is documented in the attached HERS Report."¶

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Health and Safety is a concern for mortgage market & buyers – Include the certificates with the AIGREEA.



Indoor airPLUS Qualified Home

This home built at
4162 Mermell Circle, North Port, FL 34291

was verified by
Jeremy Gary

to meet Indoor airPLUS construction specifications as established by the
U.S. Environmental Protection Agency.

EPA Indoor airPLUS QUALIFIED HOME

Indoor airPLUS qualified homes are designed to contribute to improved indoor air quality.

6/29/2017

Indoor airPLUS Features

- Moisture and Mold Control
- Radon Resistant Construction
- Pest Barriers
- Effective Heating, Ventilating, and Air-Conditioning Systems
- Safe Combustion
- Low Emission Building Materials

Not all features are required in all cases. To learn more about indoor air quality features in your home, ask your builder to review the Indoor airPLUS verification checklist with you, or visit www.epa.gov/indoorairplus.

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Results when AIGREEA is not provided.



General Description	
Units	<input checked="" type="checkbox"/> One <input type="checkbox"/> One with Accessory Unit <input checked="" type="checkbox"/>
# of Stories	1.00
Type	<input checked="" type="checkbox"/> Det <input type="checkbox"/> Att <input type="checkbox"/> S-Det/End Unit
Existing	<input checked="" type="checkbox"/> Proposed <input type="checkbox"/> Under Const
Design (Style)	Ranch
Year Built	2017
Effective Age (Yrs)	0
Attic	<input type="checkbox"/> None <input checked="" type="checkbox"/> Heat
Drop Stair	<input type="checkbox"/> Stairs <input checked="" type="checkbox"/> Cool
Floor	<input checked="" type="checkbox"/> Scuffie <input type="checkbox"/> Finished
Appliances	<input checked="" type="checkbox"/> Refrigerator <input checked="" type="checkbox"/> Range/Oven <input checked="" type="checkbox"/>
Finished area above grade contains:	
Additional features (special energy efficient items):	
Describe the condition of the property (including years): The UAD updating comment date of completion is estimated to be 4 weeks.	
Are there any physical deficiencies or adverse conditions? No functional obsolescence was noted condition. *** See additional comments.	
Does the property generally conform to the subject value is below the predominant conforms well to the community in street.	

Freddie Mac Form 70 March 2005 UAD

Materials/Condition	Interior	Materials/Condition
Floors	Tile/Good	
Walls	Drywall/Good	
Trim/Finish	Wd/Paint/Gd	
Bath Floor	Tile/Good	
Bath Wainscot	Fiberglass/Gd	
Car Storage	None	
Driveway	# of Cars 1	
Driveway Surface	Concrete	
Garage	# of Cars 1	
Carport	# of Cars 0	
Att	Det	Built-in

updates in the prior 15 months is under construction. Date

Property? ☐ Yes ☒ No If Yes, describe any warranty about

etc? ☒ Yes ☐ No If No, describe other-improvement. The subject

FannieMae Form 1004 March 2005

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Description Carries Over to Sales Comparison Approach



	North Port, FL 34291				North Port, FL 34287				North Port, FL 34291				North Port, FL 34291			
	Address	Proximity to Subject	Sale Price	Sale Price/Gross Living Area	Address	Proximity to Subject	Sale Price	Sale Price/Gross Living Area	Address	Proximity to Subject	Sale Price	Sale Price/Gross Living Area	Address	Proximity to Subject	Sale Price	Sale Price/Gross Living Area
SALES COMPARISON	North Port, FL 34291	1.55 miles S	\$ 160,000	\$ 111.73 sq. ft.	North Port, FL 34287	0.16 miles W	\$ 194,900	\$ 113.64 sq. ft.	North Port, FL 34291	0.90 miles SE	\$ 163,000	\$ 113.64 sq. ft.	North Port, FL 34291	0.90 miles SE	\$ 163,000	\$ 113.64 sq. ft.
	MFR#T2848402-DOM 119				MFR#T2848402-DOM 119				MFR#T2848402-DOM 119				MFR#T2848402-DOM 119			
	County Appraiser/Realist				County Appraiser/Realist				County Appraiser/Realist				County Appraiser/Realist			
	DESCRIPTION	DESCRIPTION	DESCRIPTION	DESCRIPTION	DESCRIPTION	DESCRIPTION	DESCRIPTION	DESCRIPTION	DESCRIPTION	DESCRIPTION	DESCRIPTION	DESCRIPTION	DESCRIPTION	DESCRIPTION	DESCRIPTION	DESCRIPTION
	ArmLth	ArmLth	ArmLth	ArmLth	ArmLth	ArmLth	ArmLth	ArmLth	ArmLth	ArmLth	ArmLth	ArmLth	ArmLth	ArmLth	ArmLth	ArmLth
	Comp0	Comp0	Comp0	Comp0	Comp0	Comp0	Comp0	Comp0	Comp0	Comp0	Comp0	Comp0	Comp0	Comp0	Comp0	Comp0
	Date of Sale/Time	04/17/03/17	04/17/03/17	04/17/03/17	04/17/03/17	04/17/03/17	04/17/03/17	04/17/03/17	04/17/03/17	04/17/03/17	04/17/03/17	04/17/03/17	04/17/03/17	04/17/03/17	04/17/03/17	04/17/03/17
	Location	N-Res.	N-Res.	N-Res.	N-Res.	N-Res.	N-Res.	N-Res.	N-Res.	N-Res.	N-Res.	N-Res.	N-Res.	N-Res.	N-Res.	N-Res.
	Leasehold/Fee Simple	Fee Simple	Fee Simple	Fee Simple	Fee Simple	Fee Simple	Fee Simple	Fee Simple	Fee Simple	Fee Simple	Fee Simple	Fee Simple	Fee Simple	Fee Simple	Fee Simple	Fee Simple
	Site	10521 sf	10000 sf	10000 sf	10521 sf	10000 sf	10000 sf	10000 sf	10521 sf	10000 sf	10000 sf	10000 sf	10521 sf	10000 sf	10000 sf	10000 sf
	View	N-Res.	N-Res.	N-Res.	N-Res.	N-Res.	N-Res.	N-Res.	N-Res.	N-Res.	N-Res.	N-Res.	N-Res.	N-Res.	N-Res.	N-Res.
	Design (Style)	DT1-Ranch	DT1-Ranch	DT1-Ranch	DT1-Ranch	DT1-Ranch	DT1-Ranch	DT1-Ranch	DT1-Ranch	DT1-Ranch	DT1-Ranch	DT1-Ranch	DT1-Ranch	DT1-Ranch	DT1-Ranch	DT1-Ranch
	Quality of Construction	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4	Q4
	Actual Age	2	1	1	2	1	1	1	2	1	1	1	2	1	1	1
	Condition	C1	C3	C3	C1	C3	C3	C3	C1	C3	C3	C3	C1	C3	C3	C3
ADJUSTMENTS	Above Grade	Total	sq. ft.	sq. ft.	Total	sq. ft.	sq. ft.	sq. ft.	Total	sq. ft.	sq. ft.	sq. ft.	Total	sq. ft.	sq. ft.	sq. ft.
	Room Count	5	3	2.0	5	3	2.0	2.0	0	6	4	2.0	0	5	3	2.0
	Gross Living Area	1,438	sq. ft.	1,432	sq. ft.	0	1,755	sq. ft.	-15,900	1,452	sq. ft.	0	1,452	sq. ft.	0	0
	Basement & Finished	0sf		0sf		0sf		0sf		0sf		0sf		0sf		0sf
	Rooms Below Grade															
	Functional Utility	Average		Average		Average		Average		Average		Average		Average		Average
	Heating/Cooling	Central		Central		Central		Central		Central		Central		Central		Central
	Energy Efficient Items	None		None		None		None		None		None		None		None
	Garage/Carport	1 car/dw		2 car/dw		-5,000		2 car/dw		-5,000		2 car/dw		-5,000		-5,000
	Porches/Patio/Deck	39 sf Porch		46 sf Porch		-500		46 sf Porch		-500		41 sf Porch		0		0
APPRAISAL	Net Adjustment (Total)			\$ 5,000				\$ -27,900				\$ 3,250				\$ 3,250
	Adjusted Sale Price			Net Adj. 3.13 %				Net Adj. 14.32 %				Net Adj. 1.97 %				Net Adj. 1.97 %
	Gross Adj. 10.00 %			\$ 165,000				Gross Adj. 14.32 %				\$ 168,300				\$ 168,300
I did not research the sale or transfer history of the subject property and comparable sales. If not explain																

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Appraisal – Energy Data Relevance



- Assists appraiser in meeting the secondary mortgage market guidelines and appraisal standards
- Gives appraiser data to understand the efficiency of the subject and the type of comparables I need to choose
- Gives me energy savings to develop an income approach to value energy efficiency.

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Appraisers have tools to value features.



- **Paired-Data** – Requires sales with the feature and similar sales without the feature
- **Cost Approach** – Requires **Cost New** of feature and depreciation from all forms of loss.
- **Income Approach** – Requires savings amount because of the feature and knowledge of life of the system.

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FEATURE	SUBJECT
High Performance Home	
Address	
Proximity to Subject	
Sale Price	\$ 225,000
Sale Price/Gross Liv. Area	\$ 0.00 sq. ft.
Data Source(s)	Inspection
Verification Source(s)	AIGREEA
VALUE ADJUSTMENTS	DESCRIPTION
Sale or Financing	
Concessions	
Date of Sale/Time	
Location	N Res;
Leasehold/Fee Simple	Fee Simple
Site	18000 sf
View	N Res;
Design (Style)	DT2 Colonial
Quality of Construction	Q3
Actual Age	5
Condition	C2
Above Grade	Total Bldgs. Bldgs.
Room Count	6 3 2.1
Gross Living Area	sq. ft.
Basement & Finished Rooms Below Grade	0sf
Functional Utility	Average
Heating/Cooling	Hi Eff/Central
Energy Efficient Items	HERS 47-AIGREEA
Garage/Carport	2ga
Porch/Patio/Dock	Deck, Porch
Green Certification	NGBS Bronze
Net Adjustment (Total)	
Adjusted Sale Price of Comparables	

Sales Comparison Section

Without a HERS Rating Report and AIGREEA the typical description here is "Standard"

Energy Rating and AIGREEA

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Solar-Panels	
The following items are considered within the appraisal analysis of the subject property:	
Solar-Photovoltaic (Electric) Systems	
Type of Ownership	<input type="checkbox"/> Leased <input checked="" type="checkbox"/> Owned <input type="checkbox"/> Solar-Loan-with-UCC-Filing <input type="checkbox"/> Power-Purchase-Agreement (PPA) <input type="checkbox"/> If solar-loan-has-UCC-Filing, it is considered personal property and should not be included in market value.
Panel Specifications	System-Size: 11,660 kW (1kW=1000-Watts) Age-of-Panels: 2 years Energy-Production: 16,104 kWh Source-of-Energy-Production-Estimate: Monitoring-Portal Manufacturer: Canadian-Solar Warranty-on-Panels: 25 years
Array Placement	Location (roof, ground, etc.): Roof <input checked="" type="checkbox"/> Fixed-Mount <input type="checkbox"/> Tracking-Mount Tilt-/Slope: 26.6° *Azimuth: 145°
Inverter Specifications	Number-of-Inverters-per-Array: 28-Micro Age: 2 years Wattage: 10,150-watts Manufacturer: Solar-Edge Warranty-Term: 20 years
Energy-Storing Batteries	Battery-Type: <input checked="" type="checkbox"/> Lithium-ion <input type="checkbox"/> Lithium-ion-Polymer <input type="checkbox"/> Lead-Acid <input type="checkbox"/> Lead-Calcium <input type="checkbox"/> AGM <input type="checkbox"/> GEL Manufacturer: Storage-Capacity: kWh Warranty-Term: years Battery-age: years
Name of Utility Company	XYZ-Utility-Company
Charge/kWh from-Utility	\$ 0.126/kWh

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Solar description required to value PV



The sample completed Solar Page (Part V above) is used in the income approach using EI Value...
<https://www.eivalue.com/> below:

Income Approach Method Energy Value DCF			
Utility Rate		Solar Resource	O & M Expense
Utility Rate Source:	User Provided	System Size: 11.66 kW	O&M Model: Inverter Replacement Cost
Utility Company:	-	Module Warranty: 25 yrs	Inverter Size: 10.15 kW
Utility Tariff:	-	System Age: 1 yr	Inverter Age: 1 yr
Utility Rate:	12.60¢/kWh	Remaining Life: 24	Inverter Warranty: 20 yrs
Min 7.03¢/kWh	Max 19.24¢/kWh	System Loss: 14%	Inverter Replaced: NO
		Degradation Rate: 0.5%	Inverter Replacement Cycle: 20 yrs
Effective Rate:	12.60¢/kWh	Array Tilt: 5/12 22.6°	Inverter Replacement Cost: 55.00¢/watt
Escalation Rate Type:	EIA State	Array Azimuth: 145°	Annual Expense: -
Escalation Rate:	1.59% CAGR	Est. kWh Source: PWWatts v5	Yearly Gross Expense: 55.00¢/watt
Extra Comments:		Annual Est. kWh(s): 16,966	O&M Expense (future): \$5,582.50
The cost and income approaches form a tight range.		Actual kWh Source: -	O&M Discount Rate: 5.02%
		Annual Actual kWh(s): -	O&M Expense (discounted): \$2,201.67

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Appraisal Form Recognizes Solar PV



Sales Comparison Approach

High Performance Home		
Address		
Proximity to Subject		
Sale Price	\$	295,000
Sale Price/Gross Liv. Area	\$	160.76 sq ft
Data Source(s)		
Verification Source(s)		
VALUE ADJUSTMENTS		
DESCRIPTION		
Sale or Financing		
Concessions		
Date of Sale/Time		
Location	N Res	
Leasehold/Free Simple	Free Simple	
Size	12,000 sq ft	
Value	N Res	
Design (Style)	DT2 Colonial	
Quality of Construction	O3	
Actual Age	+5	
Condition	O3	
Above Grade	Yes	Items
Room Count	7	4
Gross Living Area	1,835 sq ft	
Basement & Finished	0sf	
Rooms Below Grade		
Functional Utility	Average	
Heating/Cooling	FWA/Central	
Energy Efficient Items	HERS 45	
Garage/Carport	2ga	
Porch/Patio/Deck	Cov and Screen	
Other Features	5 kW Solar PV	

Cost Approach

COST APPROACH TO VALUE (not required by Fannie Mae)			
Provide adequate information for the lender to replicate the below cost figures and calculations.			
Support for the opinion of site value (summary of comparable land sales or other methods for estimating site value) Site value is based on the following sales: Lot 203 sold at \$25,000; Lot 182 sold at \$27,000; and Lot 115 sold at \$24,000 this year. All three sales are similar in size, shape, and orientation. The subject site is valued at \$26,000 because Lots 203 and 182 are the most recent sales in the same development.			
COST APPROACH	ESTIMATED	REPRODUCTION OR	REPLACEMENT COST NEW
	Source of cost data: National Cost Sys	Quality rating from cost service: Good	Effective date of cost data: Current
	Comments on Cost Approach (gross living area calculations, depreciation, etc.):		
	The green section of the cost service is the source for this approach. The site improvements include a concrete drive, landscaping, sidewalk, and utility connections. The solar photovoltaic (PV) system is valued based on the Ei Value discounted cash flow program. The income approach to valuing the solar PV is attached to this report. This amount is applied in the sales comparison approach for sales without solar PV.		
	Estimated Remaining Economic Life (HLD and V.A. only): 45 years		
	INDICATED VALUE BY COST APPROACH		
	OPINION OF SITE VALUE		
	Deeding	1,835 Sq. Ft. @ \$	120.00 = \$ 220,200
	Porch(es)	Sq. Ft. @ \$	9.50 = \$ 9.50
	Garage/Carport	435 Sq. Ft. @ \$	45.00 = \$ 19,575
Total Estimate of Cost-New = \$ 249,275			
Less:	Physical	Functional	External
Depreciation	\$10		= \$ 1
Depreciated Cost of Improvements			= \$ 249,264
"As-is" Value of Site Improvements			= \$ 8.00
"As is" Value of solar PV			= \$ 12.00
Estimated Remaining Economic Life (HLD and V.A. only): 45 years			
INDICATED VALUE BY COST APPROACH			

Solar PV Identified and Analyzed

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Solar Thermal Water Heating System



Part VI—Solar Thermal Water Heating System¶

Solar Thermal Water Heating System¶			
Type of System¶	Active:..... <input type="checkbox"/> Direct..... <input type="checkbox"/> Indirect¶	Storage Tank Size¶	Gallons:.....¶
	Passive:..... <input type="checkbox"/> Integral collector..... <input type="checkbox"/> Thermo-syphon¶		
Collector Type¶	<input type="checkbox"/> Flat-Plate..... <input type="checkbox"/> Integral..... <input type="checkbox"/> Evacuated-Tube Solar¶	System Age¶	Years:.....¶
Back-Up System¶	<input type="checkbox"/> Conventional Water Heater..... <input type="checkbox"/> Tankless On-Demand	Warranty Term¶	¶
	<input type="checkbox"/> Tankless Heat Pump¶		
Solar Energy Factor (SEF)¶	*Rating ranges 1 to 11. Higher number is more efficient.¶		
		Manufacturer¶	¶

Secondary mortgage market requires a backup system. This data gives the appraiser that information from a trusted source.

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Marketing – Sales Price Premiums







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What feature is main selling point of these new construction homes?



Prepared for SANDRA ADOMATIS

Southwest Florida's Latest Inventory Homes for Quick Move-In

 \$469,900 3 2 2192 Paradise Woods GreenLeaf Homes DETAILS	 \$224,900 3 2 1544 NE Cape Coral RRB Homes DETAILS	 \$377,344 4 3 2867 Maple Ridge at Ave Maria CC Devco Homes DETAILS
 \$1,895,000 4 4/1 4079 Windward Isle Seagate Development Group DETAILS	 \$591,995 3 2/1 2224 Azure at Hacienda Lakes - Estate Collection Toll Brothers DETAILS	 \$213,773 2 2 1523 Tuscany Isles KB Home DETAILS

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Marketing and Sales Price Premiums



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Appraisers' Analysis of Pearl National Home Certification Sales Premium



Sales Price Premiums of 2% to 5% with good marketing.



Making Value Visible in Our Nation's Homes

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Marketing energy/label got results



Pearl Silver	Contract Date	Days on Market	Sold Price	Adjusted Sale Price	Living Area	Sales Price Premium (Pearl Sale Price- Adjusted Non-Green Sale Price)	Premium as % of Sale Price (Premium/Pearl Sale Price)	Age Yrs
Zion Crossroads								
Single-Unit Detached								
Pearl	10/11/2016	300	\$400,000		2,595			7
Pair 21	3/7/2015	29	\$328,000	\$357,900	2,443	\$42,100	10.53%	7
Pair 22	2/26/2015	233	\$374,000	\$373,400	2,559	\$26,600	6.65%	7

The MLS had the Pearl Home Certification documents attached and the certificate in the photograph gallery. The last sentence of the remarks said, "Energy efficiency verified through Pearl Certification."

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Marketing without energy/label – No sales price premium



Pearl Gold	Contract Date	Days on Market	Sold Price	Adjusted Sale Price	Living Area	Sales Price Premium (Pearl Sale Price - Adjusted Non Green Sale Price)	Premium as % of Sale Price (Premium/Pearl Sale Price)	Age Yrs
Great Falls, VA								
Single-Unit Detached								
Pearl	5/12/2017	7	\$1,530,000		6,220			23
Pair 31	4/7/2017	2	\$1,550,000	\$1,542,000	4,960	-\$12,000	-0.78%	22
Pair 32	9/12/2017	102	\$1,580,000	\$1,603,864	5,064	-\$73,684	-4.82%	20
Pair 33	2/26/2017	410	\$1,412,500	\$1,470,500	5,953	\$59,500	3.89%	23
Pair 34	4/3/2015	32	\$1,625,000	\$1,598,500	6,452	-\$68,500	-4.48%	21
Pair 35	2/9/2017	155	\$1,530,000	\$1,521,500	5,326	\$8,500	0.56%	0

The MLS listing had no remarks about the efficiency or Pearl Home Certification and no picture of the certification was included in the photograph gallery. The AIGREEA was not attached or referenced.

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Another Study – Marketing vs. Sales Price Premiums



Study:

Green Homes Sales Prices in Northern California

An appraiser-led study that analyzes the price premium of green home features and explores barriers to mainstreaming green real estate

By Sandra Adomatis, SRA, LEED Green Associate, Adomatis Appraisal Service



2.19%
Sales Price Premium

This report was funded by California utility ratepayers under the auspices of the California Public Utilities Commission (CPUC).



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CA Study Conclusions...



Key Findings

- It is very difficult for green homes to be found because of the limitations in the MLS and loss of information on the green features after the home is built.
- Appraised values of these homes will continue to be a complex assignment that will take extended market research and time to complete. The complexity of the assignment requires an appraiser with good knowledge of green building concepts and willingness to do the extra research. Clients must be willing to pay fees commensurate with the time involved in these assignments.
- Green homes command a price premium despite these challenges. There is potential for an even greater premium if the real estate industry had additional support with MLS infrastructure, professional training, and consumer education.

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Resolutions to challenges in marketing



Recommendations to resolve this challenge:

- Provide access to accessible and credible scoring and certification programs to REALTORS®, home inspectors, and contractors that target the existing housing stock.
- Integrate energy and green certification as a free value add in publically funded energy efficiency retrofit programs.
- Assist public agencies with integrating energy and green certification into voluntary reach codes for remodeling and time of home sale.

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Do you see how Energy Raters can make a difference?



Recommendations to resolve this challenge:

- Auto-populate the green MLS fields from a trusted source.
- Include the green certification and AI Residential Green and Energy Efficient Addendum as an attachment in the MLS.
- Label the electrical box onsite showing the certification, score, and date rated.
- Put the green and/or energy certificate as a jpg in the MLS photograph gallery.
- Include green feature details and their benefits in the MLS searchable fields to result good marketing techniques and maximize the sales price for these features.
- Recognize that improper marketing of green home listings can be a liability for agents and proper marketing can mean higher prices and larger commissions.

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James Murrett, MAI, SRA



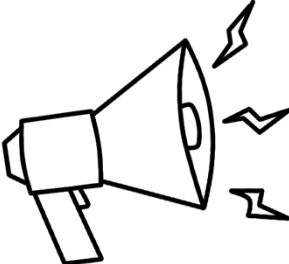
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Frequent Questions about the AIGREEA

Why doesn't the Addendum include value?

It is impossible to breakdown the contributory value of all the house components. The Addendum was developed to describe the energy and green features used in high performance houses and standardize the terms used.



Standardize the language of building science!

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Frequent Questions about the AIGREEA



Does the appraiser have to include the Addendum in the appraisal report on energy efficient and green homes?

The appraiser decides what documents should be included in the appraisal report. It is more expeditious for the appraiser to include a completed Addendum rather than try to meet appraisal standards by typing the details in a text addendum. By including the Addendum, the appraiser also has a basis for analyzing the energy efficiency of the structure. Simply stating a property is energy efficient and giving value to energy would be less convincing when the details of the efficiencies are not included.

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Frequent Questions about the AIGREEA



Is it true the appraiser must give value to the energy features if you provide the Addendum?

The Addendum does not guarantee value will be given for energy or green features. Appraisers must analyze their market data and support any value attributed to these features. By giving no value or a zero, the appraiser has certified that they have analyzed that feature and has support for a zero or something more.

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Frequent Questions about the AIGREEA



Should the Addendum be completed on proposed construction? If so, how do the complete the energy rating when the structure is not built yet?

Yes, the appraiser typically appraises proposed construction from plans and specifications. If a projected HERS rating is included with the Addendum, it gives the appraiser the supporting data and estimates they need to value the energy efficiency. Without a projected HERS rating, the appraiser will not have the energy savings amount to use in valuation or in comparable choice. Too often, specifications do not detail the energy efficient features in a way that is meaningful to the appraiser like the Addendum does. The appraiser will make the appraisal subject to a final inspection. If the projected HERS and the confirmed HERS rating is very different, the appraiser may need to do a reevaluation at an additional charge.

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Frequent Questions about the AIGREEA



Clarification regarding “Verification reviewed on site.” Is this by the appraiser, or can it indicate verification by a third party as well?

Part-III—Verified-Energy-Improvements¶

Verified-Energy-Improvements¶ Only-include-Improvements-with-verified-documentation.¶	Explain-energy-related-improvements:-~~~~~¶ Cost-of-improvements:-\$_____¶		
	Date-Verified:¶ ____/____/____	Certificate-of-Efficiency-Improvements-Version:-_____¶ Organization-URL:-□ Other:-_____ □ energystar.gov/homeperformance	ABOVE-VALID-ONLY-IF-CHECKED:¶ □ Verification-reviewed-on-site¶ □ Verification-attached-to-this-report...

This statement is primarily for the appraiser that is completing the Addendum; however, it could also apply to a third-party completion. By checking the on-site verification, it implies you do not have a full copy of the report.

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Frequent Questions about the AIGREEA



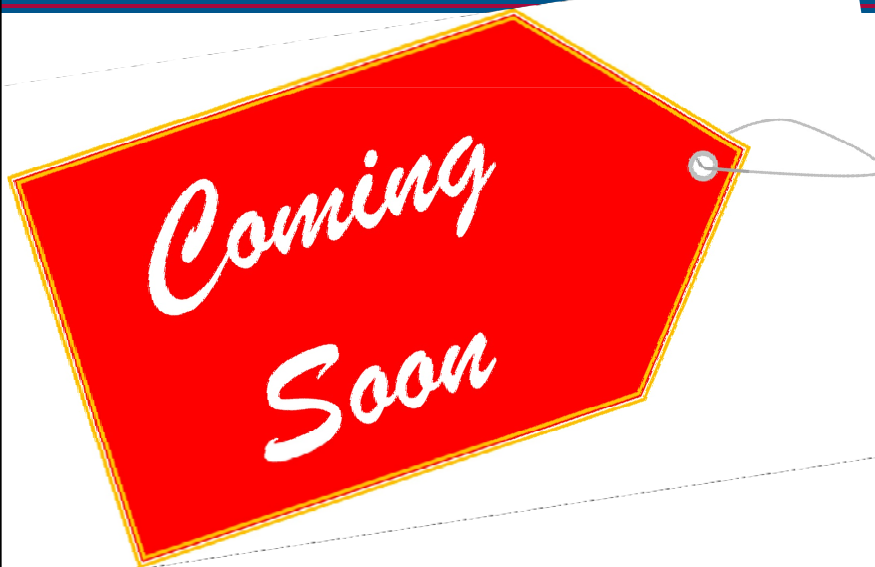
When a location has several utility company choices and plans, what is the rate raters use in the HERS Rating to estimate the energy savings?

An average kWh rate based on the rates available.

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A Guide for AIGREEA



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Now let's clean up your questions!



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