

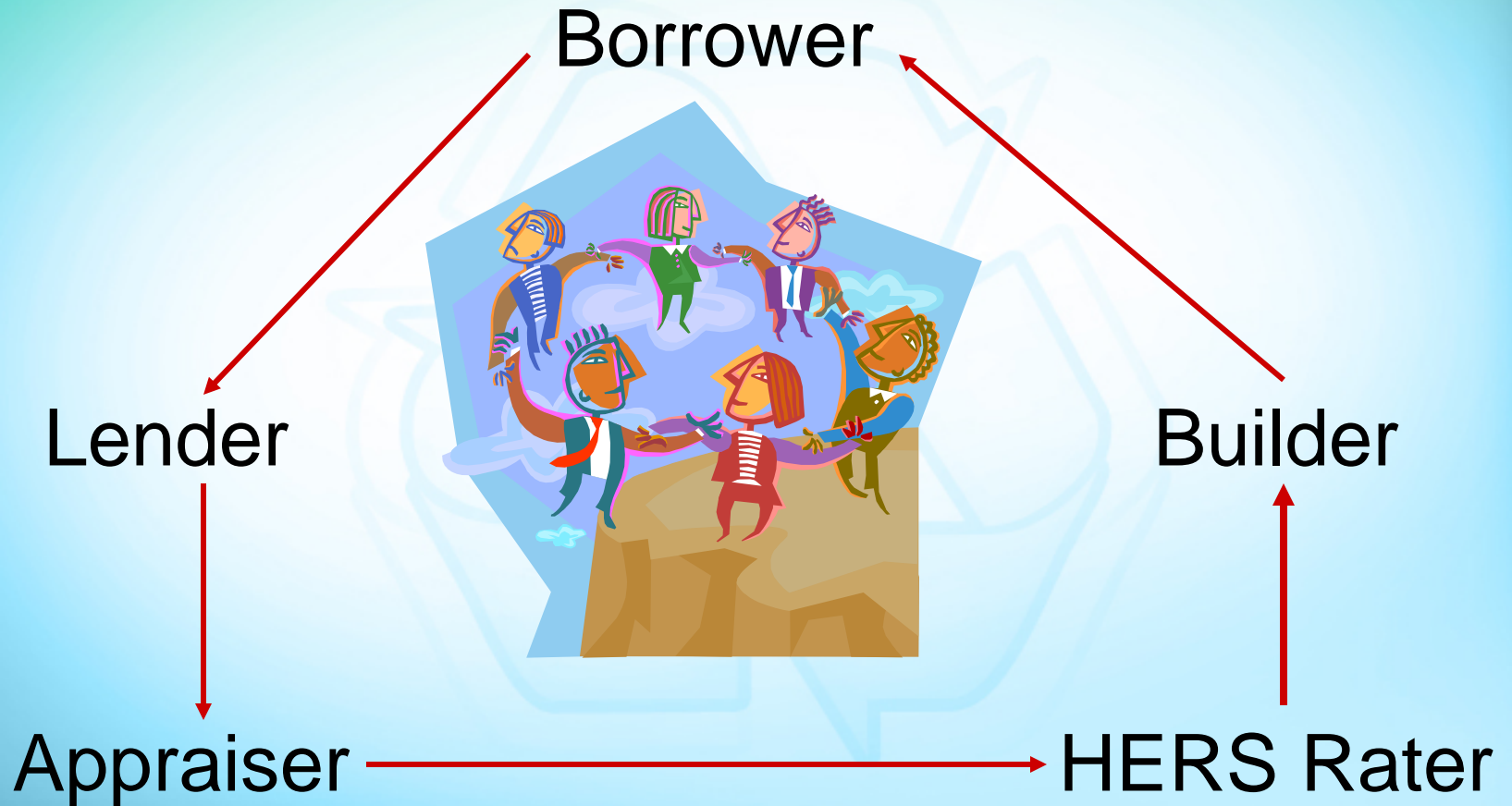


Appraising Energy Efficient Dwellings

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Energy Efficiency





What is an appraisal?

APPRAISAL: (noun) the act or process of developing an opinion of value; **an opinion of value.**

(adjective) of or pertaining to appraising and related functions such as appraisal practice or appraisal services.

Comment: An appraisal must be numerically expressed as a ***specific amount***, as a range of numbers, or as a relationship (e.g., not more than, not less than) to a previous value opinion or numerical benchmark (e.g., assessed value, collateral value).



The appraiser is an analyst.

SR 1-1(a) In developing a real property appraisal, an appraiser must:

(a) be aware of, understand, and correctly employ those recognized methods and techniques that are necessary to produce a credible appraisal;

SR 1-4 In developing a real property appraisal, an appraiser must collect, verify, and analyze all information necessary for credible assignment results.



The appraiser is an analyst.

- Anticipation – PW of Future net benefits

Question – What items contribute value?



Opinion is based on analysis of the market and market trends.



3 Possible approaches to value.

- Cost
- Sales Comparison
- Income

Does the cost of an item equal the contributory value?



Cost to build or create

- Cost Approach – The estimate of cost to complete the subject dwelling by either reproduction or replacement.
 - Depreciation
 - Functional Obsolescence
 - External Obsolescence



Income Approach

- Only applicable when active rental market exists and when buyers consider the income from the property as a reason to purchase.
- Used to capitalize and discount income flows.
- This approach can often be a good indicator of value, when considering income or components of income, i.e. rents, savings required for replacement.



Sales Comparison

- The most direct and reliable valuation approach for many appraisal situations, including 1-unit owner occupied residential properties.
- For greatest reliability there must be a sufficient number of recently closed sales of similar properties offering similar features and characteristics to use for comparison with a subject property.



What type of value is appraised?

MARKET VALUE: a type of value, stated as an opinion, that presumes the **transfer of a property (i.e., a right of ownership or a bundle of such rights)**, as of a certain date, under specific conditions set forth in the definition of the term identified by the appraiser as applicable in an appraisal.



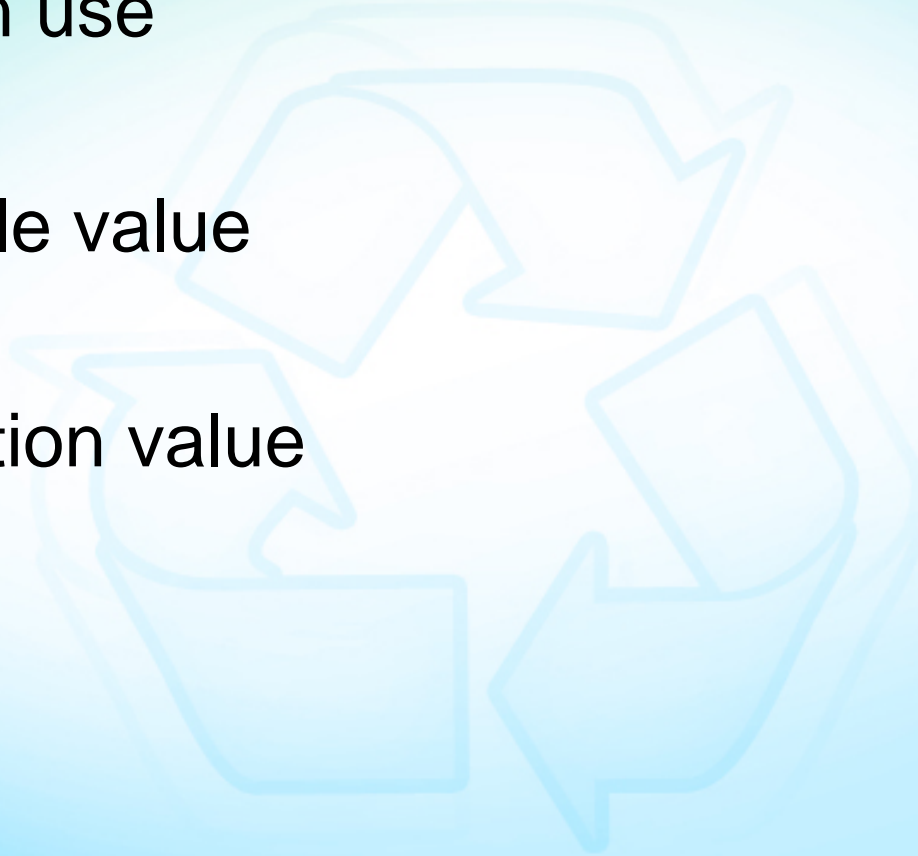
Market Value

Comment: Forming an opinion of market value is the purpose of many real property appraisal assignments, particularly when the client's intended use includes more than one intended user, i.e. ***lender.***



Other common types of value

- Value in use
- Insurable value
- Liquidation value





What creates value.

- **Supply** – Created by two primary forces.
 - Utility
 - Scarcity
- **Demand** – Created by two primary forces.
 - Desire
 - Purchasing Power



Steps in Development of HBU

- Criteria for testing Highest and Best Use:
 - Legally permissible
 - Physically possible
 - Economically feasible
 - Maximally productive



Concern is Maximum Productivity.

- Contribution



Will the cost contribute a benefit or result in a loss?



Energy Efficient Items

- Energy Checklist
 - Insulation
 - Attic/roof
 - Ceiling
 - Exterior walls
 - Floors
 - Slab/perimeter
 - Foundation walls
 - Insulated weather heater; insulation wrap
 - Insulated heat/cooling ducts or pipes

Estimated monthly savings \$_____



Energy Efficient Items

- Windows and doors
 - Double (storm)/triple glazed windows
 - Storm doors: on # of doors
 - Insulated doors
 - Weatherstripping
 - Caulking
 - Other:

Estimated monthly savings \$ _____



Energy Efficient Items

- Heating and Cooling
 - Conventional Equipment
 - Automatic setback thermostat
 - Automatic flue damper
 - Energy-efficient furnace
 - Energy-efficient air conditioner
 - Energy-efficient heat pump
 - Energy-efficient hot water heater
 - Special fireplace devices/features
 - Wood burning stove
 - Outside combustion air for fireplace or woodstove

Estimated monthly savings \$_____



Energy Efficient Items

- Solar equipment or design
 - Passive solar design/landscaping – exterior
 - Passive solar design – interior
 - Solar space heating/cooling
 - Back-up heating/cooling system
 - Solar electric panels
 - Solar hot water heating
 - Earth-sheltered housing design

Estimated monthly savings \$_____



Alternative Methodology

Present worth of the estimated savings in utility costs.

- Capitalizing savings at an interest rate that is not less than the current interest rate for the

This is one alternative method that can be used to support the adjustment.

seven years.



Using the HERS Report.

- Borrowers should obtain an energy report prepared by a Home Energy Rating Systems (HERS) energy rater. The energy report must:
 - identify the recommended energy improvements and expected costs of the completed improvements,
 - specify the monthly energy savings to the borrower, and
 - Verify that the recommended energy improvements are cost-effective.



Questions that should be addressed.

- Will the cost of the energy report be paid by the borrower?
- If so, can the cost be financed as part of the mortgage in the total cost of the energy improvements?



Questions that should be addressed.

- How will a copy of the energy report be delivered to the appraiser?
- Verify if the builder and/or the lender will have direct communication access with the appraiser?



Questions that should be addressed.

- Energy Rating
 - Has an energy rating been performed on the subject property?
- Energy efficiency appears:
 - High
 - Adequate
 - Low



Appraisers work with the HERS Rater.

Mr. Roy T. Honican, Blue Grass Energy – A Certified HERS Rater, provided the information of a new dwelling constructed in Berea, KY that is used in the following example.



Example – Using the “HERS” Report to develop an opinion of Market Value.

Report Instructions - The appraiser ***must***

1. Review both the estimate of energy efficiency improvement costs; ***and***

2. Calculate the present worth of the energy efficient improvements as provided by the Certified HERS Energy Rater.



Assumptions necessary for PW calculation.

- The Monthly Energy Savings Value of **\$104** was reported in the **HERS Report**.
- The installed cost of the energy efficient items was reported to be \$9,000.
- The mortgage interest rate was assumed to be 4.77%.
- The estimated home ownership was based on 7-years.



Depreciated Cost & PW New Dwelling

- Example – (Savings capitalized)
 - Installed cost less depreciation **\$9,000**
 - Holding period 7 Years
 - Expected monthly savings \$104 per month
 - Expected annual savings \$1,248 per year
 - Present value factor 5.8349*
 - $\$1,248 \times 5.8349 = \$7,282$ or **\$7,000 (R)**
 - (*Annual compound interest @ 4.77% for 7-years)

The above is recommended **only** in absence of comparable closed sales data.



Information developed by the appraiser using HERS Report.

The estimate of energy efficiency value increment, based on the lesser of the referenced improvement cost or present worth, is concluded to be ***\$7,000*** which represents an added value contribution to the market value opinion set forth in the appraisal report.



Developing an adjustment.

- The best method of support is via direct comparison.
- Price without energy efficient items \$100,000
- Price with energy efficient items \$107,000

Typically sales data does not exist to use in deriving this specific adjustment; therefore, the alternative method can be used.



Purchasing Power of EE dwelling.

Dwelling Market Value	\$100,000	\$107,000
Buyers monthly income	\$ 3,000	\$ 3,000
Buyers qualified monthly loan payment based on debt-to-income ratio	\$750	\$750
Maximum mortgage @ 95% of appraised value	\$95,000	\$101,650

Added borrowing power for EE items		\$6,650
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Supporting the opinion.

	Standard Dwelling	EE Dwelling
Property Price	\$100,000	\$107,000
Loan Amount (95%)	\$ 95,000	\$101,650
Monthly Payment	\$496.71	\$531.48
Energy bills	\$179	\$75
Cost of home ownership	\$1,281	\$1,177
Monthly Energy Savings	N/A	\$104

Ownership of the energy efficient dwelling will contribute \$104 per month savings. Therefore, $\$104 \times 12 = \$1,248$ per year $\times 5.8349$ (4.77% for 7 Years) = $\$7,281.95 = \$7,000$ savings.



Example Cost Effective Expenditure

In this example the borrower could request that the lender include a \$7,000 energy upgrade package in the purchase of a new 1-unit residential dwelling. Doing so will increase the loan from \$95,000 to \$101,650.

- The loan payments will increase \$34.77 per month for the upgrade package, but the property owner will realize \$104 per month energy savings. (Net to the owner is \$69.23 per month or \$830.76 year.)
- Assuming a 7 year owner holding period and a 4.77% rate, the added present value provides a savings to home owner of \$4,847.41

Benefit transfers with the property.



Positive Ownership Advantages

- Energy efficiency remains with the property and is not a personal item that can be removed.
- Property owner pays less monthly utilities and maintains more revenue, thus recognized savings.
- The environment benefits from added energy efficiency.
- There is no downside or negative with energy efficiency! Thus, $PW \text{ of Future Benefits} = \text{Value}$



Expectations of the appraiser

- Select the appraiser based on knowledge, competency and experience.
- Appraising EE Residential properties is a specialty.
- Educate the lender in appraisal requirements.
- Make sure the lender and the appraiser are aware of all energy items that have been installed in the dwelling, the total cost, and the date installed.

Q&A



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