MARKET VALUATION OF ENERGY EFFICIENCY AND GREEN CERTIFICATION OF PACIFIC NORTHWEST HOMES
Robbi Currey, Principal
Shamrock Appraisals
Project Scope

TASK 1: IDENTIFYING MARKET TRENDS
TASK 2: ANALYZE CONTRIBUTORY VALUES
TASK 3: RESILIENCY OF PREMIUMS
TASK 4: CASE STUDIES ON EPS

Update of 2009 GBVI study
Using results from 2009 case study
HOMES INCLUDED IN THE STUDY
New Homes Sold between 2010 – 2014

ENERGY STAR
Idaho, Oregon, & Washington

BUILT GREEN
Washington

EARTH ADVANTAGE
Oregon
STUDY REVIEW PANEL

Danny K. Wiley SRA - Past member of Appraisal Standards Board
Stephen O'Connor – University of Washington
Sandra Adomatis SRA - Appraisal Institute
Michael Brunson MAA - Past President at National Association of Appraisers
Gerald Mildner - Portland State University
METHODOLOGY OVERVIEW

• Paired sales analysis method
  • standard practice in field appraisals (but not in appraisal valuation studies)

• Statistical model (and power study) was developed with Martin Brown for the 2014-2015 Energy Trust of Oregon valuation study

• Unique and accurate in its verification process and time of sale analysis

• *Designed to obtain buy-in from local real estate appraisers*
  • Appraisers are (rightly, it turns out) skeptical of regional or national results that are applied generally rather than to specific market areas
Statistical power analysis recommended 26 subject properties as minimum number (power standard of 0.8) = 26 subjects give us an 80% chance of detecting a medium-sized certification premium, if that premium does in fact exist.

The team elected to use multiple comparable sales for every subject property.
METHODOLOGY

To make each comparable a more precise “control” for the subject property, we adjusted the sales price of the comparable according to the following rules:

• Square footage differences between the subject and comparable were valued at $50-$60 per square foot.

• Bathroom count differences between the subject and the comparable were valued at $4000 per half-bath and $8000 per full bath.

• Bedroom count differences between the subject and comparable properties were valued at $4000 per bedroom.
METHODOLOGY

Team selected subject properties that were as “typical” as possible:

• Manually reviewed and excluded following property types:
  • Homes with unique qualities relative to location and/or view
  • Homes with basements
  • Locations where multiple properties occurred on the same street (unless the sale dates were significantly different)
  • This was to avoid the over-weighting of one subdivision to the market
METHODOLOGY

Some issues that impacted the number of subject properties for analysis:

- A significant number of distressed properties were either bank-owned (REO) or short sales
  - Typically wide variation in discounts
  - Subject properties were omitted due to this negative influence
  - Many comparable sales were not available for the same reasons
METHODOLOGY

Some issues impacting selection of subject and comparable properties:

• There are fewer non-certified comparable sales to compare to the certified subject properties, especially in more urban locations closer to the city cores.

• In many cases for “infill” subject properties, all or nearly all available otherwise comparable sales are certified homes, and thus not available for isolation of the value of this element.
WHY WE DID IT THIS WAY: ADVANTAGES

Data integrity: painstakingly verify accuracy of subject properties used in the analysis

• Reviewed MLS listings for accurate entries (NWMLS, RMLS, Intermountain MLS)
• Verified that subject properties were valid
• Removed invalid subject properties
• Scrubbed those remaining subject properties for “anomalous conditions”
WHY WE DID IT THIS WAY: ADVANTAGES

Time of sale adjustments: more accurate than all other studies we’re aware of

- Studies using large regressions take quarterly market increases or decreases and apply them.
- Time adjustments developed from neighborhoods or MLS area are how appraisers actually work.
- Searching for and finding a set of comparable sales for a particular subject property is also how residential appraisers work every day.
METHODOLOGICAL APPROACH

In summary: A hugely expanded analysis using accepted residential appraisal techniques that has not been attempted before on this scale.

Pro: More accurate, detailed, granular, local knowledge

Con: Initially labor intensive, limits potential pool of subject properties
ACCURACY OF NW LISTINGS – ENERGY STAR HOMES

- RMLS 46%
- NW MLS 10%
- IMLS 70%

Plot Area
## The Market Valuation of Energy Efficient/Green Certified NW Homes

<table>
<thead>
<tr>
<th>Geographic Area</th>
<th>Certification</th>
<th>Mean Premium ($)</th>
<th>Mean Premium (%)</th>
<th>Statistically Significant Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>State of Washington</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Western WA - All Areas</td>
<td>ENERGY STAR</td>
<td>$16,138</td>
<td>4.8%</td>
<td>YES</td>
</tr>
<tr>
<td>King County - All Areas</td>
<td>ENERGY STAR</td>
<td>$25,276</td>
<td>6.3%</td>
<td>YES</td>
</tr>
<tr>
<td>King County - Suburban west side</td>
<td>ENERGY STAR</td>
<td>$23,447</td>
<td>8.0%</td>
<td>YES</td>
</tr>
<tr>
<td>King County - Suburban east side</td>
<td>ENERGY STAR</td>
<td>$27,175</td>
<td>4.5%</td>
<td>YES</td>
</tr>
<tr>
<td>Kitsap County</td>
<td>ENERGY STAR</td>
<td>$16,821</td>
<td>7.4%</td>
<td>YES</td>
</tr>
<tr>
<td>Snohomish County</td>
<td>ENERGY STAR</td>
<td>$4,752</td>
<td>1.4%</td>
<td>NO</td>
</tr>
<tr>
<td>Thurston County</td>
<td>ENERGY STAR</td>
<td>$2,813</td>
<td>1.4%</td>
<td>NO</td>
</tr>
<tr>
<td>King County - All Areas</td>
<td>BUILT GREEN</td>
<td>$19,192</td>
<td>4.7%</td>
<td>YES</td>
</tr>
<tr>
<td>King Co. - Suburban west &amp; east</td>
<td>BUILT GREEN</td>
<td>$12,652</td>
<td>2.8%</td>
<td>NO</td>
</tr>
<tr>
<td>King County - Suburban east side</td>
<td>BUILT GREEN</td>
<td>$6,322</td>
<td>1.3%</td>
<td>NO</td>
</tr>
<tr>
<td>King County - Seattle Only</td>
<td>BUILT GREEN</td>
<td>$29,327</td>
<td>7.6%</td>
<td>YES</td>
</tr>
<tr>
<td>State of Oregon</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portland</td>
<td>ENERGY STAR</td>
<td>$2</td>
<td>0.2%</td>
<td>NO</td>
</tr>
<tr>
<td>Portland</td>
<td>EARTH ADVANTAGE</td>
<td>$3,240</td>
<td>1.2%</td>
<td>NO</td>
</tr>
<tr>
<td>State of Idaho</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ada County</td>
<td>ENERGY STAR</td>
<td>$11,206</td>
<td>4.5%</td>
<td>YES</td>
</tr>
</tbody>
</table>
RESULTS – PUGET SOUND

Several areas in western Washington showed a significant positive market reaction to ENERGY STAR and Built Green certifications.

- ENERGY STAR in west side of King County: 8% premium
- ENERGY STAR in Kitsap County: 7.4% premium
- Built Green in Seattle: 7.6% premium
RESULTS – PUGET SOUND

Other areas showed a marginal premium depending on the certification type.

- ENERGY STAR eastside of King County, WA: 4.5% premium,
- Built Green in the western and eastern suburban areas of King County, WA: 2.8% premium.

Also: ENERGY STAR homes in Ada County, Idaho (in and around Boise) showed a similar premium of 4.5%
RESULTS – PUGET SOUND

Several WA areas showed no or little indication of a sales price premium associated with third party certifications.

- ENERGY STAR in Thurston County (1.4%)
- ENERGY STAR in Snohomish County (1.4%)
- Built Green in suburban King County (1.3%)
RESULTS – ADA COUNTY

202 ENERGY STAR homes within the study GLA range had higher average list prices (+2.2%) and higher median list prices (+2.0%)

- ENERGY STAR in Ada County average sale price premium (+4.5%) and median sales price premiums (+2.7%)
- ENERGY STAR in Ada County on the market for 6 days longer
- ENERGY STAR in Ada County sold to list price ratios higher
RESULTS - PORTLAND

• ENERGY STAR (-0.2%)
• Earth Advantage (1.2%) in Portland, Oregon
• A “sister” analysis of combined Earth Advantage and ENERGY STAR certifications in Portland, Oregon showed contributory values of 4.1%.
FINDINGS: RESILIENCY OF PREMIUMS

• In at least one geographic location – a subdivision in Renton, Washington called Shamrock Heights – the contributory value of third party certification was found to carry over through the resale of those properties several years later.

• Compared sales premiums found in prior case study to 2010-2014 sales prices of those same homes when they were re-sold.
### Table 6: Summary Findings at Shamrock Heights

<table>
<thead>
<tr>
<th>Year Resold</th>
<th>Number of Resales</th>
<th>Median Premium ($/sq. ft.)</th>
<th>Median Difference – Sale Price to Original List Price (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>2</td>
<td>4.40</td>
<td>+17</td>
</tr>
<tr>
<td>2011</td>
<td>2</td>
<td>6.77</td>
<td>-2</td>
</tr>
<tr>
<td>2012</td>
<td>2</td>
<td>15.16</td>
<td>+2.8</td>
</tr>
<tr>
<td>2013</td>
<td>3</td>
<td>21.58</td>
<td>+2.6</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>9</strong></td>
<td><strong>11.9</strong></td>
<td><strong>+5.1</strong></td>
</tr>
</tbody>
</table>
### Table 1: Prevalence of verified Energy Performance Scores in Washington, on NWMLS

<table>
<thead>
<tr>
<th>Area</th>
<th>Number of Homes that received EPS</th>
<th>Number of EPS listings on NWMLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seattle</td>
<td>1968</td>
<td>7</td>
</tr>
<tr>
<td>Whatcom County (Bellingham)</td>
<td>540</td>
<td>2</td>
</tr>
<tr>
<td>Thurston County (Olympia)</td>
<td>646</td>
<td>0</td>
</tr>
<tr>
<td>Kitsap County</td>
<td>851</td>
<td>0</td>
</tr>
</tbody>
</table>
FOLLOW UP QUESTIONS
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