

**Study of Successful ENERGY STAR  
Homes Programs in Targeted States for the  
Joint Management Committee**

*Prepared by  
Steve Baden, Residential Energy Services Network  
June 14, 2002*

# Table of Contents

<b>I.</b>	<b>Background</b>	<b>3</b>
<b>II.</b>	<b>Program Descriptions</b>	
	Alaska	5
	Arizona	6
	California	10
	Florida	11
	Indiana	15
	Iowa	16
	Louisiana	18
	Maryland	20
	Massachusetts	22
	Nevada	23
	Ohio	25
	Texas	27
	Utah	30
	Wisconsin	31
<b>III.</b>	<b>Key Findings</b>	<b>31</b>
	<b>Appendix I State and Program Information</b>	
	Alaska State Information	37
	Energy Rated Homes of Alaska	38
	Alaska Housing Finance Corporation	41
	Arizona State Information	43
	D.R. Wastchak, L.L.C.	45
	Tucson Electric Power	49
	Energy Advantage Plus	53
	California State Information	55
	California Home Energy Efficiency Rating System	57
	Florida State Information	63
	Energy Gauge	65
	Florida Power	68
	Indiana State Information	73
	Energy Rated Homes Midwest	74
	Iowa State Information	77
	Energy Rated Homes of Iowa	79
	A-TECH Energy Corporation	82
	Louisiana State Information	85
	Energy Rated Homes of Louisiana	86
	Maryland State Information	89
	Energy Services Group	90
	Southern Maryland Electric Cooperative	93
	Massachusetts State Information	95

<b>Massachusetts ENERGY STAR</b>	<b>96</b>
<b>Nevada State Information</b>	<b>101</b>
<b>Builders Choice Diagnostics</b>	<b>102</b>
<b>ConSol</b>	<b>105</b>
<b>Ohio State Information</b>	<b>109</b>
<b>Home Energy Ratings of Ohio</b>	<b>110</b>
<b>Texas State Information</b>	<b>113</b>
<b>Energy Services Systems</b>	<b>114</b>
<b>Guaranteed Watt Savers System – West Inc.</b>	<b>117</b>
<b>Utah State Information</b>	<b>121</b>
<b>Energy Rated Homes of Utah</b>	<b>122</b>
<b>Wisconsin State Information</b>	<b>125</b>
<b>Wisconsin Energy Star Homes</b>	<b>126</b>
<b>Appendix II Comparison of Selected Programs and Massachusetts</b>	
<b>Alaska Housing Finance Corporation</b>	<b>131</b>
<b>D.R. Wastchak, L.L.C.</b>	<b>135</b>
<b>MidAmerican Energy’s Energy Advantage Homes Program</b>	<b>138</b>
<b>Energy Rated Homes of Louisiana</b>	<b>141</b>
<b>Builders Choice Diagnostic Services</b>	<b>144</b>
<b>Energy Rated Homes Midwest</b>	<b>148</b>
<b>Wisconsin ENERGY STAR Homes</b>	<b>151</b>

## **I. Background**

The Joint Management Committee (JMC) is a consortium of electric and gas utility companies who sponsor an ENERGY STAR Homes Program in Massachusetts, Rhode Island, and portions of New Hampshire. As part of the evaluation and redesign of the program, the JMC contracted with the Residential Energy Services Network (RESNET) to conduct an exploratory study of other successful programs in targeted states around the country.

In this study RESNET has completed an analysis of the following home energy rating/ENERGY STAR programs:

### **Alaska**

Energy Rated Homes of Alaska  
Alaska Housing Finance Corporation

### **Arizona**

D.R. Wastchak  
Tucson Electric Power  
Energy Advantage Plus

### **California**

California Home Energy Efficiency  
Rating System

### **Florida**

Florida Solar Energy Center  
Florida Power

### **Indiana**

Energy Rated Homes Midwest

### **Iowa**

MidAmerican Energy  
Energy Rated Homes of Iowa

### **Louisiana**

Energy Rated Homes of Louisiana

### **Maryland**

Energy Services Group  
Southern Maryland Electric  
Cooperative

### **Massachusetts**

Energy Star Homes Program

### **Nevada**

Building Science Corporation  
ConSol

### **Ohio**

Home Energy Ratings of Ohio

### **Texas**

Energy Sense  
Guaranteed Watt Saver Systems

### **Utah**

Energy Rated Homes of Utah

### **Wisconsin**

Wisconsin Energy Conservation  
Corporation

The states investigated in this study represent a wide spectrum of housing markets, climates, and approaches to the ENERGY STAR Homes Program. The programs range from housing markets dominated by large production builders to markets that feature small custom builders. The states' climates range from predominately heating load to cooling. The programs' approaches range from sampling of ratings to having every home inspected and tested. The programs studied also represent a vast majority of homes that were labeled for the program (73%).

## II. Program Descriptions

### Alaska

Alaska has the highest penetration of ENERGY STAR labeled homes in the nation. Alaska's success can be attributed to the strength of its residential energy efficiency programs that were begun before the ENERGY STAR Homes Program was launched. The nation's first statewide home energy rating program, Energy Rated Homes of Alaska began in 1985. The state's energy code is stringent, 83 points on the HERS scale, and most builders use the rating method to demonstrate compliance to the energy code. Alaska's penetration is enhanced by a mortgage loan interest rate reduction program offered by the state's housing finance agency.

Alaska's housing market activity is centered in the state's urban areas. The state housing market is dominated by custom builders that build less than a hundred homes a year. There are two rating programs in the state: Energy Rated Homes of Alaska and AkWarm. Energy Rated Homes of Alaska has labeled a total of 968 ENERGY STAR Homes. The AkWarm program labeled 4,156 homes as ENERGY STAR.

**Table 1. Alaska ENERGY STAR Homes Program Certifications**

Year	Housing Permits	Labeled Homes		Percent Inspected/Sampled	
		Number	% of Permits	Inspected	Sampled
2001	2,935	1103	38%	100%	-0-

Sources: Environmental Protection Agency, 2002 - U.S. Census Bureau, 2002

The specific features of Alaska's ENERGY STAR Homes programs are highlighted below in Tables 2 and 3.

**Table 2. Energy Rated Homes of Alaska's Program Features**

Program Name	Energy Rated Homes of Alaska
Territory covered	Alaska - statewide
Program sponsor(s)	Electric and gas utilities and home builder associations
Funding source	<ul style="list-style-type: none"> <li>U.S. Department of Energy grant</li> </ul>

	<ul style="list-style-type: none"> <li>• Proceeds from loan program</li> </ul>
Certification organization name	Energy Rated Homes of Alaska
Organization structure and features	<ul style="list-style-type: none"> <li>• Non-profit home energy rating provider</li> <li>• RESNET accredited HERS provider</li> </ul>
Program history	Became the nation's first home energy rating system in 1985
Technical differences / requirements from baseline 86 point standard	None
Value-added services offered	<ul style="list-style-type: none"> <li>• Marketing (parade of homes events, earned media stories, educational signage, marketing materials, etc.)</li> <li>• Home energy rating plan review and recommendations to achieve program standards</li> <li>• Blower door testing and house inspection to certify subcontractor work and energy efficiency performance</li> <li>• Code compliance documentation</li> <li>• Consumer non-recourse energy loan program</li> </ul>
Service costs (to builders and buyers)	Raters charge \$175 – 250 for a home energy rating.
Incentives offered	None
Program funded services	<ul style="list-style-type: none"> <li>• Outreach</li> <li>• Marketing</li> <li>• Home energy rating</li> <li>• Technical assistance</li> <li>• ENERGY STAR Homes Program labeling</li> </ul>

**Table 2. AkWarm's Program Features**

Program Name	AkWarm
Territory covered	Alaska - statewide
Program sponsor(s)	Alaska Housing Finance Corporation
Funding source	Agency funds
Certification organization name	Alaska Housing Finance Corporation
Organization structure and features	<ul style="list-style-type: none"> <li>• State housing finance agency</li> <li>• Not a RESNET accredited HERS provider</li> <li>• Recognized by EPA as an "equivalent provider"</li> </ul>
Program history	Created in 1995 to provide verification for the agency's mortgage loan interest rate reduction program and energy standard.
Technical differences / requirements from baseline 86 point standard	AHFC uses the AkWarm rating software program that was developed by the agency. The program does not comply with the National Association of State Energy Officials (NASEO) National Home Energy Rating Technical Guidelines. AkWarm's baseline for certification of ENERGY STAR Homes equates to 88.0 on the national HERS baseline.
Value-added services offered	<ul style="list-style-type: none"> <li>• Mortgage loan interest rate reduction for homes that are rated Five Star or better</li> </ul>

	<ul style="list-style-type: none"> <li>• Home energy rating plan review and recommendations to achieve program standards</li> <li>• Blower door and duct blaster testing and house inspection to certify subcontractor work and energy efficiency performance</li> <li>• Code compliance documentation</li> </ul>
Service costs (to builders and buyers)	Raters charge \$175 – 250 for a home energy rating.
Incentives offered	<ul style="list-style-type: none"> <li>• Reduced interest rate for Five star rated homes</li> </ul>
Program funded services	<ul style="list-style-type: none"> <li>• Outreach</li> <li>• Marketing</li> <li>• Home energy rating</li> <li>• Technical assistance</li> <li>• ENERGY STAR Homes Program labeling</li> </ul>

## Arizona

Phoenix is the largest housing market in the state. The U.S. Census Bureau reports that in 2001 73% of housing starts took place in the Phoenix housing market. Phoenix has one of the most robust housing markets in the nation. The Phoenix housing market, like most of the dynamic housing markets in the Southwest, is dominated by large production builders who build more than a thousand homes a year.

The rating firm of D.R. Wastchak, L.L.C. has labeled the greatest number of ENERGY STAR Homes in the state (and nation), 14,817. The firm's success can be attributed to the successful recruiting of production builders that have large tract developments. The company uses sampling of ratings. The program's penetration can also be accredited to development work sponsored by the U.S. Department of Energy's Building America Program and EPA.

Daran Wastchak, the company's owner, reports that standard construction in Phoenix scores 83 to 84 (stucco, slab on grade, dual pane aluminum windows, approximately 15% glazing, SEER 10 air conditioner, 80 AFUE furnaces, R-13 walls and R-30 attics). Typically, to upgrade to ENERGY STAR, builders upgrade to SEER 11 air conditioners with Low E aluminum windows or SEER 12 air conditioners with bronze tint aluminum windows.

There are two utilities in Tucson that label ENERGY STAR Homes as part of their new construction programs. Tucson Electric Power has labeled a total of 938 ENERGY STAR Homes. Southwest Gas has labeled 179 homes as ENERGY STAR Homes.

**Table 4. Arizona ENERGY STAR Homes Program Certifications**

Year	Housing Permits	Labeled Homes		Percent Inspected/Sampled	
		Number	% of Permits	Inspected	Sampled
2001	58,943	6,990	12%	17.4%	82.6%

Sources: Environmental Protection Agency, 2002 - U.S. Census Bureau, 2002

The specific features of Arizona's ENERGY STAR Homes programs are highlighted below in Tables 4, 5, and 6.

**Table 4. D.R. Wastchak, L.L.C.'s Program Features**

Program Name	ENERGY STAR Homes
Territory covered	Greater Phoenix housing market
Program sponsor(s)	<ul style="list-style-type: none"> <li>• U.S. Department of Energy's Building America Program</li> <li>• EPA</li> <li>• Southwest Gas</li> <li>• Environments for Living</li> <li>• Engineered for Life</li> </ul>
Funding source	<ul style="list-style-type: none"> <li>• Proceeds from ratings and testing.</li> </ul>
Certification organization name	D.R. Wastchak, L.L.C.
Organization structure and features	<ul style="list-style-type: none"> <li>• For-profit home energy rating provider</li> <li>• Not a RESNET accredited HERS provider (application for accreditation has been submitted)</li> </ul>
Program history	Program off-shoot from EPA funded pilot program with Arizona State University in 1995
Technical differences / requirements from baseline 86 point standard	None
Value-added services offered	<ul style="list-style-type: none"> <li>• Sales training</li> <li>• Sale of ENERGY STAR marketing materials</li> <li>• Coordination of collective builder marketing efforts</li> <li>• HERS ratings</li> <li>• QC testing &amp; inspections during construction</li> <li>• Diagnostic investigations in support of insulation manufacturer utility bill guarantee programs</li> </ul>
Service costs (to builders and buyers)	Raters charge \$250 – 300 for each home tested
Incentives offered	None
Program funded services	<ul style="list-style-type: none"> <li>• Outreach</li> <li>• Marketing</li> <li>• Home energy rating</li> <li>• Technical assistance</li> <li>• ENERGY STAR Homes Program labeling</li> </ul>

**Table 5. Tucson Electric Power’s Program Features**

Program Name	Tucson Electric Power Guarantee Home Program
Territory covered	Tucson Electric Power service area
Program sponsor(s)	Tucson Electric Power
Funding source	Utility’s rate base
Certification organization name	Tucson Electric Power
Organization structure and features	<ul style="list-style-type: none"> <li>• Electric utility</li> <li>• Not a RESNET accredited HERS provider</li> <li>• Recognized by EPA as an “equivalent provider”</li> </ul>
Program history	Program is an off-shoot from Good Cents program.
Technical differences / requirements from baseline 86 point standard	The Guarantee Home Program uses BOPS developed by EPA. BOPS are supposed to meet the HERS score of 86.0 points in a “worse case” energy configuration.
Value-added services offered	<ul style="list-style-type: none"> <li>• Coordination of collective builder marketing efforts</li> <li>• QC testing &amp; inspections during construction</li> </ul>
Service costs (to builders and buyers)	No charge to builders
Incentives offered	<ul style="list-style-type: none"> <li>• Written three-year utility bill guarantee for Tucson Electric Power Guarantee Home Program labeled homes</li> <li>• Lowest residential electric rate for all of the electricity the occupants uses for the life of the home</li> </ul>
Program funded services	<ul style="list-style-type: none"> <li>• Outreach</li> <li>• Marketing</li> <li>• Inspections and testing</li> <li>• Technical assistance</li> <li>• ENERGY STAR Homes Program labeling</li> </ul>

**Table 6. Southwest Gas’ Program Features**

Program Name	Energy Advantage Plus
Territory covered	Southwest Gas’ Tucson service area
Program sponsor(s)	Southwest Gas
Funding source	Utility’s rate base
Certification organization name	Southwest Gas
Organization structure and features	<ul style="list-style-type: none"> <li>• Gas utility</li> <li>• Not a RESNET accredited HERS provider</li> <li>• Recognized by EPA as an “equivalent provider”</li> </ul>
Program history	Southwest Gas created the Energy Advantage Plus Program in 1994. In 2000, it adopted ENERGY STAR standards for certification of their homes.
Technical differences / requirements from baseline 86 point standard	None

Value-added services offered	<ul style="list-style-type: none"> <li>• Coordination of collective builder marketing efforts</li> <li>• Free ratings</li> </ul>
Service costs (to builders and buyers)	No charge to builders
Incentives offered	Free ratings
Program funded services	<ul style="list-style-type: none"> <li>• Outreach</li> <li>• Marketing</li> <li>• Inspections and testing</li> <li>• Technical assistance</li> <li>• ENERGY STAR Homes Program labeling</li> </ul>

## California

California is the third largest state in terms of housing starts. According to the U.S. Bureau of the Census, 40% of the housing starts were in the Los Angeles-Orange County – Riverside County housing market; 16% in the San Francisco – Oakland – San Jose market; thirteen percent 13% in the Sacramento market; and 11% in the San Diego market. In these markets, large production builders that construct hundreds of homes a year drive the housing.

A unique factor with the home energy rating market in California is that state law regulates home energy rating providers. California law requires that a home energy rating provider must be certified by the California Energy Commission. The commission's regulations forbid providers from providing direct rating services. To date, the California Home Energy Efficiency Rating System has been certified by the State.

The State of California Home Energy Rating System regulations provide for sampling of ratings. The California sampling procedures are more stringent than the Environmental Protection Agency's ENERGY STAR Homes protocols. Following are the key points of the State of California's sampling procedures:

- Rating providers are prohibited from completing ratings.
- One out of seven homes must be physically rated and diagnostic tested.
- The homes to be sampled must be located in the same subdivision.
- Builder selects the group of homes to be included in the batch. The rating provider selects the homes to be tested.
- When any subcontractor is changed, the sampling stops.
- If there are two failures on the sampled homes, all homes in group are physically rated.
- Rating providers are required to maintain a data base of sampled ratings and annually submit the data base to the California Energy Commission for evaluating the effectiveness of field verification and diagnostic testing

CHEERS has labeled 2.336 ENERGY STAR Homes in the state. This number will significantly increase this year. The California Public Utilities Commission

has directed significant public benefit funds to a new “California ENERGY STAR Homes Program”. The program is expected to label 12,000 ENERGY STAR Homes in 2002.

**Table 7. California ENERGY STAR Homes Program Certifications**

Year	Housing Permits	Labeled Homes		Percent Inspected/Sampled	
		Number	% of Permits	Inspected	Sampled
2001	143,544	1,296	.9%	2.7%	97.3%

Sources: Environmental Protection Agency, 2002 - U.S. Census Bureau, 2002

The specific features of CHEERS’ ENERGY STAR Homes programs are highlighted below in Tables 8.

**Table 8. California Home Energy Efficiency Rating System’s Program Features**

Program Name	CHEERS
Territory covered	California – state-wide
Program sponsor(s)	<ul style="list-style-type: none"> <li>• Pacific Gas and Electric</li> <li>• Southern California Edison</li> <li>• Southern California Gas</li> <li>• San Diego Gas and Electric</li> <li>• Sacramento Utility District</li> </ul>
Funding source	<ul style="list-style-type: none"> <li>• Rating processing and quality control fees charged to builders</li> <li>• Utility memberships</li> <li>• Rater training</li> <li>• Utility contracts</li> </ul>
Certification organization name	California Home Energy Efficiency Rating System
Organization structure and features	<ul style="list-style-type: none"> <li>• Web based consumer energy audit Sale of ENERGY STAR</li> <li>• Rater marketing training</li> </ul>
Program history	CHEERS was formed in October 1990 by a consortium of energy efficiency stakeholders, including utility companies, governmental agencies, and consumer advocacy groups.
Technical differences / requirements from baseline 86 point standard	<p>The State of California Home Energy Rating System regulations require that rating software programs comply with the California Low-Rise Residential Alternative Calculation Method (ACM).</p> <p>Since January 1, 2002, qualifying levels for ENERGY STAR labeled homes within the state of California are referenced to the state energy code as embodied in the latest Title-24 requirements (effective June 1, 2001). Upon that date, any home that is 15 percent above the 2001 Title-24 Energy Efficiency Standards for its relevant climate zone is eligible for ENERGY STAR certification,</p>

	<p>provided:</p> <ol style="list-style-type: none"> <li>1. The energy budget for the home is calculated using California Energy Commission-approved computer method.</li> <li>2. The home is verified using a home energy rating system (HERS) approved by the California Energy Commission (i.e., California Home Energy Efficiency Rating System). This verification may also use an approved sampling process per California Energy Commission rules.</li> </ol>																																
Value-added services offered	<ul style="list-style-type: none"> <li>• Rater marketing training</li> <li>• Web based consumer energy audit Sale of ENERGY STAR marketing materials</li> <li>• Compliance documentation to state energy code</li> </ul>																																
Service costs (to builders and buyers)	<table border="1"> <thead> <tr> <th colspan="2">Quantity</th> <th>Title-24 <u>or</u> Energy Star Fee</th> <th>Title-24 <u>and</u> Energy Star</th> </tr> <tr> <th>From</th> <th>To</th> <th>\$/Unit</th> <th>\$/Unit</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>9</td> <td>\$50</td> <td>\$70</td> </tr> <tr> <td>10</td> <td>49</td> <td>\$40</td> <td>\$58</td> </tr> <tr> <td>50</td> <td>99</td> <td>\$32</td> <td>\$48</td> </tr> <tr> <td>100</td> <td>499</td> <td>\$28</td> <td>\$42</td> </tr> <tr> <td>500</td> <td>999</td> <td>\$24</td> <td>\$36</td> </tr> <tr> <td>1000+</td> <td></td> <td>\$20</td> <td>\$30</td> </tr> </tbody> </table>	Quantity		Title-24 <u>or</u> Energy Star Fee	Title-24 <u>and</u> Energy Star	From	To	\$/Unit	\$/Unit	1	9	\$50	\$70	10	49	\$40	\$58	50	99	\$32	\$48	100	499	\$28	\$42	500	999	\$24	\$36	1000+		\$20	\$30
Quantity		Title-24 <u>or</u> Energy Star Fee	Title-24 <u>and</u> Energy Star																														
From	To	\$/Unit	\$/Unit																														
1	9	\$50	\$70																														
10	49	\$40	\$58																														
50	99	\$32	\$48																														
100	499	\$28	\$42																														
500	999	\$24	\$36																														
1000+		\$20	\$30																														
Incentives offered	<ul style="list-style-type: none"> <li>• California Energy Star New Homes Program Rebates – are offered by all investor owned utilities – driven by climate zones ranging from \$400 to \$900 per home.</li> <li>• San Diego Gas and Electric – arranged for local building departments' expedited review of building plan review for homes designed to be ENERGY STAR.</li> </ul>																																
Program funded services	<ul style="list-style-type: none"> <li>• Rater training</li> <li>• Rating processing</li> <li>• Rater quality control</li> <li>• Marketing</li> <li>• Training lenders</li> <li>• Outreach</li> <li>• Inspections and testing</li> <li>• Technical assistance</li> <li>• ENERGY STAR Homes Program labeling</li> </ul>																																

## Florida

Florida has the largest housing construction in the nation. According to the U.S. Bureau of the Census, the state's three largest housing markets are: Miami – Fort Lauderdale (24,764 housing starts), Orlando (23,335 housing starts), and

Tampa – St. Petersburg (21,454 housing starts). In these markets, large production builders that construct hundreds of homes a year drive the housing market.

Florida is the other state in the nation where state law governs home energy ratings. The 1993 Florida Building Energy Efficiency Ratings Act recognizes only one rating provider in the state, the Florida Energy Gauge Program administered by the Florida Solar Energy Center.

The Florida Energy Gauge Program has labeled 1,219 ENERGY STAR Homes in the state.

The state’s largest utility, Florida Power, has been accredited by RESNET as an ENERGY STAR Homes Program BOP Provider. The utility has labeled 1,283 ENERGY STAR Homes through BOPS. Florida Power employs random sampling of BOPS.

**Table 9. Florida ENERGY STAR Homes Program Certifications**

Year	Housing Permits	Labeled Homes		Percent Inspected/Sampled	
		Number	% of Permits	Inspected	Sampled
2001	164,656	1,293	.9%	40.6%	59.4%

Sources: Environmental Protection Agency, 2002 - U.S. Census Bureau, 2002

The specific features of Florida’s ENERGY STAR Homes programs are highlighted below in Tables 10 and 11.

**Table 10. Energy Gauge’s Program Features**

Program Name	Energy Gauge
Territory covered	Florida – state-wide
Program sponsor(s)	<ul style="list-style-type: none"> <li>• Florida Solar Energy Center</li> <li>• Florida Department of Community Affairs</li> </ul>
Funding source	<ul style="list-style-type: none"> <li>• Rating fees charged to builders</li> <li>• Inspection fees from Building America Program</li> </ul>
Certification organization name	Florida Solar Energy Center
Organization structure and features	<ul style="list-style-type: none"> <li>• Research Institute of University of Central Florida</li> <li>• RESNET accredited HERS provider</li> </ul>
Program history	In 1993, the Florida Legislature enacted the Florida Building Energy Efficiency Ratings Act which mandated the Florida Department of Community Affairs to develop and regulate a home energy rating system in the state. On July 1, 1994, the Department of Community Affairs adopted regulations implementing the statute. The Florida Solar Energy Center developed a rating software program, “Energy Gauge”, and the Department launched the Florida Building Energy Efficiency Rating

	System. In 1997, the program was transferred to the Florida Solar Energy Center and was renamed the Florida Energy Gauge program.
Technical differences / requirements from baseline 86 point standard	None
Value-added services offered	<ul style="list-style-type: none"> <li>• Assistance in code compliance</li> <li>• Web site</li> <li>• Building America program</li> </ul>
Service costs (to builders and buyers)	<ul style="list-style-type: none"> <li>• Rater training - \$845,</li> <li>• Rater certification - \$150 - \$50 annual fee for re-certification,</li> <li>• Rating software license fee - \$75 (basic version) \$129 (Pro version),</li> <li>• Rating registration fee - \$15 per rating.</li> </ul>
Incentives offered	None
Program funded services	<ul style="list-style-type: none"> <li>• Rater training</li> <li>• Rating Processing</li> <li>• Rater quality control</li> <li>• Marketing</li> <li>• Outreach</li> <li>• Inspections and testing</li> <li>• Technical assistance</li> <li>• ENERGY STAR Homes Program labeling</li> </ul>

**Table 11. Florida Power's Program Features**

Program Name	ACT Premium/ENERGY STAR
Territory covered	Florida Power's service area
Program sponsor(s)	<ul style="list-style-type: none"> <li>• Florida Power</li> <li>• Fannie Mae</li> </ul>
Funding source	Utility rate base
Certification organization name	Florida Power
Organization structure and features	<ul style="list-style-type: none"> <li>• Investor owned utility</li> <li>• RESNET accredited BOPS provider</li> <li>• Employees are certified raters</li> </ul>
Program history	From the beginning, Florida Power has supported home energy ratings and the ENERGY STAR Program. A number of their employees certified as energy raters.
Technical differences / requirements from baseline 86 point standard	Florida Power uses BOPS developed by EPA. BOPS are supposed to meet the HERS score of 86.0 points in a "worse case" energy configuration.
Value-added services offered	<ul style="list-style-type: none"> <li>• ACT/ACT Plus and ACT Premium Programs</li> </ul>
Service costs (to builders and buyers)	None

Incentives offered	<ul style="list-style-type: none"> <li>• \$50 in cooperative advertising per home labeled ENERGY STAR</li> <li>• Up to \$350 per home to the builder as a rebate</li> </ul>
Program funded services	<ul style="list-style-type: none"> <li>• ACT Program</li> <li>• Ratings of homes</li> <li>• BOP inspections</li> <li>• Marketing</li> <li>• Rebates</li> <li>• Outreach</li> <li>• Inspections and testing</li> <li>• Technical assistance</li> <li>• ENERGY STAR Homes Program labeling</li> </ul>

## Indiana

Indiana is one of the first states where ENERGY STAR Homes was successful in making a significant impact on the housing market. The driving force of this success was its home energy rating program, Energy Rated Homes Midwest. The program has been highly successful in recruiting market savvy raters, builders, and lenders that will offer closing cost discounts for rated homes. Energy Rated Homes has labeled 5,254 ENERGY STAR Homes.

**Table 12. Indiana ENERGY STAR Homes Program Certifications**

Year	Housing Permits	Labeled Homes		Percent Inspected/Sampled	
		Number	% of Permits	Inspected	Sampled
2001	38,418	1,513	4%	100%	-0-

Sources: Environmental Protection Agency, 2002 - U.S. Census Bureau, 2002

The specific features of Energy Rated Homes Midwest' ENERGY STAR program are highlighted below in Table 13.

**Table 13. Energy Rated Homes Midwest Program Features**

Program Name	Energy Rated Homes Midwest
Territory covered	Indiana, Illinois, Kentucky, Michigan, Ohio
Program sponsor(s)	<ul style="list-style-type: none"> <li>• Indiana Office of Energy Policy</li> <li>• Indianapolis Fannie Mae Partnership Office</li> <li>• EPA ENERGY STAR Homes Program</li> </ul>
Funding source	<ul style="list-style-type: none"> <li>• Processing fees charged to raters</li> <li>• Rater training fees</li> <li>• Seed funding from the State of Indiana</li> </ul>
Certification organization name	Energy Rated Homes Midwest
Organization structure and features	<ul style="list-style-type: none"> <li>• Program of the Indiana Community Action Program</li> <li>• RESNET accredited HERS provider</li> </ul>

Program history	In 1993, the Indiana Office of Energy Policy started Energy Rated Homes of Indiana as a program of the state energy office. In 1998, the program was transferred out of the state energy office to the Indiana Community Action Program and expanded to a regional rating association. In 2002, the two largest rating firms, Energy Efficient Homes Midwest and Thermo-Scan Inspections, became independent accredited rating providers.
Technical differences / requirements from baseline 86 point standard	None.
Value-added services offered	<ul style="list-style-type: none"> <li>• Marketing of ENERGY STAR Homes</li> <li>• Web site</li> <li>• Lender training and recruitment</li> </ul>
Service costs (to raters)	<ul style="list-style-type: none"> <li>• Processing of ratings - \$45.00</li> <li>• Rater training and certification - \$600.00</li> </ul>
Incentives offered	Eleven lenders offer either a \$300 discount on closing costs or to pay for the rating if the home is rated.
Program funded services	<ul style="list-style-type: none"> <li>• Processing of ratings and issuing rating reports</li> <li>• Marketing ENERGY STAR to consumers, builders, and lenders</li> <li>• Training of raters</li> <li>• Lender training – Energy Rated Homes Midwest received funding from the local Fannie Mae Partnership Office to train and recruit lenders to offer energy efficient mortgages.</li> <li>• Outreach</li> <li>• Inspections and testing</li> <li>• Technical assistance</li> <li>• ENERGY STAR Homes Program labeling</li> </ul>

## Iowa

The Iowa housing market is robust. In the busiest housing markets, builder firms that build over a hundred homes a year dominate the market. The ENERGY STAR Homes Program has had the greatest success in these markets and with these builders. The demand for ENERGY STAR Homes was driven by rebates offered by the MidAmerican Energy utility. There are two organizations that label ENERGY STAR Homes in the state, Energy Rated Homes and A-Tech Energy Services. Energy Rated Homes of Iowa has labeled 1,434 ENERGY STAR Homes. A-Tech Energy Services has labeled 1,192 ENERGY STAR Homes. Energy Rated Homes of Iowa labels homes based upon a home energy rating. A-Tech Energy Services uses BOPS to label the homes. The firm also uses random sampling of the BOPS.

**Table 14. Iowa ENERGY STAR Homes Program Certifications**

Year	Housing Permits	Labeled Homes		Percent Inspected/Sampled	
		Number	% of Permits	Inspected	Sampled
2001	12,588	1,242	10%	71.7%	28.3%

Sources: Environmental Protection Agency, 2002 - U.S. Census Bureau, 2002

The specific features of Iowa's ENERGY STAR Homes programs are highlighted below in Tables 15 and 16.

**Table 15. Energy Rated Homes of Iowa's Program Features**

Program Name	Energy Rated Homes of Iowa
Territory covered	Iowa – statewide
Program sponsor(s)	Mid Iowa Community Action Program
Funding source	<ul style="list-style-type: none"> <li>• Rating fees charged to builders</li> <li>• Rater training</li> </ul>
Certification organization name	Energy Rated Homes of Iowa
Organization structure and features	<ul style="list-style-type: none"> <li>• Program of the Mid Iowa Community Action Program</li> <li>• RESNET accredited HERS provider</li> </ul>
Program history	In 1991, the Iowa State Energy Office of Energy Policy started Energy Rated Homes of Iowa. In 1993, the program was transferred out of the state energy office to the Mid-Iowa Community Action Program and expanded to a regional rating association. In 1995, Energy Rated Homes of Iowa was selected by Fannie Mae to participate in its conventional energy efficient mortgage pilot program. In 2000, the program's largest rating firm, A-Tech Energy Corporation, became an independent accredited BOP provider. Prior to this, MidAmerican Energy's ENERGY STAR Homes Program created most of the demand for Energy Rated Homes of Iowa to label ENERGY STAR Homes. A-Tech was selected by MidAmerican Energy to label its ENERGY STAR Homes. This resulted in a dramatic drop in rating activity by the organization.
Technical differences / requirements from baseline 86 point standard	None
Value-added services offered	<ul style="list-style-type: none"> <li>• Quality control of ratings</li> <li>• Energy code training</li> </ul>
Service costs (to builders and buyers)	Not available
Incentives offered	None
Program funded services	<ul style="list-style-type: none"> <li>• Rater training,</li> <li>• Rating Processing.</li> </ul>

**Table 16. A-Tech Energy Services' Program Features**

Program Name	MidAmerican Energy's Energy Advantage Homes Program
Territory covered	MidAmerican's service area
Program sponsor(s)	MidAmerican Energy
Funding source	Utility rate base.
Certification organization name	A-Tech Energy Services
Organization structure and features	<ul style="list-style-type: none"> <li>• For-profit residential energy efficiency service provider</li> <li>• RESNET accredited BOPS provider</li> </ul>
Program history	Prior to 2000, A-Tech Energy Corporation's raters were certified by Energy Rated Homes of Iowa. In 2000, A-Tech Energy Corporation and MidAmerican Energy severed their relationships with Energy Rated Homes of Iowa and A-Tech Energy Corporation became accredited as an independent BOP provider.
Technical differences / requirements from baseline 86 point standard	A-Tech Energy Services uses BOPS developed by EPA. BOPS are supposed to meet the HERS score of 86.0 points in a "worse case" energy configuration.
Value-added services offered	Qualification of homes for Energy Advantage Homes rebates
Service costs (to builders and buyers)	The cost of ratings is paid through utility rebates.
Incentives offered	Rebates ranging from \$1,000 to \$2,000 per home
Program funded services	Labeling of ENERGY STAR Homes through MidAmerican Energy's Energy Advantage Homes Program.

## Louisiana

The Louisiana housing market is robust. In a relatively short period of time the ENERGY STAR has made a significant penetration in the state's housing market. The state went from no ENERGY STAR labeled homes in 2000 to 1,005 in 2001. This transformation was driven by market intervention sponsored by the Louisiana Department of Natural Resources and a number of utilities. The Louisiana Department of Natural Resources has launched the Home Energy Rebate Option (HERO) program. The program offers rebates for the purchase of ENERGY STAR Homes. The amount of the cash payment depends on the level of energy savings, called the Energy Efficiency Premium. The cash payment is 20% of the Energy Efficiency Premium up to a maximum of \$2,000. The Energy Efficiency premium is determined by a home energy rating that is required on all homes participating in the program.

**Table 17. Louisiana ENERGY STAR Homes Program Certifications**

Year	Housing Permits	Labeled Homes		Percent Inspected/Sampled	
		Number	% of Permits	Inspected	Sampled
2001	15,190	1,005	7%	100%	-0-

Sources: Environmental Protection Agency, 2002 - U.S. Census Bureau, 2002

The specific features of Louisiana’s ENERGY STAR Homes program are highlighted below in Table 18.

**Table 18. Energy Rated Homes of Louisiana’s Program Features**

Program Name	Energy Rated Homes of Louisiana
Territory covered	Louisiana – statewide
Program sponsor(s)	<ul style="list-style-type: none"> <li>• Louisiana Department of Natural Resources</li> <li>• Dixie Membership Electric Cooperative</li> <li>• Entergy</li> <li>• South Louisiana Membership Electric Cooperative</li> </ul>
Funding source	State funds.
Certification organization name	Energy Rated Homes of Louisiana
Organization structure and features	<ul style="list-style-type: none"> <li>• Program of the Louisiana Department of Natural Resources</li> <li>• RESNET accredited HERS provider</li> </ul>
Program history	In 1993, the Louisiana Department of Natural Resources started Energy Rated Homes of Louisiana. In 2000, the Department of Natural Resources created the Louisiana Home Energy Rebate Option that offers rebates for homes that are labeled as ENERGY STAR through an Energy Rated Homes of Louisiana rating.
Technical differences / requirements from baseline 86 point standard	None
Value-added services offered	<ul style="list-style-type: none"> <li>• Quality control of ratings</li> <li>• Rater training</li> <li>• Energy code training</li> </ul>
Service costs (to builders and buyers)	<ul style="list-style-type: none"> <li>• \$150 – 200 for rating</li> </ul>
Incentives offered	<ul style="list-style-type: none"> <li>• HERO – Up to \$2,000 rebate for ENERGY STAR Home</li> <li>• Utility rebates for \$100 toward the cost of the rating</li> </ul>
Program funded services	<ul style="list-style-type: none"> <li>• Rater training</li> <li>• Rating processing</li> <li>• Outreach</li> <li>• Marketing</li> <li>• Inspections and testing</li> <li>• Technical assistance</li> <li>• ENERGY STAR Homes Program labeling</li> </ul>

## Maryland

According to the U.S. Bureau of the Census, 37% of the housing starts were in the Baltimore housing market and 22% in the Washington D.C. suburbs. All sectors in the state housing market are growing. Large production builders who annually construct hundreds of home drive these markets.

Energy Services Group uses a unique approach in the marketing of ENERGY STAR labeled homes. The company's main business is air sealing of new homes. The company has found that being able to guarantee a final air infiltration rate offers a builder a cost-effective boost to their energy rating. Many of the builders participating in its program build homes that are already close to the 86 rating score. The company reports that it has have been able to convince builders participating in their air sealing program to upgrade 25% of their homes to the ENERGY STAR standard. Energy Services group has labeled 1,942 ENERGY STAR Homes.

The Southern Maryland Electrical Cooperative also operates an ENERGY STAR Homes program. It has labeled 1,454 homes.

**Table 19. Maryland ENERGY STAR Homes Program Certifications**

Year	Housing Permits	Labeled Homes		Percent Inspected/Sampled	
		Number	% of Permits	Inspected	Sampled
2001	28,412	486	2%	100%	-0-

Sources: Environmental Protection Agency, 2002 - U.S. Census Bureau, 2002

The specific features of Maryland's ENERGY STAR Homes programs are highlighted below in Tables 20 and 21.

**Table 20. Energy Services Group's Program Features**

Program Name	Energy Services Group
Territory covered	Delaware, Maryland, Pennsylvania, and Virginia
Program sponsor(s)	Energy Services Group
Funding source	<ul style="list-style-type: none"> <li>• Rating fees charged to builders</li> <li>• Air sealing</li> </ul>
Certification organization name	Energy Services Group
Organization structure and features	<ul style="list-style-type: none"> <li>• For-profit residential energy efficiency services provider,</li> <li>• RESNET accredited HERS provider.</li> </ul>
Program history	Energy Services Group began in 1981 as an energy retrofit business. The firm provided energy auditing and air sealing for the Delaware Low Income Weatherization Assistance Program. In 1982, it began working with new residential construction. In 1997, it began labeling ENERGY STAR Homes. In 1999, it became a RESNET accredited rating provider in the states of Delaware,

	Maryland, Pennsylvania, and Virginia.
Technical differences / requirements from baseline 86 point standard	None
Value-added services offered	<ul style="list-style-type: none"> <li>• Air sealing</li> <li>• Marketing</li> <li>• This fall, Energy Services Group will be working with EPA in kicking off a retrofit program for existing homes.</li> <li>• The company has designed an “Energy Label” for each model of a house, similar to the energy labels on appliances. Energy Service Group’s label compares the energy usage of a model of a home labeled as ENERGY STAR to that of the same model that is merely built to the state energy code.</li> </ul>
Service costs (to builders and buyers)	Energy Services Group charges a production builder a per-house package fee that includes the rating, inspection, batch testing, and ENERGY STAR label. This fee varies between \$125 and \$160 per home. For custom homebuilders, the company charges \$0.10 per square foot, with their minimum being \$200. There are lower prices to builders if functions are combined
Incentives offered	None
Program funded services	<ul style="list-style-type: none"> <li>• Outreach</li> <li>• Marketing</li> <li>• Home energy rating</li> <li>• Technical assistance</li> <li>• ENERGY STAR Homes Program labeling</li> </ul>

**Table 21. Southern Maryland Electrical Cooperative’s Program Features**

Program Name	ENERGY STAR Homes
Territory covered	Utility’s service area
Program sponsor(s)	Southern Maryland Electrical Cooperative (SMEC)
Funding source	Utility rate base.
Certification organization name	SMEC
Organization structure and features	<ul style="list-style-type: none"> <li>• Rural electric cooperative</li> <li>• Not a RESNET accredited BOPS provider</li> <li>• Recognized by EPA as an “equivalent provider”</li> </ul>
Program history	The ENERGY STAR Homes program began in 1995.
Technical differences / requirements from baseline 86 point standard	SMEC uses BOPS developed by EPA. BOPS are supposed to meet the HERS score of 86.0 points in a “worse case” energy configuration.
Value-added services offered	Marketing.
Service costs (to builders and buyers)	The cost of the BOP inspections is paid through utility rate.
Incentives offered	Free ENERGY STAR Home labeling

Program funded services	<ul style="list-style-type: none"> <li>• Outreach</li> <li>• Marketing</li> <li>• BOP inspections</li> <li>• Technical assistance</li> <li>• ENERGY STAR Homes Program labeling</li> </ul>
-------------------------	--

## Massachusetts

According to the U.S. Bureau of the Census, 97% of the housing starts were in the Boston-Worcester-Lawrence housing market. There is currently much more demand for housing in Massachusetts than there is supply. Because of this, Energy Star Homes is a more difficult sell to builders, who are selling their homes regardless of certain upgrade features.

The drive for ENERGY STAR Homes in the state is the Massachusetts ENERGY STAR Homes Program funded with utility public benefit funds and administered by the Joint Management Committee. The program features rebates for ENERGY STAR labeled homes.

Conservation Services Group is the accredited rating provider in the state. The program has labeled 2,307 ENERGY STAR Homes.

**Table 22. Massachusetts ENERGY STAR Homes Program Certifications**

Year	Housing Permits	Labeled Homes		Percent Inspected/Sampled	
		Number	% of Permits	Inspected	Sampled
2001	16,817	841	5%	100%	-0-

Sources: Environmental Protection Agency, 2002 - U.S. Census Bureau, 2002

**Table 23. Massachusetts ENERGY STAR Homes Program's Program Features**

Program Name	ENERGY STAR Homes Program
Territory covered	Massachusetts, Rhode Island and parts of New Hampshire (except for municipal utility territories)
Program sponsor(s)	Electric and gas utilities and non-utility parties (energy office, advocates, environmental groups, etc.) collectively known as the Joint Management Committee (JMC)
Funding source	System Benefits Charge funds (through 2007)
Certification organization name	Conservation Services Group (CSG)
Program history	<ul style="list-style-type: none"> <li>• Energy Crafted Homes Program trained hundreds of builders but resulted in few certified homes and little market demand</li> <li>• Transitioned to ENERGY STAR Homes Program in 1998.</li> </ul>
Technical differences from baseline 86 point standard	<ul style="list-style-type: none"> <li>• Mechanical ventilation requirement</li> <li>• CO detector requirement</li> </ul>

Program and Value-added services offered	<ul style="list-style-type: none"> <li>• Extensive marketing campaign (billboards, parade of homes events, newspaper ads and earned media stories, educational signage, marketing materials, etc.)</li> <li>• Dedicated outreach and support to affordable/multifamily sector</li> <li>• Home energy rating plan review and recommendations to achieve program standards</li> <li>• On-site training of builder, employees and subs and on-going technical assistance</li> <li>• Pre-drywall inspection to ensure insulation subs performed</li> <li>• Energy efficient lighting design and selection assistance</li> <li>• HVAC commissioning; including verification of proper operation of mechanical ventilation, heating and cooling systems and ductwork; Right J software analysis, room-by-room airflow testing; AC charge testing</li> <li>• Blower door and duct blaster testing and house inspection to certify subcontractor work and energy efficiency performance</li> <li>• ENERGY STAR Homes Program labeling</li> <li>• Code compliance documentation</li> </ul>
Service costs (to builders and buyers)	\$75 application fee (refundable upon home certification)
Incentives offered	<ul style="list-style-type: none"> <li>• \$500 single-family home rebate</li> <li>• \$200 multi-family unit rebate</li> <li>• Up to \$900 in rebates for ENERGY STAR lighting, mechanical ventilation (required, \$100), refrigerators (\$100) and dishwashers (\$100)</li> <li>• \$100 for HERS score of 87 (single family) or 88 (multifamily)</li> <li>• Additional gas utility rebates for high efficiency gas heating and water heating equipment</li> </ul>

## Nevada

According to the U.S. Bureau of the Census, 89% of the housing starts in Nevada were in the Las Vegas housing market. Las Vegas has one of the most dynamic housing markets in the nation. Large production builders who annually construct hundreds of home drive this market.

Las Vegas is unique, in that the two companies that label ENERGY STAR homes have not been accredited as either a rating or BOPS provider. Both companies perform sampling and develop relationships with large production builders. The robust ENERGY STAR activity in the Las Vegas housing market was boosted by the U.S. Department of Energy's Building America Program and a pilot home energy rating program sponsored by the Nevada State Energy Office.

There are two main providers of ENERGY STAR labeling in Las Vegas, the Las Vegas based Builders Choice Diagnostic Services and the California based

ConSol. Builders Choice Diagnostic Services has labeled 2,906 ENERGY STAR Homes. ConSol has labeled 973 homes.

**Table 22. Nevada ENERGY STAR Homes Program Certifications**

Year	Housing Permits	Labeled Homes		Percent Inspected/Sampled	
		Number	% of Permits	Inspected	Sampled
2001	36,169	2,077	6%	13.6%	86.4%

Sources: Environmental Protection Agency, 2002 - U.S. Census Bureau, 2002

The specific features of Nevada’s ENERGY STAR Homes programs are highlighted below in Tables 23 and 24.

**Table 23. Builders Choice Diagnostic Services’ Program Features**

Program Name	Builders Choice Diagnostic Services
Territory covered	Las Vegas
Program sponsor(s)	<ul style="list-style-type: none"> <li>• U.S. Department of Energy Building America Program</li> <li>• Southwest Gas</li> </ul>
Funding source	Inspections and testing of homes.
Certification organization name	Builders Choice Diagnostic Services
Organization structure and features	<ul style="list-style-type: none"> <li>• For-profit residential energy efficiency services provider</li> <li>• Not RESNET accredited</li> <li>• Recognized by EPA as an “equivalent provider”</li> </ul>
Program history	The firm founder, Roger Woods, began rating services as a certified energy rater of the Energy Rated Homes of Nevada program. In 1998, the firm became independent of Energy Rated Homes of Nevada and was recognized by EPA. Mr. Woods expanded his services to include inspection of Building America homes in Las Vegas. In 2000, he founded Builders Choice Diagnostic Services.
Technical differences / requirements from baseline 86 point standard	Not available
Value-added services offered	Participate in Southwest Gas marketing efforts
Service costs (to builders and buyers)	Not available.
Incentives offered	None
Program funded services	<ul style="list-style-type: none"> <li>• Inspections and diagnostic testing</li> <li>• Outreach</li> <li>• Marketing</li> <li>• Inspections and testing</li> <li>• Technical assistance</li> <li>• ENERGY STAR Homes Program labeling.</li> </ul>

**Table 24. ConSol's Program Features**

Program Name	ComfortWise Program
Territory covered	California and Nevada
Program sponsor(s)	ConSol
Funding source	<ul style="list-style-type: none"> <li>• Fees for ratings</li> <li>• Sign up fees for builders to participate in ComfortWise Program</li> </ul>
Certification organization name	ConSol
Organization structure and features	<ul style="list-style-type: none"> <li>• For profit corporation</li> <li>• Not a RESNET accredited rating provider</li> <li>• Recognized by EPA as an "equivalent provider".</li> </ul>
Program history	ConSol is based in California. Before beginning rating services, it provided plan reviews for California builders to demonstrate compliance to the California energy code. Received funding from the U.S. Department of Energy to expand into Las Vegas. With funding from California utilities, ConSol developed the ComfortWise labeling program. EPA has determined that the program's technical standard is equivalent to the ENERGY STAR Program. In addition to labeling, the program offers utility bill guarantees.
Technical differences / requirements from baseline 86 point standard	ConSol uses the Micropas6 California C-HERS software program that was developed for California energy code plan reviews. The program is based on Title 24 California code and not the national HERS baseline. Micropas6 C-HERS has also not yet completed the BESTEST.
Value-added services offered	ComfortWise Program marketing
Service costs (to builders and buyers)	Not available.
Incentives offered	None
Program funded services	<ul style="list-style-type: none"> <li>• Outreach</li> <li>• Marketing</li> <li>• Inspections and testing</li> <li>• Technical assistance</li> <li>• ENERGY STAR Homes Program labeling</li> </ul>

**Ohio**

According to the U.S. Bureau of the Census, Cincinnati, Cleveland, and Columbus are the state's largest housing markets. Thirty-one (31%) of the housing starts are in the Columbus market, 25% of the housing starts are in the Cincinnati housing market and 21% in Cleveland.

In 1990, the Ohio Office of Energy Efficiency, RESNET, EPA, and the Columbus Fannie Mae Partnership office agreed to undertake a pilot rating sampling program in Ohio. The goals of the pilot project are to determine:

- Whether the reliability of a home energy rating can be maintained through a properly structured random sampling protocol.
- What level of quality control oversight would be necessary for acceptable building performance.
- What training will be necessary for builders and subcontractors.
- Whether cost savings to builders is significant.
- What are the effects on production of a builder's acceptance of home energy ratings and/or ENERGY STAR Homes Program.

Under the Ohio pilot project, 20% of the homes in a model production will be site inspected. If these homes receive a consistent score, then ratings will be issued for homes in the same model in batches of five as they are completed. As a pilot project quality control, a certain percentage of homes that are issued batch ratings will also be field inspected. The utility records of homes that were site inspected and receive batch certificates will also be monitored.

The State of Ohio administers the state's home energy rating program, Home Energy Ratings of Ohio (HERO). HERO has labeled 764 ENERGY STAR Homes.

**Table 25. Ohio ENERGY STAR Homes Program Certifications**

Year	Housing Permits	Labeled Homes		Percent Inspected/Sampled	
		Number	% of Permits	Inspected	Sampled
2001	50,849	540	1.1%	23.7%	76.3%

Sources: Environmental Protection Agency, 2002 - U.S. Census Bureau, 2002

The specific features of Ohio's ENERGY STAR Homes program are highlighted below in Table 26.

**Table 26. Home Energy Ratings of Ohio's Program Features**

Program Name	Home Energy Ratings of Ohio
Territory covered	Ohio – statewide
Program sponsor(s)	Ohio Office of Energy Efficiency
Funding source	<ul style="list-style-type: none"> <li>• Fees for ratings</li> <li>• State Funds</li> </ul>
Certification organization name	Ohio Office of Energy Efficiency
Organization structure and	<ul style="list-style-type: none"> <li>• Program of the Ohio Office of Energy Efficiency</li> </ul>

features	<ul style="list-style-type: none"> <li>• RESNET accredited rating provider</li> </ul>
Program history	HERO was launched in 1994. The program was originally organized as a non-profit organization. Due to the lack of income, the non-profit could not be self-sustaining. In 1988, the program was taken over by the Ohio Office of Energy Efficiency.
Technical differences / requirements from baseline 86 point standard	Appliance combustion safety testing
Value-added services offered	<ul style="list-style-type: none"> <li>• Ohio pilot rating sampling project</li> <li>• Appliance combustion safety testing</li> </ul>
Service costs (to builders and buyers)	<ul style="list-style-type: none"> <li>• Rater training is \$700 - The Ohio Office of Energy Efficiency subsidizes a portion of the training costs.</li> <li>• \$65 per rating</li> </ul>
Incentives offered	None
Program funded services	<ul style="list-style-type: none"> <li>• Rater training</li> <li>• Outreach</li> <li>• Marketing</li> <li>• Inspections and testing</li> <li>• Technical assistance</li> <li>• ENERGY STAR Homes Program labeling</li> </ul>

## Texas

Texas has the second highest residential construction activity in the nation. The Dallas and Houston markets dominate the state's building activity. According to the U.S. Bureau of the Census, 35% of the housing starts are in the Dallas market and 26% in Houston. Texas has one of the most robust housing markets in the nation. The Dallas and Houston markets are dominated by large production builders that build hundreds of homes a year.

The Texas legislature enacted two pieces of legislation that, together, adopted the 2000 International Energy Conservation Code (IECC) as the state's first statewide energy code. The IECC applies in the state's 16 counties that EPA determined was non-attainment in meeting the provisions of the Clean Air Act and 22 other counties identified as "affected counties". It is estimated that these areas compose 70% of the state's new construction activity. There is a movement to allow ENERGY STAR designation as an alternative compliance to the energy code.

A great boost to the ENERGY STAR Homes Program and energy ratings in Texas was the creation of public benefit funds as a result of utility deregulation in the state. With these public benefit funds, the state's largest utilities launched ENERGY STAR Homes program that includes rater training and rebates for building ENERGY STAR Homes. The state's fastest growing community, Frisco, a Dallas suburb, has made the ENERGY STAR standard the local energy code.

In 2001, there were two main providers of ENERGY STAR labeling in Texas, the Houston based Energy Sense Systems and the Oklahoma based Guaranteed Watt Saver Systems. Energy Sense Systems has labeled 324 ENERGY STAR Homes. Guaranteed Watt Saver Systems has labeled 1,898 homes.

Because of the efforts of the Texas utilities and the growth of the Texas market for ENERGY STAR Homes, there has been a dramatic increase in the number of accredited rating providers. Since 1990, there have been 10 new rating providers accredited in the state.

**Table 27. Texas ENERGY STAR Homes Program Certifications**

Year	Housing Permits	Labeled Homes		Percent Inspected/Sampled	
		Number	% of Permits	Inspected	Sampled
2001	146,466	1,365	.9%	48.2%	51.8%

Sources: Environmental Protection Agency, 2002 - U.S. Census Bureau, 2002

The specific features of Texas' ENERGY STAR Homes programs are highlighted below in Tables 28 and 29.

**Table 28. Energy Sense Systems' Program Features**

Program Name	Energy Sense Systems
Territory covered	Austin, Houston, San Antonio, and Waco housing markets
Program sponsor(s)	<ul style="list-style-type: none"> <li>• Reliant Energy</li> <li>• Oncur (formerly TXU)</li> </ul>
Funding source	Inspections and testing of homes
Certification organization name	Energy Sense Systems
Organization structure and features	<ul style="list-style-type: none"> <li>• For-profit residential energy efficiency services provider</li> <li>• RESNET accredited rating provider</li> </ul>
Program history	Energy Sense Systems was started in 1991.
Technical differences / requirements from baseline 86 point standard	None
Value-added services offered	<ul style="list-style-type: none"> <li>• Cooperative marketing</li> <li>• Plan review</li> <li>• Sales staff training</li> <li>• Builder superintendent training</li> <li>• Code compliance review</li> <li>• Testing and inspections for Environments for Living program (insulation utility guarantee program)</li> </ul>
Service costs (to builders and buyers)	An average of \$375 per home inspected and labeled as ENERGY STAR

Incentives offered	<ul style="list-style-type: none"> <li>• Oncur (formerly TXU) offers a rebate of \$300 per ENERGY STAR labeled home.</li> <li>• Reliant Energy in Houston offers a rebate of \$225 per ENERGY STAR labeled home.</li> </ul>
Program funded services	<ul style="list-style-type: none"> <li>• Plan reviews</li> <li>• Inspections</li> <li>• Energy Ratings</li> <li>• ENERGY STAR labeling</li> <li>• Testing and inspections for Environments for Living program (insulation utility guarantee program).</li> </ul>

**Table 29. Guaranteed Watt Saver Systems - West, Inc.'s Program Features**

Program Name	Guaranteed Watt Saver Systems – West, Inc.
Territory covered	Dallas and Houston markets
Program sponsor(s)	<ul style="list-style-type: none"> <li>• Reliant Energy</li> <li>• Oncur (formerly TXU)</li> </ul>
Funding source	Inspections and testing of homes.
Certification organization name	Guaranteed Watt Saver Systems – West, Inc. (GWSSI)
Organization structure and features	<ul style="list-style-type: none"> <li>• For profit corporation,</li> <li>• RESNET accredited rating provider,</li> </ul>
Program history	GWSSI began in 1977. The company took NASA spin-off technology that used a radiant barrier and adapted it to residential energy use. In 1982, Smart House Consultants joined GWSSI to develop nationwide dealerships. These dealerships make this technology and knowledge available to homes in any climate region. In 1996, the Western region was established in Oklahoma and Kelly Parker, a professional engineer, became the President of Guaranteed Watt Saver Systems - West, Inc. The company was recognized in 1997 by the <i>Environmental Protection Agency</i> as the first nationwide program for the construction of <i>Energy Star Homes</i> .
Technical differences / requirements from baseline 86 point standard	None.
Value-added services offered	<ul style="list-style-type: none"> <li>• Residential HVAC design</li> <li>• Energy efficient building specifications</li> <li>• Energy efficiency training</li> </ul>
Service costs (to builders and buyers)	<ul style="list-style-type: none"> <li>• Plan analysis and HVAC sizing - \$0.10 per square foot</li> <li>• Inspection and performance testing - \$300 – 450 per house</li> </ul>
Incentives offered	<ul style="list-style-type: none"> <li>• Oncur (formely TXU) in Dallas offers a rebate of \$300 per ENERGY STAR labeled home.</li> <li>• Reliant Energy in Houston offers a rebate of \$225 per ENERGY STAR labeled home.</li> </ul>
Program funded services	<ul style="list-style-type: none"> <li>• Energy ratings</li> <li>• ENERGY STAR certification</li> </ul>

	<ul style="list-style-type: none"> <li>• Residential HVAC design</li> <li>• Energy efficient building specifications</li> <li>• Energy efficiency training</li> </ul>
--	---

## Utah

According to the U.S. Bureau of the Census, 53% of the housing starts are in the Salt Lake City housing market. The state has a robust housing market.

A unique feature in Utah is the effective partnership that has been forged with the state's Fannie Mae Partnership Office. Besides marketing support, the office is sponsoring a pilot energy efficient mortgage product in conjunction with home energy ratings.

Energy Rated Homes of Utah is the accredited rating provider in the state. Energy Rated Homes of Utah has labeled 1,129 ENERGY STAR Homes.

**Table 30. Utah ENERGY STAR Homes Program Certifications**

Year	Housing Permits	Labeled Homes		Percent Inspected/Sampled	
		Number	% of Permits	Inspected	Sampled
2001	18,275	165	.9%	100%	-0-%

Sources: Environmental Protection Agency, 2002 - U.S. Census Bureau, 2002

The specific features of Utah's ENERGY STAR Homes program are highlighted below in Table 31.

**Table 31. Energy Rated Homes of Utah's Program Features**

Program Name	Energy Rated Homes of Utah
Territory covered	Utah – statewide
Program sponsor(s)	<ul style="list-style-type: none"> <li>• Utah Office of Energy Efficiency</li> <li>• Utah Fannie Mae Partnership Office</li> </ul>
Funding source	<ul style="list-style-type: none"> <li>• Fees for ratings</li> <li>• Grant from State of Utah</li> </ul>
Certification organization name	Energy Rated Homes of Utah
Organization structure and features	<ul style="list-style-type: none"> <li>• Energy Rated Homes of Utah is a program of the Utah Energy Conservation Coalition, a not-for-profit 501 C3 organization.</li> <li>• RESNET accredited rating provider</li> </ul>
Program history	The Utah Energy Conservation Coalition started Energy Rated Homes of Utah with funding from the Utah Office of Energy Efficiency in 1996.
Technical differences / requirements from baseline 86 point	None

standard	
Value-added services offered	<ul style="list-style-type: none"> <li>• Training and certification of raters in Arizona, Montana, New Mexico, and Texas</li> <li>• Utah Green Builder Program</li> </ul>
Service costs (to builders and buyers)	<ul style="list-style-type: none"> <li>• Ratings - \$350</li> <li>• Code compliance documentation - \$40</li> </ul>
Incentives offered	None
Program funded services	<ul style="list-style-type: none"> <li>• Outreach</li> <li>• Marketing</li> <li>• Inspections and testing</li> <li>• Technical assistance</li> <li>• Energy ratings</li> <li>• ENERGY STAR Homes Program labeling</li> </ul>

## Wisconsin

According to the U.S. Bureau of the Census, 18% of the housing starts are in the Milwaukee housing market and 13% in the Madison market. The state's housing market is robust. The state's housing market is dominated by small-scale custom homebuilders. Sixty percent (60%) of the builders in the state construct less than ten homes a year. There are only a few builders that build over a hundred homes a year and they are concentrated in the Milwaukee and Madison markets.

The drive for ENERGY STAR Homes in the state is the Wisconsin ENERGY STAR Homes Program funded with utility public benefit funds and administered by the Wisconsin Energy Conservation Corporation. The program features rebates for ratings and the purchase of ENERGY STAR labeled homes.

Wisconsin Home Performance is the accredited rating provider in the state. The program has labeled 747 ENERGY STAR Homes.

**Table 32. Wisconsin ENERGY STAR Homes Program Certifications**

Year	Housing Permits	Labeled Homes		Percent Inspected/Sampled	
		Number	% of Permits	Inspected	Sampled
2001	35,358	488	1.4%	100%	-0-%

Sources: Environmental Protection Agency, 2002 - U.S. Census Bureau, 2002

The specific features of Wisconsin's ENERGY STAR Homes program are highlighted below in Table 33.

**Table 33. Wisconsin ENERGY STAR Homes' Program Features**

Program Name	Wisconsin ENERGY STAR Homes
--------------	-----------------------------

Territory covered	Wisconsin – statewide
Program sponsor(s)	<ul style="list-style-type: none"> <li>• Wisconsin Energy Bureau</li> <li>• Wisconsin Energy Conservation Corporation</li> </ul>
Funding source	<ul style="list-style-type: none"> <li>• Public benefit funds</li> <li>• Fees from rating services</li> </ul>
Certification organization name	Wisconsin Home Performance
Organization structure and features	<ul style="list-style-type: none"> <li>• Wisconsin Home Performance is a program of the Wisconsin Energy Conservation Corporation, a not-for-profit organization,</li> <li>• RESNET accredited rating provider.</li> </ul>
Program history	The Wisconsin Home Performance rating program was started in July 1996 with funding from the state energy office. The Wisconsin ENERGY STAR Homes program began in February 1999 with utility public benefit funding.
Technical differences / requirements from baseline 86 point standard	<p>In addition to a HERS score of 86.0 points or higher, the Wisconsin ENERGY STAR Homes Program requires:</p> <ul style="list-style-type: none"> <li>• Continuous and durable air barrier</li> <li>• Minimum exhaust flow ventilation</li> <li>• Dedicated exhaust ventilation for electric and gas kitchen ranges</li> <li>• Exhaust ventilation of bathroom fans to the exterior if the home has a centrally ducted ventilation system with an exhaust pickup in bathrooms</li> <li>• No un-vented combustion appliances including un-vented fire places are allowed</li> <li>• Sealed or power ventilated heating and hot water systems.</li> <li>• Installation of a carbon monoxide detector</li> </ul>
Value-added services offered	<ul style="list-style-type: none"> <li>• Wisconsin ENERGY STAR Homes Program</li> <li>• Fannie Mae Energy Efficiency Non-Recourse Consumer Loan Program - WECC runs a very successful consumer loan program offered by Fannie Mae. The program finances the installation of energy improvements.</li> </ul>
Service costs (to builders and buyers)	<ul style="list-style-type: none"> <li>• Ratings - \$350</li> </ul>
Incentives offered	Certification of ENERGY STAR Home – The price ranges from \$750 - \$1,000. \$520 of the cost is funded with public benefit funds, resulting in the builder paying between from \$250 to \$300.
Program funded services	<ul style="list-style-type: none"> <li>• Outreach</li> <li>• Marketing</li> <li>• Inspections and testing</li> <li>• Technical assistance</li> <li>• ENERGY STAR Homes Program labeling</li> <li>• Rater training</li> <li>• Program administration</li> </ul>

### **III. Key Findings**

The key finding from this study is that there is no single “silver bullet”, a strategy that will guarantee a success of an ENERGY STAR Homes program. Such key factors as the dynamics of a state’s housing market, resources available for market intervention, and climate and influences how the program and the amount of time it takes to achieve significant market penetration.

In the review of the ENERGY STAR programs covered in this study, RESNET has a number of observations that the Joint Management should consider in its evaluation of its ENERGY STAR program and in designing future efforts.

These findings are:

#### **Market Intervention**

The most successful ENERGY STAR programs benefited from initial market intervention. This intervention includes:

- Free design assistance and marketing assistance from the U.S. Department of Energy’s Building America Program (Arizona, Florida, Nevada).
- Initial marketing support in terms of cooperative advertising from EPA (Arizona, Indiana, Nevada, Texas)
- Utility public benefit funded rebate programs for ENERGY STAR labeled homes (California, Florida, Iowa, Louisiana, Texas, and Wisconsin)
- Reduced mortgage interest rates for Five Star rated homes (Alaska)
- State energy office support in launching energy rating infrastructure (Alaska, Florida, Indiana, Iowa, Louisiana, Nevada, Ohio, Utah, and Wisconsin)

In the housing markets of Phoenix and Las Vegas, enough production builders have recognized that with the market differential value of ENERGY STAR labeled homes, little additional market intervention is required. The programs in these markets target production builders that have large track developments and use sampling of ratings.

#### **Regional Differences**

Outside of Alaska, the greatest market penetration of ENERGY STAR labeled homes is in the Southwest. When comparing the success of the ENERGY STAR programs in New England and the Southwest, one must be aware of the regional differences. These differences include both the housing market characteristics and climate.

#### **Regional Housing Market Difference**

The Southwest region's housing markets are dominated by large production builders that construct hundreds of homes a year. This allows an ENERGY STAR labeling program to label a large number of homes and make a significant market penetration through a relatively small number of builders. A comparison of the Phoenix and Massachusetts is illustrative. In Phoenix there were 5,860 ENERGY STAR Homes labeled with 14 builders participating in the program. This averages out to over 418 ENERGY STAR labeled homes per participating builder. In contrast, there were 841 ENERGY STAR Homes labeled in Massachusetts. According to EPA, there are 49 ENERGY STAR builders in the state. This averages out to 17 ENERGY STAR labeled homes per builder.

### Regional Climate Difference

It appears that it is relatively easy to meet the ENERGY STAR standard in heating climates. This observation is triggered by:

- The Model Energy Code window requirements for heating climates are too low and it is easy to pick up rating points for the upgrade of windows. (The 2000 International Energy Conservation Code addresses this issue)
- In cooling climates, the common practice is to oversize air conditioning systems. In 1999, the State of Arkansas completed an evaluation of new construction practices in the state that found that 90% of the homes surveyed had air conditioning systems that were 50% over sized. In this region it is easy to improve a home's energy efficiency and reduce construction costs simply by properly sizing the air conditioning system.
- In Las Vegas and Phoenix, the Building America Program worked with Pulte Homes and other large production builders on roof ventilation design strategies that allow builders to reduce their air conditioning plants by a ton.
- The availability of higher efficiency air conditioning systems is technically available. Since 1993, there has been a virtual revolution in the availability of highly efficient air conditioning. This has made it more economically feasible to gain rating points by installing high efficient systems.

These observations have not been quantified for the Southwest region and further research beyond the scope of this study is warranted.

### Sampling of Ratings

In the states targeted by this study, the largest of numbered of ENERGY STAR Homes labeled, outside of Alaska and Indiana, were labeled through the sampling of ratings. This study did not evaluate the technical accuracy of the sampled of ratings. Outside of technical considerations, sampling offers the following advantages:

- There is a lower cost per home labeled.
- It allows a single firm to label a large number of homes.

- It is not as disruptive to a production builder's construction schedule.

All programs surveyed in this study that use sampling reported, however, that sampling will not work with every builder. In the programs surveyed that employ sampling, the following common attributes were observed:

- The builder must be a large production firm that is committed to total quality management.
- The entire firm, from senior management to construction superintendents, must be trained and committed to the project.
- The production builder must have a track record with high performance energy efficient homes. A great majority of builders participating in sampling programs had a track record of performance through the Building America Program (Arizona, Nevada) or a utility sponsored residential energy efficient construction program (Arizona, Florida, Iowa, Texas).

The State of California has developed regulation regarding the sampling of ratings. These regulations serve as an interesting model in considering sampling.

### **Fannie Mae Partnership Offices**

Fannie Mae has established partnership offices in most of the housing markets in the nation. The mission of these offices is to increase home ownership opportunities by meeting underserved housing needs through the development of innovative partnerships at the local level. A priority of the Fannie Mae Partnership Offices is energy efficiency with green building practices. Programs in the states of Alabama, Florida, Indiana, New Mexico, Ohio and Utah have developed partnerships with their Fannie Mae offices. This has resulted in marketing support and pilot energy mortgage products to meet their markets' needs. In developing its future efforts, it is well worth the Joint Management Team's time in exploring a partnership with the appropriate Fannie Mae Partnership Office.

### **Parade of Homes Events**

In the states of Alaska, Arizona, Indiana, and Utah, the ENERGY STAR labeling programs found a very cost-effective marketing strategy of tying the ENERGY STAR program into the local homebuilder association parade of homes.

### **Recruiting Lenders to Offer Closing Cost Discounts**

Mark Jansen has experienced success in Indiana by including a builder's preferred mortgage lender in the meetings with builders on the ENERGY STAR Homes Program. He has been successful in not only signing up the builder, but also recruiting the builder's lender to offer to pay for the rating or offer a closing

cost discount for ENERGY STAR labeled homes. This creates a market differential both for the builder and the lender.

# **Appendix I**

## **State and Program Information**

# I. Alaska

## General State Information

### State Energy Code Baseline

The State of Alaska's residential energy standard is the Building Energy Efficiency Standard (BEES). The Department of Energy reports that BEES exceeds the 1995 version of the Model Energy Code. The State of Alaska recognizes a rating of 83 points or greater as meeting BEES' energy efficiency requirement.

### Number of Housing Starts in State in 2001

According to the U.S. Census Bureau, there were permits issued in 2001 for the construction of 2,935 housing units.

### Number of Homes Labeled as ENERGY STAR in 2001

1,103

### % of New Homes Certified as ENERGY STAR in 2001

38.0%

### Total Number of Builders in State

According to the State of Alaska's Occupational Licensing Division, there are 931 residential builders in the state.

### Housing Market Dynamics

Most of the residential construction activity in the state of Alaska takes place in the Anchorage housing market (67% of housing starts in the state). The Alaska Housing Finance Corporation is the largest source of mortgage financing. The housing market in Alaska is relatively slow with very few spec homes being constructed.

## Certification Programs Information

## **Energy Rated Homes of Alaska**

### Territory Covered:

Statewide

### Program Sponsors

- Golden Valley Electric

### Funding Sources

- U.S. Department of Energy grant
- Proceeds from Fannie Mae non-recourse energy efficiency loan program

### Certification Organization Name

Energy Rated Homes of Alaska, Inc.

### Organization Structure and Features

Organization is a 501 C 3 non-profit corporation. Energy Rated Homes of Alaska is accredited by RESNET's Mortgage Industry National Home Energy Rating System Accreditation Procedures.

ERHAK trains, certifies and provides quality control of energy raters. Energy raters are private contractors who can demonstrate a background in building science by completing the Alaska Craftsman Home Program training course. Alaska Craftsman Home Program is a non-profit organization that provides housing industry training on building science.

### Brief Program History

Organized in 1985, ERHAK is the longest operating statewide home energy rating system in the nation. The program began as a public/private partnership between the State of Alaska and the mortgage and housing industry. In 1994 ERHAK was selected by the U.S. Department of Energy to participate in the Home Energy Rating System Pilot Program. In 1995, the organization was selected by Fannie Mae and Freddie Mac to participate in the national energy efficient mortgage program. In 1995, ERHAK was the first rating program to sign a partnership agreement with the Environmental Protection Agency to participate in the ENERGY STAR Homes Program. Alaska state law recognizes ERHAK ratings as a compliance option to the state residential energy standard.

Builder participation in the program has been reduced with the introduction of the competing AkWarm rating program by Alaska Housing Finance Corporation (AHFC), a state-owned housing finance agency. AHFC offers free ratings and reduced interest financing for Five Star rated homes.

### Technical Differences from Baseline HERS 86.0 Points

ERHAK uses the REM/Rate rating software program. REM/Rate complies with the National Association of State Energy Officials (NASEO) National Home

Energy Rating Technical Guidelines. ERHAK uses the HERS baseline of 86.0 points for certification of ENERGY STAR Homes.

#### Types and Percentage of Ratings Performed

Individually rated homes 100%

#### Use of Sampling and BOPS

ERHAK does not use sampling or BOPS for certifying ENERGY STAR Homes. ERHAK requires an inspection and blower door testing of all homes and issues ENERGY STAR label upon the home receiving a score of 86.0 or more.

#### Quality Assurance Procedures

ERHAK complies with the RESNET Mortgage Industry National Home Energy Rating System Accreditation Procedures. The national accreditation procedures require, at a minimum, a desk review of ratings and a field evaluation of raters and ratings where problems are identified.

#### Number of ENERGY STAR Homes Labeled by Program

Total Number of Homes Labeled: 968

Number Labeled in 2001: -0-

#### Expected Participants in 2002

25

#### Number of Builders Participating in Program

4

#### Program Funded Services

- Ratings of Homes
- Consumer non-recourse energy improvement loans
- Marketing

#### Service Costs

ERHAK does not charge a fee to builder or consumer. Certified raters charge for their inspections. Costs range from \$195 – 300.

#### Value-Added Services

- Annual Governor's Award for the most energy efficient homes in the parade of homes sponsored by the homebuilder associations in the state's three largest housing markets.
- Consumer non-recourse energy improvement loans.

#### Incentives/Rebates Offered

None

### Steps Taken to Reduce Program Costs

Combined administrative operations with Energy Rated Homes of Nevada.

### Successful Program Elements

- First statewide home energy rating program.
- Successful partnership with Alaska Mortgage Bankers Association and Alaska State Homebuilders Association.
- First rating program to be linked into energy standard compliance

### Marketing Elements

#### Targeted to Builders

- Annual Governor's Award for Most Efficient Home in Parade of Homes

#### Targeted to Consumers

- Booth at home shows in state's largest housing markets
- Rating of homes at homebuilder parade of homes

### Manufacturer Cost-Sharing/Co-sponsoring of Program Elements

None

### Lessons Learned

- Difficult to compete with state agency providing rating services and ENERGY STAR labeling.
- Lost builder demand when the Alaska Housing Finance Corporation developed their own rating program to drive the agency's Energy Efficiency Interest Rate Reduction Program.

### Program Theory

Not available

## **Alaska Housing Finance Corporation**

### Territory Covered:

Statewide

### Program Sponsors

- Alaska Housing Finance Corporation

### Funding Sources

- AHFC loan proceeds

### Certification Organization Name

Alaska Housing Finance Corporation

### Organization Structure and Features

AHFC is a state-owned housing finance agency. AHFC is not accredited by RESNET's Mortgage Industry National Home Energy Rating System Accreditation Procedures. It labels ENERGY STAR Homes by being grandfathered by EPA as an "equivalent provider". For a description of equivalent providers see EPA/RESNET Agreement on Builder Option Packages at <http://www.natresnet.org/bop/agreement.htm>.

AHFC funds the purchasing of homes with tax-exempt revenue bonds. AHFC's energy rating activities include:

- Recruit, train and certify raters.
- Quality control of ratings.
- Development of AkWarm rating software program.
- Interest rate reduction for energy efficient homes.

### Brief Program History

Created in 1995 to provide verification of the agency's energy efficiency interest rate reduction program and compliance to the state energy standard, the program is operated by the state agency. It is used to drive energy efficient home interest rate reduction program and to document homes financed meets the State of Alaska Building Energy Efficiency Standard (BEES). The program is not accredited by a national accreditation body.

### Technical Differences from Baseline HERS 86.0 Points

AHFC uses the AkWarm rating software program that was developed by the agency. The program does not comply with the National Association of State Energy Officials (NASEO) National Home Energy Rating Technical Guidelines. AkWarm's baseline for certification of ENERGY STAR Homes equates to 88.0 on the national HERS baseline.

### Types and Percentage of Ratings Performed

Individually inspected homes: 100%

### Use of Sampling and BOPS

AHFC does not use sampling or BOPS for certifying ENERGY STAR Homes. AHFC requires an inspection and blower door testing of all homes and issues ENERGY STAR label upon the home receiving a five star rating based on the AkWarm rating software program.

### Quality Assurance Procedures

AHFC issues the AkWarm rating software program to certified raters. The raters produce their own rating certificates and send completed ratings to AHFC for record keeping. AHFC investigates complaints on rater performance.

### Number of ENERGY STAR Homes Labeled by Program

Total Number of Homes Labeled: 4,156

Number Labeled in 2001: 1,445

### Expected Participants in 2002

1,500

### Number of Builders Participating in Program

Five builders have signed up as ENERGY STAR builder allies. EPA has agreed to accept a Five Star rating from AHFC even if the builder is not an EPA ally.

### Program Funded Services

- Ratings
- AkWarm rating software program
- Interest reduction for energy efficient homes

### Service Costs

AHFC does not charge a fee to builder or consumer. Certified raters charge for their inspections. Costs range from \$195 – 300.

### Value-Added Services

- Interest rate reduction program for homes rated as Five Stars
- Demonstrate compliance to state energy standard.

### Incentives/Rebates Offered

Energy Efficiency Interest Rate Reduction Program

It can offer from .125% to .375% interest rate reduction for homes that are financed by AHFC and receive an AkWarm rating of Five Stars or better.

### Steps Taken to Reduce Program Costs

Give AkWarm rating software program to raters and allow them to issue rating reports.

### Successful Program Elements

- Linked into energy standard compliance
- Energy Efficiency Interest Rate Reduction Program
- AHFC absorbs all administrative and marketing costs of program

### Marketing Elements

#### Targeted to Builders

- Workshops at builder association conventions.

#### Targeted to Consumers

- Booth at home shows in state's largest housing markets

### Manufacturer Cost-Sharing/Co-sponsoring of Program Elements

None

### Lessons Learned

- Offering a lower interest rate for Five Star Homes creates demand by consumers.
- Linking energy ratings to energy standard compliance creates foundation by which builder can achieve a Five Star rating.

### Program Theory

Not available

## II. Arizona

### General State Information

#### State Energy Code Baseline

The Arizona legislature has enacted legislation that adopts the 2002 version of the International Energy Conservation Code as a voluntary standard

#### Number of Housing Starts in State in 2001

According to the U.S. Census Bureau, there were permits issued in 2001 for the construction of 58,943 housing units.

#### Number of Homes Labeled as ENERGY STAR in 2001

6,990

#### % of New Homes Certified as ENERGY STAR in 2001

12.0%

#### Total Number of Builders in State

There are 6,364 firms licensed by the State of Arizona to undertake residential construction.

#### Housing Market Dynamics

Phoenix is the largest housing market in the state. The U.S. Census Bureau reports that in 2001, 73% of housing starts took place in the Phoenix housing market. Phoenix has one of the most robust housing markets in the nation. The Phoenix housing market, like most of the dynamic housing markets in the Southwest, is dominated by large production builders who build more than a thousand homes a year.

### Certification Program Information

## **D.R. Wastchak, L.L.C.**

### Territory Covered:

Phoenix area

### Program Sponsors

- U.S. Department of Energy Building America Program
- EPA ENERGY STAR Homes Program
- Southwest Gas
- Engineered for Life
- Environments for Living

### Funding Sources

- Rating fees charged to builders
- Inspection fees from Building America Program

### Certification Organization Name

D.R. Wastchak, L.L.C.

### Organization Structure and Features

D.R. Wastchak, L.L.C. is a for-profit corporation. The company conducts plan reviews, inspects homes, and issues ENERGY STAR labels. The company also works with area utilities and EPA in ENERGY STAR marketing. D.R. Wastchak, L.L.C. is not accredited by RESNET's Mortgage Industry National Home Energy Rating System Accreditation Procedures. The company reports that it is in the process of developing its application form.

### Brief Program History

The Energy Star Homes program was managed by Dr. Howard Bashford, Dr. Ken Walsh, and Daran Wastchak of Arizona State University from 1995 through 1999 under a grant from EPA. In the spring of 1999, D.R. Wastchak, L.L.C. was founded to assume responsibility for managing the EPA's ENERGY STAR Program in the Phoenix metropolitan area. As an Energy Star Ally partner, D.R. Wastchak, L.L.C. recruits builders, provides HERS ratings to determine Energy Star compliance, coordinates EPA Energy Star certification as well as marketing and sales support, and assists with Energy Efficient Mortgage (EEM) financing. Additionally, D.R. Wastchak, L.L.C. provides certified HERS ratings for existing home refinancing and improvements, consulting to home builders on proper building techniques in accordance with Building Science principles, and forensic evaluations of homes to determine the source of comfort, health, and house performance problems. Finally, as a consortium member in the U.S. Department of Energy's Building America program, D.R. Wastchak, L.L.C. works closely with Building Science Corporation on the evaluation of various field diagnostic techniques.

### Technical Differences from Baseline HERS 86.0 Points

Standard “as-design” homes in Phoenix score 83 to 84 on the HERS rating score. An example of a home that meets this score has: stucco, slab on grade, dual pane aluminum windows, approximately 15% glazing, SEER 10 a/c, 80 AFUE furnaces, R-13 walls and R-30 attics. Typical ENERGY STAR homes (with no more than 15% glazing) require SEER 11 a/c with Low E aluminum windows or SEER 12 a/c with bronze tint aluminum windows.

Types and Percentage of Ratings Performed

**ENERGY STAR ratings**

Individually inspected homes: 12.5%  
 Random sampled homes: 87.5%

**Building America ratings**

Individually inspected homes 10.7%  
 Random sampled homes 89.3%

Use of Sampling and BOPS

D.R. Wastchak, L.L.C. uses the EPA random sampling protocol for large production builders that involve rating one of seven homes of each of the models the builder builds in a subdivision. Smaller and custom builders must have every home rated.

Quality Assurance Procedures

EPA sampling protocol, i.e. 15% testing, on large subdivisions. Duct Blaster testing at HVAC rough-in, visual inspection of ENERGY STAR components, and blower door testing prior to issuing ENERGY STAR label.

Number of ENERGY STAR Homes Labeled by Program

Total Number of Homes Labeled: 14,817  
 Number Labeled in 2001: 5,860

Expected Participants in 2002

7,200 homes

Number of Builders Participating in Program

14 Builders

The number of builders participating in ENERGY STAR in the Phoenix housing market under represents the penetration of the program. Large production builders dominate the Phoenix housing market. What is significant is the number of ENERGY STAR Homes that were built by participating builders:

<u>Builder</u>	<u># of Subdivisions</u>	<u># of E STAR Homes</u>
Astante Luxury Communities	2	74
Beazer Homes	23	3,151
Centex Homes	4	446

Continental Homes	34	5,017
Countrywalk Homes	2	77
Golden Heritage Homes	4	444
Hacienda Builders	17	1,354
Pulte Homes	17	1,629
Republic Homes	1	108
Royce Homes	1	122
Shea Homes	2	293
Trend Homes	8	1,570
US Homes	1	154
VIP Homes	4	378
Total	120	14,817

Program Funded Services

- Labeling of ENERGY STAR Homes.
- Testing and inspections for Engineered for Life and Environments for Living programs (insulation utility guarantee programs).
- Plans evaluation.
- Diagnostic investigations for problem homes.
- Research for Building America Program.
- Sales and marketing training and building science seminars.
- Home energy ratings for energy improvement mortgages.

Service Costs

\$250 - \$300 per home tested.

Value-Added Services

- Testing and inspections for Engineered for Life and Environments for Living programs (insulation utility guarantee programs).
- Plans evaluation.
- Diagnostic investigations for problem homes.
- Research for Building America Program.
- Sales and marketing training and building science seminars.
- Home energy ratings for energy improvement mortgages.

Incentives/Rebates Offered

None

Steps Taken to Reduce Program Costs

- Sampling of ratings.
- Linking with insulation manufacturer utility bill guarantee programs.
- Linking with the U.S. Department of Energy's Building America program.

## Successful Program Elements

- Recruiting Large Production Builders to Participate in the ENERGY STAR Program – The Phoenix housing market, like many markets located in the Southwest, is dominated by large production builders. D.R. Wastchak, L.L.C. has been highly successful working with the EPA ENERGY STAR Homes Program and Southwest Gas Corporation in recruiting large production builders such as Beaver Homes, Continental Homes, and Pulte Homes to each build over a thousand ENERGY STAR labeled homes in a number of subdivisions.
- Allying with the U.S. Department of Energy's Building America Program – Thirty-nine percent (39%) of the homes that were labeled as ENERGY STAR were labeled through the Building America Program. The Building America Program provides design assistance to targeted builders to build homes that are highly energy efficient but do not require significant additional construction costs. Under the program, the U.S. Department of Energy pays for the energy inspection of the participating builder homes.
- Linking with Insulation Manufacturer Utility Bill Guarantee Programs – The firm has developed innovative partnerships with the Engineered for Life and Environments for Living programs. These partnerships tied into the insulation manufacturers' marketing effort and resulted in seven builders building 2,956 ENERGY STAR labeled homes in 29 subdivisions. Twenty percent (20%) of the ENERGY STAR Homes labeled by D.R. Wastchak, L.L.C. participated in the two utility guarantee programs.
- Aggressive Marketing – D.R. Wastchak, L.L.C. undertakes an aggressive marketing effort. This includes training of participating builders' marketing staff. See below for more details.
- Random Sampling of Ratings – D.R. Wastchak, L.L.C. credits the success of recruiting large production builders to the use of the EPA's ENERGY STAR random sampling protocol. The company focuses on ten large production builders that allow it to educate and develop comfort with each builder's subcontractors.

## Marketing Elements

### Targeted to Builders

- Training of participating builders' marketing staff. D.R. Wastchak, L.L.C. conducts training for the participating marketing departments on the benefits of ENERGY STAR homes and how to market the benefits to consumers.
- D.R. Wastchak, L.L.C. also provides building science training to builders.

### Targeted to Consumers

- D.R. Wastchak, L.L.C., along with Southwest Gas Corporation, participated in an EPA funded ENERGY STAR Homes marketing effort in 2001. This effort included a parade of homes featuring ENERGY STAR

labeled homes in the Phoenix market and cooperative advertising in the newspaper.

Manufacturer Cost-Sharing/Co-sponsoring of Program Elements

None

Lessons Learned

One rater provides 98% of all support for ENERGY STAR builders including recruitment of builder participants, plan evaluations, testing & inspections, labeling of homes, customer service, and working with builders to market program to consumers.

Program Theory

D.R. Wastchak, L.L.C.'s program theory is contained in a presentation given at the 2002 RESNET Conference. The presentation is posted at [www.natresnet.org/conference/2002/presentations/Wastchak.pdf](http://www.natresnet.org/conference/2002/presentations/Wastchak.pdf).

## **Tucson Electric Power Company**

### Territory Covered:

Tucson Electric distributes power from five modern plants in Tucson, east-central and northern Arizona and in northwestern New Mexico.

### Program Sponsors

- Tucson Electric Power Company

### Funding Sources

- Rate based

### Certification Organization Name

Tucson Electric Power

### Organization Structure and Features

Investor owned electric utility. Tucson Electric Power is not accredited by RESNET's Mortgage Industry National Home Energy Rating System Accreditation Procedures. It has been grandfathered by EPA as an "equivalent program" by EPA.

### Brief Program History

Electric power came to Tucson in the 1880s, but it wasn't until 1892 that a handful of business and community leaders formed a company that grew into the enterprise of known today as Tucson Electric Power Company.

The ENERGY STAR labeling program is an outgrowth of Tucson Electric Power's Good Cents program. Today it is called Tucson Electric Power Guarantee Home Program.

### Technical Differences from Baseline HERS 86.0 Points

Tucson Electric Power uses BOPS developed by the Environmental Protection Agency. The BOPS are supposed to meet the HERS score of 86.0 points in a "worse case" energy configuration.

### Types and Percentage of Ratings Performed

Individually inspected BOPS: 100%

### Use of Sampling and BOPS

Tucson Electric Power uses BOPS only to label ENERGY STAR Homes. It inspects every home and does not use random sampling.

### Quality Assurance Procedures

Tucson Electric Power inspectors inspect the homes three times during the construction phase. The third inspection includes diagnostic testing.

Number of ENERGY STAR Homes Labeled by Program

Total Number of Homes Labeled: 938

Number Labeled in 2001: 462

Expected Participants in 2002

500

Number of Builders Participating in Program

47

Program Funded Services

The Tucson Electric Power Guarantee Home Program offers an energy efficiency utility guarantee program. The program features a written three-year guarantee of utility bills labeled by the program.

Service Costs

No cost of builder.

Value-Added Services

- The Tucson Electric Power Guarantee Home Program

Incentives/Rebates Offered

- Written three-year utility bill guarantee for Tucson Electric Power Guarantee Home Program labeled homes.
- Lowest residential electric rate for all of the electricity the occupants uses for the life of the home.

Steps Taken to Reduce Program Costs

Not available

Successful Program Elements

- Written utility bill guarantees for three years.

Marketing Elements

Targeted to Builders

- Web site

Targeted to Consumers

- Web site

Manufacturer Cost-Sharing/Co-sponsoring of Program Elements

None

Lessons Learned  
Not available

Program Theory  
Not available

## **Energy Advantage Plus**

### Territory Covered:

Tucson.

### Program Sponsors

- Southwest Gas

### Funding Sources

- Rate based

### Certification Organization Name

Southwest Gas

### Organization Structure and Features

Southwest Gas is an investor owned gas utility. Southwest Gas is not accredited by RESNET's Mortgage Industry National Home Energy Rating System Accreditation Procedures. The Energy Advantage Plus program has been identified by EPA as an "equivalent program".

### Brief Program History

Southwest Gas created the Energy Advantage Plus Program in 1994. In 2000 it adopted ENERGY STAR standards for certification of their homes.

### Technical Differences from Baseline HERS 86.0 Points

The Energy Advantage Plus program uses the REM/Rate rating software program. REM/Rate complies with the National Association of State Energy Officials (NASEO) National Home Energy Rating Technical Guidelines. The program uses the HERS baseline of 86.0 points for certification of ENERGY STAR Homes.

### Types and Percentage of Ratings Performed

Individually inspected ratings	36%
Random sampled ratings	64%

### Use of Sampling and BOPS

Southwest Gas uses the EPA random sampling protocol for labeling ENERGY STAR Homes.

### Quality Assurance Procedures

Southwest Gas employees conduct the ratings.

### Number of ENERGY STAR Homes Labeled by Program

Total Number of Homes Labeled: 179

Number Labeled in 2001: 164

Expected Participants in 2002

175

Number of Builders Participating in Program

Not available

Program Funded Services

Southwest Gas offers free ratings to builders participating in their Energy Advantage Plus program.

Service Costs

There is no charge to participating builders

Value-Added Services

- Energy Advantage Plus label and marketing support.

Incentives/Rebates Offered

Free ratings.

Steps Taken to Reduce Program Costs

Not available

Successful Program Elements

- Free ratings.

Marketing Elements

Targeted to Builders

- Web site

Targeted to Consumers

- Web site

Manufacturer Cost-Sharing/Co-sponsoring of Program Elements

None

Lessons Learned

Not available

Program Theory

Not available

## III. California

### General State Information

#### State Energy Code Baseline

The California energy code baseline is Title 24, which was developed and adopted by the California Energy Commission. Title 24 is more stringent than the 2000 version of the International Energy Conservation Code.

Title 24 allows credit for the diagnostic testing of envelope air tightness and ducts through a state certified home energy rating provider.

#### Number of Housing Starts in State in 2001

According to the U.S. Census Bureau, there were permits issued in 2001 for the construction of 143,544 housing units.

#### Number of Homes Labeled as ENERGY STAR in 2001

1,296

#### % of New Homes Certified as ENERGY STAR in 2001

1%

#### Total Number of Builders in State

There is no central licensing in California for residential builders. The California Building Industry Association reports that it has 5,478 members. The National Association of Home Builders reports that nationally, builders represent 31% of the membership of builder associations.\* The remaining membership is composed of associate members. Applying this percentage, it can be estimated that there are 1,698 builder members in the state.

\* NAHB DataCard, October 2001

#### Housing Market Dynamics

California is the third largest state in terms of housing starts. According to the U.S. Bureau of the Census, 40% of the housing starts were in the Los Angeles-Orange County – Riverside County housing market, sixteen percent (16%) in the San Francisco – Oakland – San Jose market, thirteen percent (13%) in the Sacramento market, and eleven percent (11%) in the San Diego market. In these markets, large production builders that construct hundreds of homes a year drive the housing.

A difficulty in the California housing market is the lack of affordable housing. The costs of buying a home in such markets as the San Francisco, Silicon Valley, and

San Diego housing market are beyond the means of most middle-and-lower income families.

A unique factor with the home energy rating market in California is that state law regulates home energy rating providers. California law requires that a home energy rating provider must be certified by the California Energy Commission. The commission's regulations forbid providers from providing direct rating services. To date, the California Home Energy Efficiency Rating System has been certified by the State. The California home energy rating regulations are posted at <http://www.energy.ca.gov/HERS/>.

### **Certification Program Information**

## **California Home Energy Efficiency Rating System (CHEERS)**

### Territory Covered:

Statewide

### Program Sponsors

- Pacific Gas and Electric
- Southern California Edison
- Southern California Gas
- San Diego Gas and Electric
- Sacramento Utility District

### Funding Sources

- Rating processing and quality control fees charged to builders
- Utility memberships
- Rater training
- Utility contracts

### Certification Organization Name

California Home Energy Efficiency Rating System (CHEERS)

### Organization Structure and Features

CHEERS is a statewide 501 c3 non-profit corporation. Its mission is to promote residential energy efficiency through the development and implementation of a uniform, statewide, market-driven home energy rating and labeling system, to include related public education, and facilitating the means to finance energy efficiency measures.

CHEERS is accredited by RESNET's Mortgage Industry National Home Energy Rating System Accreditation Procedures.

### Brief Program History

CHEERS was formed in October 1990 by a consortium of energy efficiency stakeholders, including utility companies, governmental agencies, and consumer advocacy groups. In 1990, CHEERS became the first rating provider certified by the California Energy Commission under the State of California Home Energy Rating System regulations. CHEERS became accredited by RESNET in August 2001.

### Technical Differences from Baseline HERS 86.0 Points

The State of California Home Energy Rating System regulations require that rating software programs comply with the California Low-Rise Residential Alternative Calculation Method (ACM). RESNET has completed an analysis of the differences between the requirements in the National Home Energy Rating Technical Guidelines and ACM. The report can be downloaded at [www.natresnet.org/tax\\_credit\\_software.pdf](http://www.natresnet.org/tax_credit_software.pdf).

The California rating regulations also require a different rating method than the National Home Energy Rating Technical Guidelines. This involves a source based rating and using the California Energy Code as the reference house.

Beginning January 1, 2002, qualifying levels for ENERGY STAR labeled homes within the state of California will be referenced to the state energy code as embodied in the latest Title-24 requirements (effective June 1, 2001). Upon that date, any home that is 15 percent above the 2001 Title-24 Energy Efficiency Standards for its relevant climate zone is eligible for ENERGY STAR certification, provided:

1. The energy budget for the home is calculated using California Energy Commission-approved computer method.
2. The home is verified using a home energy rating system (HERS) approved by the California Energy Commission (i.e., California Home Energy Efficiency Rating System). This verification may also use an approved sampling process per California Energy Commission rules.

#### Types and Percentage of Ratings Performed

Individually rated homes: 2.4%  
Sampled homes: 97.6%

#### Use of Sampling and BOPS

The State of California Home Energy Rating System regulations provide for sampling of ratings. The California sampling procedures are more stringent than the Environmental Protection Agency's ENERGY STAR Homes protocols. Following are the key points of the State of California's sampling procedures:

- Rating providers are prohibited from completing ratings.
- One out of seven homes must be physically rated and diagnostic tested.
- The homes to be sampled must be located in the same subdivision.
- Builder selects the group of homes to be included in the batch. The rating provider selects the homes to be tested.
- When any subcontractor is changed, the sampling stops.
- If there are two failures on the sampled homes, all homes in group are physically rated.
- Rating providers are required to maintain a data base of sampled ratings and annually submit the data base to the California Energy Commission for evaluating the effectiveness of field verification and diagnostic testing

#### Quality Assurance Procedures

The California energy rating regulations require the following quality assurance provisions:

- Initial Review – The provider shall review and approve for accuracy and completeness the field verification and diagnostic testing documentation for at least the first five homes which a rater performs after the completion of the rater training and certification.
- Field Checks of Raters – For each rater, the provider shall annually evaluate the greater of one home or one percent of the rater’s annual total of homes. The provider shall independently repeat the field verification and diagnostic testing to check whether field verification and diagnostic testing was accurately completed by the rater.
- Complaint Response System – Each provider shall have a system for receiving complaints. The provider shall respond to and resolve complaints.

CHEERS Quality Assurance Program (QA) features:

- Electronic File QA Analysis – Involves comparing the field input worksheets with actual computer input. The purpose is to ensure that the information collected from the site is being accurately inputted and that the correct protocols for field data are followed. The required number of filed QA inspections depends upon the rater’s QA classification.
- Field QA Analysis – Involves a CHEERS staff visiting a home that has already been rated. The purpose is to ensure that the field data collection is accurate and that the correct protocols were followed.
- Customer Questionnaire – Is mailed to each consumer along with the rating certificate. Customer response summaries are periodically sent to raters.
- Customer Phone Survey – Randomly checks the way a specific rater represents himself and the CHEERS program.
- Customer complaints – A CHEERS staff member is responsible for handling and responding to complaints and deciding on the appropriate course of action. Depending upon the type of complaint and the severity, a customer complaint may trigger more extensive quality control procedures, and could ultimately affect the rater’s classification and certification.

Each CHEERS rater is assigned a quality control classification. This classification is based upon the number and level of quality of ratings performed:

- Level 1 Rater – Completed the rater training and passes the examination.
- Level 2 Rater – Is a Level 1 Rater and has had his or her first 5 ratings reviewed and approved.
- Level 3 – Is a Level 2 Rater and has completed an additional 50 ratings without significant quality control problems or consumer complaints.
- Level 4 Rater – Has completed 100 ratings without significant quality control problems or consumer complaints.

Frequency of Quality Assurance Inspections:

- Level 1 Rater – 100% of File QA, at least 40% Field QA, and at least 40% Phone QA.
- Level 2 Rater – 20% File QA, at least 10% Field QA, and at least 10% Phone QA.
- Level 3 Rater – 10% File QA, at least 5% Field QA, and at least 5% Phone QA.
- Level 4 Rater – 5% File QA, at least 2% Field QA, and at least 5% Phone QA.

Number of ENERGY STAR Homes Labeled by Program

Total Number of Homes Labeled: 2,366

Number Labeled in 2001: 1,346

Expected Participants in 2002

12,000

Number of Builders Participating in Program

78

Program Funded Services

- Rater training
- Rating Processing
- Rater quality control
- Marketing
- Training lenders

Service Costs

**DEFINITION OF FEES:**

**1) Registry Subscription Fee:** Required annual fee to establish and maintain a Subscriber Account with CHEERS. This fee covers general network access and maintenance for the Primary Registry Subscriber only. The fee provides for listing Subscribers by category and forms the basis for any CHEERS referrals as described in the CHEERS Registry Referral Policy.

**2) Registry User Fee:** Required annual fee for additional Registry Users to an established Subscriber Account. This fee covers the administration of the Users on the network.

**3) Title-24 or Energy Star Fee:** Charged on a per transaction basis for either of the following:

1. Rating Processing Only – C-HERS Evaluation and Verification Includes:
  - CHEERS Rating Completion Summary
  - CHEERS Rating Certificate
  - EPA Notification of compliance with Energy Star Homes Program requirements (if applicable)

- Mortgage Lending Addendum
2. Title-24 Compliance Processing Only – Field Verification and Diagnostic Testing Includes:
- Certificate of Compliance – CF-1R: CHEERS EnergE-Form\*\* CF1
  - Installation Certificate – CF-6R: CHEERS EnergE-Form\*\* CF6
  - Certificate of Field Verification and Diagnostic Testing – CF-4R: CHEERS EnergE-Form\*\* CF4
- \*\*CHEERS EnergE-Forms contain the CEC form information required for Title-24 HERS verification and testing.

**4) Title-24 and Energy Star Fee:** Charged on a per transaction basis for both Title-24 Compliance and Energy Star Rating Processing.

- Registry Subscription Fee - \$120 per year.
- Registry User Fee - \$40 per user per year.
- Rating Fees

<i>Quantity Star Fee From - To</i>		<i>Title-24 <u>or</u> Energy Star Fee \$/Unit</i>	<i>Title-24 <u>and</u> Energy \$/Unit</i>
1	9	\$50	\$70
10	49**	\$40	\$58
50	99**	\$32	\$48
100	499***	\$28	\$42
500	999***	\$24	\$36
1000***+		\$20	\$30

- Rater training fee - \$500

Value-Added Services

- Rater marketing training
- Web based consumer energy audit

Incentives/Rebates Offered

- California Energy Star New Homes Program Rebates – Beginning on April 1, 2002, the California Public Utilities Commission ruled that there will be a single rebate program for public benefit funds for new residential construction operated by the state’s investor owned utilities. The threshold is ENERGY STAR (15% more efficient than the state energy code) and the amount is driven by the state’s climate zone) – the rebates range from \$400 to \$900 per home.
- Sacramento Utility District - \$250 rebate for every model home labeled and \$75 rebate per production home. The utility also pays for the rating of up to four home models for the builder.
- San Diego Gas and Electric – arranged for local building departments’ expedited review of building plan review for homes designed to be ENERGY STAR.

### Steps Taken to Reduce Program Costs

Everything is web based. CHEERS has developed and host several websites for all of their programs, while keeping our staff the same (5 full time). CHEERS will process 20,000 verifications by 12/31/03 and provide administrative support to the 4 utility new construction programs this year for both single family and multifamily.

### Successful Program Elements

- Linking to energy code compliance – Builders receive credit for having diagnostic testing of envelope and duct leakage. This creates an incentive for California builders to get ratings since it is more cost effective to pursue this strategy over the prescriptive requirements.
- Utility rebates to builders for ENERGY STAR labeled homes.
- Aggressive rater recruitment and training effort.

### Marketing Elements

CHEERS has defined its' customers as businesses that works with builders. CHEERS identified the process, the market actors in the process, and determined the best way to approach the new construction market is working with utilities and Title-24 consultants. Both of these market actors already have the relationship with builders and added value to their business, by providing additional services (verifications, ratings, software interfacing with our websites).

### Targeted to Builders

Utilities and Title 24 consultants recruit builders to participate in program.

### Targeted to Consumers

Utilities market the ENERGY STAR Home to consumers.

### Manufacturer Cost-Sharing/Co-sponsoring of Program Elements

None

### Lessons Learned

- Not create one's own rating software program. CHEERS defines itself as a energy service company (HERS provider is one element), not a software company.
- One cannot go directly to the consumer, unless you have big dollars behind you. CHEERS has learned this as well as the utilities.

### Program Theory

CHEERS defines itself as a energy service company (HERS provider is only one element).

## IV. Florida

### General State Information

#### State Energy Code Baseline

The Florida energy code baseline is Chapter 13 of the Florida Building Code developed by the State of Florida. The U.S. Department of Energy reports that Chapter 13 is more stringent than the 2000 version of the International Energy Conservation Code.

#### Number of Housing Starts in State in 2001

According to the U.S. Census Bureau, there were permits issued in 2001 for the construction of 164,656 housing units.

#### Number of Homes Labeled as ENERGY STAR in 2001

1,293

#### % of New Homes Certified as ENERGY STAR in 2001

0.9%

#### Total Number of Builders in State

There is no central licensing in Florida. The Florida Home Builders Association reports that it has over 13,364 members. The National Association of Home Builders reports that nationally, builders represent 31% of the membership of builder associations.\* The remaining membership is composed of associate members. Applying this percentage, it can be estimated that there are 4,142 builder members in the state.

\* NAHB DataCard, October 2001

#### Housing Market Dynamics

Florida has the largest housing construction in the nation. According to the U.S. Bureau of the Census, the state's three largest housing markets are: Miami – Fort Lauderdale (24,764 housing starts), Orlando (23,335 housing starts), and Tampa – St. Petersburg (21,454 housing starts). In these markets, large production builders that construct hundreds of homes a year drive the housing market.

Florida is the other state in the nation where state law governs home energy ratings. The 1993 Florida Building Energy Efficiency Ratings Act recognizes only one rating provider in the state, and that provider was created by the Florida Department of Community Affairs. The Florida home energy rating law is posted at [www.fsec.ucf.edu/ratings/Act.htm](http://www.fsec.ucf.edu/ratings/Act.htm).

## Certification Program Information

## **Energy Gauge**

### Territory Covered:

Statewide

### Program Sponsors

- Florida Solar Energy Center
- Florida Department of Community Affairs

### Funding Sources

- Rating fees charged to builders
- Inspection fees from Building America Program

### Certification Organization Name

Florida Solar Energy Center

### Organization Structure and Features

The Florida Solar Energy Center is a research center of University of Central Florida. The Florida Energy Gauge Program is accredited by RESNET's Mortgage Industry National Home Energy Rating System Accreditation Procedures.

### Brief Program History

In 1993, the Florida Legislature enacted the Florida Building Energy Efficiency Ratings Act which mandated the Florida Department of Community Affairs to develop and regulate a home energy rating system in the state. On July 1, 1994, the Department of Community Affairs adopted regulations implementing the statute. The Florida Solar Energy Center developed a rating software program, "Energy Gauge", and the Department launched the Florida Building Energy Efficiency Rating System. In 1997, the program was transferred to the Florida Solar Energy Center and was renamed the Florida Energy Gauge program.

### Technical Differences from Baseline HERS 86.0 Points

The Florida Energy Gauge Program uses the Energy Gauge rating software program. Energy Gauge complies with the National Association of State Energy Officials (NASEO) National Home Energy Rating Technical Guidelines. The Florida Energy Gauge Program uses the HERS baseline of 86.0 points for certification of ENERGY STAR Homes.

### Types and Percentage of Ratings Performed

Individually inspected homes: 100%

### Use of Sampling and BOPS

The Florida Energy Gauge Program uses neither sampling of ratings nor BOPS to label ENERGY STAR Homes.

### Quality Assurance Procedures

All certified raters are required to attend tri-annual update training courses offered by the Florida Solar Energy Center and to pass examinations on updated information. Rater quality control involves random peer review at least once within three years before being recertified.

### Number of ENERGY STAR Homes Labeled by Program

Total Number of Homes Labeled: 1,219

Number Labeled in 2001: 501

### Expected Participants in 2002

900

### Number of Builders Participating in Program

104

### Program Funded Services

- Rating software development
- Rater training
- Quality control of raters

### Service Costs

- Rater training - \$845,
- Rater certification - \$150 - \$50 annual fee for re-certification,
- Rating software license fee - \$75 (basic version) \$129 (Pro version),
- Rating registration fee - \$15 per rating.

### Value-Added Services

- Assistance in code compliance
- Web site
- Building America program

### Incentives/Rebates Offered

- Florida Power – offers \$50 in cooperative advertising per home labeled ENERGY STAR and up to \$350 per home to the builder as a rebate.

### Steps Taken to Reduce Program Costs

Automated databases for data storage, quality control screening and Internet information services like rater searches.

### Successful Program Elements

- Rating program linked to energy code compliance.
- Energy Gauge software program
- Rater recruitment and training

### Marketing Elements

All direct marketing is conducted by Certified Florida Raters. The Energy Gauge Office provides general marketing through the Internet by means of web pages on EnergyGauge software, the EPA Energy Star program, Florida's building energy code program and research and activities conducted by the Florida Solar Energy Center, which co-sponsors the annual RESNET conference.

Targeted to Builders

Targeted to Consumers

### Manufacturer Cost-Sharing/Co-sponsoring of Program Elements

None

### Lessons Learned

- No Rater certifications without performance testing.
- Not less than 5-days of training.

### Program Theory

Not available

## **Florida Power, A Progress Energy Company's Air Circulation Test (ACT) Premium/ENERGY STAR Program**

### Territory Covered:

Florida Power's service area encompasses approximately 20,000 square miles, including the cities of St. Petersburg and Clearwater, as well as the rapidly growing area of central Florida surrounding Orlando. In 2001, more than 35,000 new customers were added to the system. Over the past five years, the average number of new customers has grown by two percent (2%) annually - nearly twice the national average. Approximately 4.5 million people live within the company's service area, which covers 35 of the state's 67 counties.

### Program Sponsors

- Florida Power Company
- Fannie Mae

### Funding Sources

- Rate based

### Certification Organization Name

- Florida Solar Energy Center – ratings
- Florida Power - BOPS

### Organization Structure and Features

Florida Power is an investor owned electric utility. Florida Power raters are certified by the Florida Energy Gauge Program. The company has been accredited by RESNET's ENERGY STAR Homes Building Option Package Provider Accreditation Standard.

Florida Power administers the Air Circulation Test (ACT) Program. ACT has three levels: ACT, ACT Plus, and ACT Premium/ENERGY STAR.

The ACT level requires that the home's ducts be tested to meet Florida Power's specifications.

ACT Plus requires the duct specifications of ACT plus a heat pump with a minimum SEER of 12.5 and COP of 3.0, and either ceiling insulation of a minimum of R-30, Manual D designed ducts, a heat recovery ventilation device, or a heat pump water heater.

ACT Premium/ENERGY STAR requires the specifications of ACT plus the ENERGY STAR Home requirements.

### Brief Program History

Florida Power is the second largest investor-owned electric utility in Florida. Founded in 1899, the company serves approximately 1.4 million customers in

central and north Florida. Its service area encompasses approximately 20,000 square miles, including the cities of St. Petersburg and Clearwater, as well as the rapidly growing area of central Florida surrounding Orlando. In 2001, more than 35,000 new customers were added to the system. Over the past five years the average number of new customers has grown by two percent (2%) annually - nearly twice the national average. The company's fuel mix at year-end 2000 was 49 % fossil and steam, 10 % nuclear, and 41 % combined cycle and combustion turbine plants fueled primarily by natural gas. Florida Power is a subsidiary of Progress Energy.

Through the ACT Program, Florida Power uses both ratings and BOPS to label ENERGY STAR Homes.

#### Technical Differences from Baseline HERS 86.0 Points

Florida Power uses BOPS developed by the Environmental Protection Agency. The BOPS are supposed to meet the HERS score of 86.0 points in a "worse case" energy configuration. Florida Power also conducts random sampling based upon ratings conducted with the Energy Gauge software program. Energy Gauge complies with the National Association of State Energy Officials (NASEO) National Home Energy Rating Technical Guidelines. The Florida Energy Gauge Program uses the HERS baseline of 86.0 points for certification of ENERGY STAR Homes.

#### Types and Percentage of Ratings Performed

BOP sampled homes:	23.3%
HERS individually inspected homes:	8.5%
HERS sampled homes:	67.6%
Manufactured homes:	.6%

#### Use of Sampling and BOPS

Florida Power uses sampling both for ratings and BOPS. The utility will only conduct random sampling with builder firms that have a long history of excellence in performance in their sponsored residential construction programs.

#### Quality Assurance Procedures

Ratings and BOPS are submitted to the Florida Power Program Coordinator to be reviewed for accuracy and to ensure a minimum HERS score of 86 is achieved based upon an Energy Gauge rating. Any deficiencies that are identified during this review are communicated to the rater (a Florida Power employee) and corrected. The entire process is reviewed on a monthly basis to ensure continued compliance.

#### Number of ENERGY STAR Homes Labeled by Program

Total Number of Homes Labeled: 1,283  
Number Labeled in 2001: 695

## Expected Participants in 2002

800

## Number of Builders Participating in Program

56

## Program Funded Services

- ACT Program
- Ratings of homes – Ratings are completed by Florida Power employees who have been certified as energy raters by the Florida Solar Energy Center.
- BOP inspections.

## Service Costs

No cost to builder/consumer

## Value-Added Services

### ACT /ACT Plus

- Expert consultation to ensure that homes are built to meet ACT levels
- Training of HVAC and other trade allies
- On-site diagnostic testing and training to identify and isolate duct leakage
- Quality control inspection of duct system, mastic sealant, attic insulation, and other energy saving measures
- Company promotion on Florida Power Website ([www.fpc.com](http://www.fpc.com))
- Marketing collateral for sales centers (i.e. yard signs, brochures, countertop displays)
- Program informational presentations to staff
- Cash incentives to help off-set incremental cost of high efficiency measures

### ACT Premium/ENERGY STAR

In addition to the services above:

- Class I ratings and certifications
- Registration with EPA
- Special designation on Florida Power Website
- Dollars for co-op advertising opportunities

## Incentives/Rebates Offered

- \$50 in cooperative advertising per home labeled ENERGY STAR,
- \$100 rebate per home with ACT Plus with a heat pump with 11.5 SEER,
- \$300 rebate per home with ACT Plus with heat pump of 12.5 SEER,
- \$350 per home with ENERGY STAR label.

### Steps Taken to Reduce Program Costs

Cost was not the only factor that had to be considered when we began working with our builders. The large production builders in particular were more concerned with working the testing and certification process into their existing construction schedule. Although the following initiatives can have an impact on reducing costs, more importantly they allow us to proactively work with the builder without negatively impacting production scheduling.

### **Accredited Builder Option Provider**

This accreditation enables us to work closely and directly with EPA in providing certifications in an expeditious manner.

### **Builder Option Packages (BOPS)**

Simplifying the requirements for builder participation can be a major hurdle when dealing with production builders and their various allies. A prescriptive set of measures that ensures a minimum HERS score of 86 for all models makes the entire process easier for everyone.

### **Sampling Protocol**

A long-standing relationship, combined with ongoing training, with our HVAC partners allows this process to work successfully within the existing construction cycle. Builders and HVAC contractors are aware of the positives, and potential negatives, associated with failure to comply to the strict standards incorporated within our program procedures.

In fact, in situations where our builders work outside of Florida Power territory, incorporating the use of BOPS and a sampling protocol does reduce the cost associated with rating services.

### Successful Program Elements

- Partnership with Fannie Mae Central Florida Partnership Office – As part of the partnership, the Fannie Mae Partnership Office works with energy efficient product manufacturers to offer rebates for the purchase of their products. The rebates are credited to a homebuyer's down payment in the special energy efficient mortgage program.
- Link ENERGY STAR to the ACT Program.

### Marketing Elements

#### Targeted to Builders

- Articles in builder magazines (local and state),
- Website,
- State and national tradeshow,
- Presentations at home builder association meetings,
- Build Green and Profit Workshops in partnership with the University of Florida,

- Affordable Housing workshop presentations.

#### Targeted to Consumers

- Print media (local and state),
- Consumer tradeshows,
- Buy Green and Save Workshop presentations with the University of Florida,
- Affordable home buyers presentations.

#### Manufacturer Cost-Sharing/Co-sponsoring of Program Elements

- Manufacturers that offer rebates for the purchase of energy efficient products have the rebates credited to a homebuyer's down payment in an energy efficient mortgage program being piloted in the Orlando area through the Fannie Mae Central Florida Partnership Office.

#### Lessons Learned

Florida Power reports that the successes of the program since ENERGY STAR criteria was incorporated Energy Star criteria into their existing ACT program have resulted in a very positive partnership. First, they have successfully combined a cost-effective DSM program with local and state recognition and gained national exposure for their accomplishments. In addition, their partner builders benefit from the increased exposure as a result of their success. This partnership has also enabled Florida Power to establish partnerships with organizations such as Fannie Mae and USDA Rural Development. These relationships allow homeowners all levels the benefit of buying an ACT Premium / Energy Star home. The result is a win-win-win situation for participating builders, homeowners, Florida Power, and the environment.

#### Program Theory

Florida Power's strategic plan within the RNC program is to continually increase the number of ACT Premium / Energy homes, while also increasing their level of energy efficiency. To accomplish both of these goals the utility has established a plan that addresses these two specific areas.

- Increase Number ACT Premium / Energy Star Homes  
In Florida Power's filings with the Florida Public Service Commission, they have stipulated that 20% of ACT homes would be certified at the Premium level of the RNC program by 2009.
- Increase Level of Energy Efficiency  
An established goal within Florida Power's DSM programs is to constantly investigate cost-effective technologies that will enhance program. For example, they are currently conducting analysis on high performance windows for inclusion in the RNC program.

## V. Indiana

### General State Information

#### State Energy Code Baseline

The State of Indiana's residential energy code is the Indiana Energy Conservation Code. The Department of Energy reports that the Indiana Energy Conservation Code is based upon the 1992 version of the Model Energy Code. The Indiana code is mandatory statewide.

#### Number of Housing Starts in State in 2001

According to the U.S. Census Bureau, there were permits issued in 2001 for the construction of 38,418 housing units.

#### Number of Homes Labeled as ENERGY STAR in 2001

1,513

#### % of New Homes Certified as ENERGY STAR in 2001

9.0%

#### Total Number of Builders in State

There is no central licensing in Indiana for residential builders. The Indiana Builder Association reports that it has 5,300 members. The National Association of Home Builders reports that nationally, builders represent 31% of the membership of builder associations.\* The remaining membership is composed of associate members. Applying this percentage, it can be estimated that there are 1,643 builder members in the state.

\* NAHB DataCard, October 2001

#### Housing Market Dynamics

According to the U.S. Bureau of the Census, 45% of the housing starts were in the Indianapolis housing market.

### Certification Program Information

## **Energy Rated Homes Midwest**

### Territory Covered:

Statewide

### Program Sponsors

- Indiana Office of Energy Policy
- Indianapolis Fannie Mae Partnership Office
- EPA ENERGY STAR Homes Program

### Funding Sources

- Processing fees charged to rater
- Rater training fees

### Certification Organization Name

Energy Rated Homes Midwest

### Organization Structure and Features

A program of the Indiana Community Action Program, a not-for-profit association of weatherization providers in the state of Indiana, Energy Rated Homes Midwest is accredited by RESNET's Mortgage Industry National Home Energy Rating System Accreditation Procedures.

### Brief Program History

In 1993, the Indiana Office of Energy Policy started Energy Rated Homes of Indiana as a program of the state energy office. In 1998, the program was transferred out of the state energy office to the Indiana Community Action Program and expanded to a regional rating association. In 2002, the two largest rating firms, Energy Efficient Homes Midwest and Thermo-Scan Inspections, became independent accredited rating providers.

### Technical Differences from Baseline HERS 86.0 Points

Energy Rated Homes Midwest uses the REM/Rate rating software program. REM/Rate complies with the National Association of State Energy Officials (NASEO) National Home Energy Rating Technical Guidelines. The program uses the HERS baseline of 86.0 points for certification of ENERGY STAR Homes.

### Types and Percentage of Ratings Performed

Individually inspected homes: 100%

### Use of Sampling and BOPS

Energy Rated Homes Midwest uses neither sampling of ratings nor BOPS to label ENERGY STAR Homes.

### Quality Assurance Procedures

While Energy Rated Homes Midwest's raters have use of the REM/Rate rating software program, they must e-mail their files to the central organization and Energy Rated Homes Midwest issues the rating report. Quality assurance is performed on every rating as it is processed. Ratings are spot checked in the field when problems are suspected.

#### Number of ENERGY STAR Homes Labeled by Program

Total Number of Homes Labeled: 5,254

Number Labeled in 2001: 1,515

#### Expected Participants in 2002

2,000

#### Number of Builders Participating in Program

34

#### Program Funded Services

- Processing of ratings and issuing rating reports.
- Marketing ENERGY STAR to consumers, builders, and lenders.
- Training of raters
- Lender training – Energy Rated Homes Midwest received funding from the local Fannie Mae Partnership Office to train and recruit lenders to offer energy efficient mortgages.

#### Service Costs

- Processing of ratings - \$45.00
- Rater training and certification - \$600.00

#### Value-Added Services

- Marketing of ENERGY STAR Homes.

#### Incentives/Rebates Offered

Eleven lenders offer either a \$300 discount on closing costs or to pay for the rating if the home is rated.

#### Steps Taken to Reduce Program Costs

- Expand scope of program to region. Besides Indiana, Energy Rated Homes Midwest is accredited in the states of Illinois, Kentucky, Michigan, and Ohio. This increases the number of ratings completed and reduces the administrative burden.

#### Successful Program Elements

- Recruitment of lenders to offer discount on closing costs or to pay for the rating if the home is documented to be ENERGY STAR through a rating.

- Recruitment of builders to build ENERGY STAR homes.
- Creating a regional base for the program.
- Lender, consumer, and builder marketing.

### Marketing Elements

#### Targeted to Builders

- One-on-one retail marketing to state's largest builders.
- Training of raters to recruit builders.
- Buildboard advertising of ENERGY STAR. Through a grant from the U.S. Department of Energy, Energy Rated Homes Midwest rented billboards at Indianapolis' busiest intersection that marketed the benefits of an energy rating. While the advertising did not dramatically increase consumer demand, it did lead to a number of builder inquiries that led to the builders being recruited to build ENERGY STAR Homes.

#### Targeted to Consumers

- Cooperative advertising of ENERGY STAR builders in Indianapolis Star (state's largest newspaper). With funding from EPA, Energy Rated Homes Midwest negotiated a matching ad campaign for ENERGY STAR Homes in the real estate section of the Indianapolis Star for several months. The ad campaign involved ENERGY STAR builders matching the funding and having their firms listed in the ad.
- ENERGY STAR Homes Fair – In cooperation with EPA, Energy Rated Homes held an ENERGY STAR Homes fair in Indianapolis in October 2001. The fair featured displays by builders, raters, and energy efficient product suppliers. The event was advertised in the paper and on targeted radio stations. Consumer attendance was disappointing. A factor in this poor response is attributed to its timing (the day the air bombing started in Afghanistan).

### Manufacturer Cost-Sharing/Co-sponsoring of Program Elements

John Mansville Insulation will pay for the rating for builders using all John Mansville products.

### Lessons Learned

- Don't start off with low cost of ratings, and then try to raise the price to meet costs later.
- Do not subsidize the rating cost. Gives the wrong picture of the worth of ratings in the market. Once the subsidy is gone, the demand for ratings drops.

### Program Theory

The first priority is to recruit builders. Then recruit the lenders that have a relationship with the builder to offer closing cost credits for homebuyers that buy

an ENERGY STAR labeled home from the builder. Customize brochures for builders.

## VI. Iowa

### General State Information

#### State Energy Code Baseline

The State of Iowa's residential energy code is based on the 1992 version of the Model Energy Code. On February 10, 1999, the Iowa State Building Code Commissioner accepted home energy ratings as a voluntary method of compliance for the state's energy code.

#### Number of Housing Starts in State in 2001

According to the U.S. Census Bureau, there were permits issued in 2001 for the construction of 12,558 housing units.

#### Number of Homes Labeled as ENERGY STAR in 2001

1,242

#### % of New Homes Certified as ENERGY STAR in 2001

10.0%

#### Total Number of Builders in State

There is no central licensing in Iowa for residential builders. The Home Building Association of Iowa reports that it has 523 builder members.

#### Housing Market Dynamics

According to the U.S. Bureau of the Census, 29% of the housing starts were in the Des Moines housing market and 12% in the Cedar Rapids market. The Iowa housing market is robust. In the busiest housing markets, builder firms that build over a hundred homes a year dominate the market.

### Certification Program Information

## **Energy Rated Homes of Iowa**

### Territory Covered:

Statewide

### Program Sponsors

- Mid Iowa Community Action Program

### Funding Sources

- Processing fees charged to raters.
- Rater training fees

### Certification Organization Name

Energy Rated Homes of Iowa

### Organization Structure and Features

The program is administered by the Mid-Iowa Community Action Program, a not-for-profit weatherization provider. Energy Rated Homes of Iowa is accredited by RESNET's Mortgage Industry National Home Energy Rating System Accreditation Procedures.

### Brief Program History

In 1991, the Iowa State Energy Office of Energy Policy started Energy Rated Homes of Iowa. In 1993, the program was transferred out of the state energy office to the Mid-Iowa Community Action Program and expanded to a regional rating association. In 1995, Energy Rated Homes of Iowa was selected by Fannie Mae to participate in its conventional energy efficient mortgage pilot program. In 2000, the program's largest rating firm, A-Tech Energy Corporation, became an independent accredited BOP provider. Prior to this, MidAmerican Energy's ENERGY STAR Homes Program created most of the demand for Energy Rated Homes of Iowa to label ENERGY STAR Homes. A-Tech was selected by MidAmerican Energy to label its ENERGY STAR Homes. This resulted in a dramatic drop in rating activity by the organization.

### Technical Differences from Baseline HERS 86.0 Points

Energy Rated Homes of Iowa uses the REM/Rate rating software program. REM/Rate complies with the National Association of State Energy Officials (NASEO) National Home Energy Rating Technical Guidelines. The program uses the HERS baseline of 86.0 points for certification of ENERGY STAR Homes.

### Types and Percentage of Ratings Performed

Individually inspected homes: 100%

### Use of Sampling and BOPS

Energy Rated Homes Midwest uses neither sampling of ratings nor BOPS to label ENERGY STAR Homes.

#### Quality Assurance Procedures

While Energy Rated Homes of Iowa's raters have use of the REM/Rate rating software program, they must e-mail their files to the central organization and Energy Rated Homes of Iowa issues the rating report. Quality assurance is performed on every rating as it is processed. Ratings are spot checked in the field when problems are suspected.

#### Number of ENERGY STAR Homes Labeled by Program

Total Number of Homes Labeled: 1,434

Number Labeled in 2001: 138

#### Expected Participants in 2002

200

#### Number of Builders Participating in Program

5

#### Program Funded Services

- Processing of ratings and issuing rating reports.
- Training of raters

#### Service Costs

Not available

#### Value-Added Services

- Quality control of ratings.
- Energy code training.

#### Incentives/Rebates Offered

None

#### Steps Taken to Reduce Program Costs

- Computerized data bank of ratings.

#### Successful Program Elements

- Linked into state energy code by being a compliance documentation option.

#### Marketing Elements

- Web site.

Targeted to Builders

- One-on-one retail marketing to builders.
- Energy code compliance training

Targeted to Consumers

- Web site

Manufacturer Cost-Sharing/Co-sponsoring of Program Elements

None

Lessons Learned

Difficult to compete in environment when utility pays for ratings in largest housing market.

Program Theory

Not available

## **A-TEC Energy Corporation**

### Territory Covered:

MidAmerican Energy service area.

### Program Sponsors

- MidAmerican Energy. MidAmerican Energy is Iowa's largest utility. It serves all of the state's leading housing markets.

### Funding Sources

- Conducting ratings for MidAmerican Energy.

### Certification Organization Name

A-Tech Energy Corporation

### Organization Structure and Features

A-Tech is a for-profit rating provider. A-Tech Energy Corporation is accredited by RESNET's Mortgage Industry National Home Energy Rating System Accreditation Procedures.

### Brief Program History

Prior to 2000, A-Tech Energy Corporation's raters were certified by Energy Rated Homes of Iowa. In 2000, A-Tech Energy Corporation and MidAmerican Energy severed their relationships with Energy Rated Homes of Iowa and A-Tech Energy Corporation became accredited as an independent rating provider.

### Technical Differences from Baseline HERS 86.0 Points

A-Tech Energy Corporation is primarily a BOPS provider. The BOPS are supposed to meet the HERS score of 86.0 points in a "worse case" energy configuration.

### Types and Percentage of Ratings Performed

Individually inspected BOPS:	70.5%
Sampled BOPS:	29.5%

### Use of Sampling and BOPS

A-Tech Energy Corporation uses BOPS provided by EPA and uses the EPA sampling protocol. The BOPS are supposed to meet the HERS score of 86.0 points in a "worse case" energy configuration.

### Quality Assurance Procedures

At least annually, the rater is observed in the field by an A-Tech Energy Corporation's manager. The manager determines the rater's proficiency in the following:

- Knowledge and understanding of ENERGY STAR standards.
- Accurately completing ENERGY STAR field forms.

- Ability to identify insulation types and their proper installation.
- Estimate correct R-values.
- Identification of HVAC and hot water systems and their efficiency.
- Ability to identify window and door types.
- Knowledge of vapor barriers and their proper installation.
- Ability to accurately calculate areas and volumes.
- Ability to identify potential air infiltration areas.
- Ability to perform blower door and duct testing.
- Ability to determine air infiltration rates.
- Ability to explain to builders/homeowners the ENERGY STAR program requirements and any components that could potentially be improved to increase the energy efficiency of the structure.

#### Number of ENERGY STAR Homes Labeled by Program

Total Number of Homes Labeled: 1,192

Number Labeled in 2001: 1,192

#### Expected Participants in 2002

1,200

#### Number of Builders Participating in Program

27

#### Program Funded Services

- Labeling of ENERGY STAR Homes through MidAmerican Energy's Energy Advantage Homes Program

#### Service Costs

The cost of ratings is paid through utility rebates.

#### Value-Added Services

- Qualification of homes for Energy Advantage Homes rebates.

#### Incentives/Rebates Offered

MidAmerican Energy sponsors the Energy Advantage Home Program. The program performance standard is ENERGY STAR. MidAmerican Energy provides rebates to builders whose homes are documented to meet the program's standard. MidAmerican Energy uses A-Tech Energy Corporation to inspect the homes. The rebates range from \$1,000 to \$2,000 per home.

#### Steps Taken to Reduce Program Costs

- Random sampling of BOPS.

### Successful Program Elements

- Linked with MidAmerican Energy Advantage Home rebate program.

### Marketing Elements

#### Targeted to Builders

- Mid-American Energy recruits builders to participate in the Energy Advantage Home Program. Marketing includes web site targeted to builders.
- Rebates to builders

#### Targeted to Consumers

- Mid-American Energy web site and other marketing to its consumers.

### Manufacturer Cost-Sharing/Co-sponsoring of Program Elements

None

### Lessons Learned

Rebates are effective method of recruiting builders.

### Program Theory

Not available

## VII. Louisiana

### General State Information

#### State Energy Code Baseline

The State of Louisiana energy code only covers low-rise, multi-family housing. The standard is the 1995 version of the Model Energy Code.

#### Number of Housing Starts in State in 2001

According to the U.S. Census Bureau, there were permits issued in 2001 for the construction of 15,190 housing units.

#### Number of Homes Labeled as ENERGY STAR in 2001

1,005

#### % of New Homes Certified as ENERGY STAR in 2001

7.0%

#### Total Number of Builders in State

The State of Louisiana does not license homebuilders. The National Association of Home Builders reports that it has 1,672 members in Louisiana. The National Association of Home Builders reports that nationally, builders represent 31% of the membership of builder associations.\* The remaining membership is composed of associate members. Applying this percentage, it can be estimated that there are 948 builder members in the state.

\* NAHB DataCard, October 2001

#### Housing Market Dynamics

According to the U.S. Bureau of the Census 26% of the housing starts were in the New Orleans housing market and 12% in the Baton Rouge market.

### Certification Program Information

## **Energy Rated Homes of Louisiana**

### Territory Covered:

Statewide

### Program Sponsors

- Louisiana Department of Natural Resources
- Dixie Membership Electric Cooperative
- Entergy
- South Louisiana Membership Electric Cooperative

### Funding Sources

- State funds
- Utility rebate sponsorships

### Certification Organization Name

Energy Rated Homes of Louisiana

### Organization Structure and Features

The program is administered by the Louisiana Department of Natural Resources. Energy Rated Homes of Louisiana is accredited by RESNET's Mortgage Industry National Home Energy Rating System Accreditation Procedures.

### Brief Program History

In 1993, the Louisiana Department of Natural Resources started Energy Rated Homes of Louisiana. In 2000, the Department of Natural Resources created the Louisiana Home Energy Rebate Option that offers rebates for homes that were labeled as ENERGY STAR through an Energy Rated Homes of Louisiana rating.

### Technical Differences from Baseline HERS 86.0 Points

Energy Rated Homes of Louisiana uses the REM/Rate rating software program. REM/Rate complies with the National Association of State Energy Officials (NASEO) National Home Energy Rating Technical Guidelines. The program uses the HERS baseline of 86.0 points for certification of ENERGY STAR Homes.

### Types and Percentage of Ratings Performed

Individually inspected homes: 100%

### Use of Sampling and BOPS

Energy Rated Homes of Louisiana uses neither sampling of ratings nor BOPS to label ENERGY STAR Homes.

### Quality Assurance Procedures

- Raters are re-certified every three years. Re-Certification includes twenty-four hours of continuing education.

- Random inspections of rated homes.
- The Louisiana Department of Natural Resources mails out a survey to everyone who receives a rating. Complaints are investigated.

#### Number of ENERGY STAR Homes Labeled by Program

Total Number of Homes Labeled: 1,005

Number Labeled in 2001: 1,005

#### Expected Participants in 2002

2,000

#### Number of Builders Participating in Program

11

#### Program Funded Services

- Processing of ratings and issuing rating reports.
- Training of raters

#### Service Costs

- The State of Louisiana absorbs the cost of being a rating provider and does not charge raters a rating fee.
- The program charges individuals a \$300 registration fee for rater training.

#### Value-Added Services

- Home Energy Rebate Option.

#### Incentives/Rebates Offered

- Home Energy Rebate Option (HERO) – The amount of the cash payment depends on the level of energy savings, called the Energy Efficiency Premium. The cash payment is 20% of the Energy Efficiency Premium up to a maximum of \$2,000. The Energy Efficiency premium is determined by a home energy rating that is required on all homes participating in the program.
- Dixie Membership Electric Cooperative HERS Rebates – Offers a rebate of \$100 to its members for the cost of the rating in conjunction with participation in the HERO program.
- Entergy HERS Rebates - Offers a rebate of \$100 to its customers for the cost of the rating in conjunction with participation in the HERO program.
- South Louisiana Membership Electric Cooperative HERS Rebates - Offers a rebate of \$100 to its members for the cost of the rating in conjunction with participation in the HERO program.

### Steps Taken to Reduce Program Costs

The Louisiana Department of Natural Resources publishes a list of all certified raters in the state. In its public outreach, the program recommends to consumers to contact several persons on the list before selecting a rater. Since all raters are private sector businesses, Energy Rated Homes of Louisiana reports, that in order to stay competitive, the market has kept ratings affordable.

### Successful Program Elements

- Home Energy Rebate Option Program and utility rebates for ratings.

### Marketing Elements

#### Targeted to Builders

- The Louisiana Department of Natural Resources' web site has pages dedicated to Energy Rated Homes of Louisiana and the Home Energy Rebate Option Program.
- Raters marketing their services.

#### Targeted to Consumers

- The Louisiana Department of Natural Resources' web site has pages dedicated to Energy Rated Homes of Louisiana and HERO.
- A HERO brochure.
- Raters marketing their services.
- The Louisiana Department of Natural Resources has coordinated marketing campaigns that resulted in newspaper, radio and television news features ("earned media").
- Participating utilities have enclosed flyers on HERS and energy ratings in their utility billings.

### Manufacturer Cost-Sharing/Co-sponsoring of Program Elements

None

### Lessons Learned

- More stringent quality control of raters.
- Better recruiting of individuals that would make good raters.

### Program Theory

The Louisiana Department of Natural Resources reports that the Louisiana program's success is driven by the HERO rebate program and not by ENERGY STAR labeling.

# VIII. Maryland

## General State Information

### State Energy Code Baseline

The State of Maryland's energy code is the Maryland Building Performance Standards (MBPS). According to the U.S. Department of Energy, the MBPS is based on the 2000 version of the International Energy Conservation Code and is mandatory statewide.

### Number of Housing Starts in State in 2001

According to the U.S. Census Bureau, there were permits issued in 2001 for the construction of 28,412 housing units.

### Number of Homes Labeled as ENERGY STAR in 2001

486

### % of New Homes Certified as ENERGY STAR in 2001

2.0%

### Total Number of Builders in State

There is no central licensing in Maryland for residential builders. The Home Builders Association of Maryland reports that it has 2,174 members. The National Association of Home Builders reports that nationally, builders represent 31% of the membership of builder associations.\* The remaining membership is composed of associate members. Applying this percentage, it can be estimated that there are 673 builder members in the state.

\* NAHB DataCard, October 2001

### Housing Market Dynamics

According to the U.S. Bureau of the Census, 37% of the housing starts were in the Baltimore housing market and 22% in the Washington D.C. suburbs. All sectors in the state housing market are growing.

## Certification Program Information

## **Energy Services Group**

### Territory Covered:

Statewide

### Program Sponsors

None

### Funding Sources

- Fees for ratings
- Fees for air sealing

### Certification Organization Name

Energy Services Group

### Organization Structure and Features

Energy Services Group is a for-profit firm based in Wilmington, Delaware. Energy Services Group is accredited by RESNET's Mortgage Industry National Home Energy Rating System Accreditation Procedures.

Energy Services Group has a unique approach to the ENERGY STAR program. The company's main business is air sealing of new homes. The company has found that being able to guarantee a final air infiltration rate offers a builder a cost-effective boost to their energy rating. Many of the builders participating in its program build homes that are already close to the 86 rating score. The company reports that they have been able to convince builders participating in its air sealing program to upgrade twenty-five percent of their homes to the ENERGY STAR standard.

### Brief Program History

Energy Services Group began in 1981 as an energy retrofit business. The firm provided energy auditing and air sealing for the Delaware Low Income Weatherization Assistance Program. In 1982, it began working with new residential construction. In 1997, it began labeling ENERGY STAR Homes. In 1999, it became a RESNET accredited rating provider in the states of Delaware, Maryland, Pennsylvania, and Virginia.

### Technical Differences from Baseline HERS 86.0 Points

Energy Services Group uses the REM/Rate rating software program. REM/Rate complies with the National Association of State Energy Officials (NASEO) National Home Energy Rating Technical Guidelines. The company uses the HERS baseline of 86.0 points for certification of ENERGY STAR Homes.

### Types and Percentage of Ratings Performed

Individually inspected homes: 100% in 2001

### Use of Sampling and BOPS

Energy Services Group can label homes using the EPA sampling protocol and will certify a home through a BOP if requested by the builder. The company discourages builders to use BOPS because it is more cost-effective to meet the ENERGY STAR specifications through a home energy rating.

### Quality Assurance Procedures

Every six months, each rater has at least one field assessment and final inspection reviewed by the Energy Services Group program manager. The review covers:

- Working knowledge of the ENERGY STAR and other standards.
- Use of ENERGY STAR and other assessment and inspection forms.
- Ability to communicate program standards.
- Ability to assess various building components and areas.
- Ability to assess window type, area, and U-value.
- Recognition of proper insulation installation techniques.
- Recognition of potential air leakage sites.
- Recognition of proper duct installation techniques.
- Ability to perform blower door test.
- Ability to perform a duct blaster test.
- Ability to perform flow hood measurements at supply registers.

### Number of ENERGY STAR Homes Labeled by Program

Total Number of Homes Labeled: 1,942

Number Labeled in 2001: 441

### Expected Participants in 2002

900

### Number of Builders Participating in Program

15

Energy Services Group Reports that most of the builders that the company works with are production builders that construct over 75 homes a year.

### Program Funded Services

- Charge for air sealing.
- Charge for ratings.
- Lower price to builder if functions are combined.

### Service Costs

Energy Services Group charges a production builder a per-house package fee that includes the rating, inspection, batch testing, and ENERGY STAR label.

This fee varies between \$125 and \$160 per home. For custom home builders, the company charges \$0.10 per square foot, with its minimum being \$200.

#### Value-Added Services

- Air sealing.
- Marketing.
- This fall, Energy Services Group will be working with EPA in kicking off a retrofit program for existing homes.
- The company has designed an “Energy Label” for each model of a house, similar to the energy labels on appliances. Energy Service Group’s label compares the energy usage of a model of a home labeled as ENERGY STAR to that of the same model that is merely built to the state energy code.

#### Incentives/Rebates Offered

- None

#### Steps Taken to Reduce Program Costs

- Sampling of ratings

#### Successful Program Elements

- Marketing to builders without rebates or other financial incentives
- Air sealing services

#### Marketing Elements

##### Targeted to Builders

- Sponsoring builders’ breakfasts that provide a forum for educating builders on benefits of air sealing, market advantages of ENERGY STAR homes, and energy ratings.
- Energy Services Group staff is very active in the local homebuilder association where they develop relationships with production builders.
- Participates in trade shows sponsored by builder associations.
- Participates in cooperative advertising campaigns developed by EPA by recruiting builders to contribute to the advertising.

##### Targeted to Consumers

- Presentations at Sears and Lowes Homes Stores on ENERGY STAR products, home testing, rating and air sealing.

#### Manufacturer Cost-Sharing/Co-sponsoring of Program Elements

None

### Lessons Learned

- Energy Services Group reports that it is not necessary to offer rebates, credits, or advertising assistance in order to have builders embrace the ENERGY STAR Homes program.
- The company does not present the homeowner the rating certificate because of potential confusion over different score from neighbor's ENERGY STAR labeled home. Sell label not rating score.

### Program Theory

See presentation given at the 2002 RESNET Conference posted at [www.natresnet.org/conference/2002/presentations/Minch.pdf](http://www.natresnet.org/conference/2002/presentations/Minch.pdf).

## **Southern Maryland Electric Cooperative ENERGY STAR Home Program**

### Territory Covered:

Southern Maryland Electric Cooperative service (SMEC) area.

### Program Sponsors

SMEC

### Funding Sources

- Utility rate based

### Certification Organization Name

Southern Maryland Electric Cooperative

### Organization Structure and Features

SMEC is a rural electric cooperative. SMEC was grandfathered by EPA as an “equivalent program” to issue BOP labeling.

### Brief Program History

In 1942, the Southern Maryland Electric Cooperative, Inc (SMECO) was incorporated. At that time, the company had 438 miles of line. Its members included more than 1,400 families. Electric bills typically averaged five dollars a month. Today, SMECO provides power to more than 115,000 services, but it remains a cooperative corporation, owned by its members and operated for them on a non-profit basis. Rates are based on the cost of doing business.

### Technical Differences from Baseline HERS 86.0 Points

SMEC uses BOPS developed by EPA. The BOPS are supposed to meet the HERS score of 86.0 points in a “worse case” energy configuration.

### Types and Percentage of Ratings Performed

Individually inspected BOPS: 100%

### Use of Sampling and BOPS

SMEC label homes through BOPS provided by EPA.

### Quality Assurance Procedures

Not available

### Number of ENERGY STAR Homes Labeled by Program

Total Number of Homes Labeled: 1,454

Number Labeled in 2001: 68

### Expected Participants in 2002

100

Number of Builders Participating in Program

19

Program Funded Services

- Labeling of ENERGY STAR Homes for member builders.

Service Costs

Not available

Value-Added Services

- Marketing.

Incentives/Rebates Offered

- None

Steps Taken to Reduce Program Costs

- BOPS

Successful Program Elements

- Marketing to builders

Marketing Elements

Targeted to Builders

- Web site on ENERGY STAR Homes program.

Targeted to Consumers

- Web site on ENERGY STAR Homes program.

Manufacturer Cost-Sharing/Co-sponsoring of Program Elements

None

Lessons Learned

Not available

Program Theory

Not available

# IX. Massachusetts

## General State Information

### State Energy Code Baseline

The State of Nevada's energy code is the 1995 version of the Model Energy Code with state amendments. It is mandatory statewide.

- MA energy code is equivalent to HERS 83.
- HERS is accepted, but rarely used, code-compliance method.
- All building envelope penetrations must be sealed; all ducts in unconditioned space must be sealed with mastic and insulated; HVAC systems must not be sized more than 125% of peak heating load.
- Recent MA BBRS study found that less than half of new homes built in the state comply with the minimum guidelines of the energy code.

### Number of Housing Starts in State in 2001

According to the U.S. Census Bureau, there were permits issued in 2001 for the construction of 17,034 housing units.

### Number of Homes Labeled as ENERGY STAR in 2001

841

### % of New Homes Certified as ENERGY STAR in 2001

5.0%

### Total Number of Builders in State

The National Association of Home Builders reports that the association has 1,397 members in Massachusetts. The National Association of Home Builders reports that nationally, builders represent 31% of the membership of builder associations.\* The remaining membership is composed of associate members. Applying this percentage, it can be estimated that there are 433 builder members in the state.

\* NAHB DataCard, October 2001

### Housing Market Dynamics

According to the U.S. Bureau of the Census, 97% of the housing starts were in the Boston-Worcester-Lawrence housing market. There is currently much more demand for housing in Massachusetts than there is supply. Because of this, Energy Star Homes is a more difficult sell to builders, who are selling their homes regardless of certain upgrade features.

## Certification Program Information

## **Massachusetts ENERGY STAR Homes**

### Territory Covered:

Massachusetts, Rhode Island and parts of New Hampshire (except for municipal utility territories)

### Program Sponsors

Electric and gas utilities and non-utility parties (energy office, advocates, environmental groups, etc.) collectively known as the Joint Management Committee (JMC)

### Funding Sources

System Benefits Charge funds (through 2007)

### Certification Organization Name

Conservation Services Group

### Organization Structure and Features

Conservation Services Group is a 501c3 non-profit energy services company dedicated to reducing the use of fossil fuels through utility-sponsored efficiency programs. Conservation Services Group is accredited by RESNET's Mortgage Industry National Home Energy Rating System Accreditation Procedures.

### Brief Program History

- Energy Crafted Homes Program trained hundreds of builders but resulted in few certified homes and little market demand;
- Transitioned to ENERGY STAR Homes Program in 1998.

### Technical Differences from Baseline HERS 86.0 Points

Conservation Services Group uses the REM/Rate rating software program. REM/Rate complies with the National Association of State Energy Officials (NASEO) National Home Energy Rating Technical Guidelines. The program uses the HERS baseline of 86.0 points for certification of ENERGY STAR Homes. In addition to a 86 HERS score, homes must meet a mechanical ventilation requirement and have a CO detector installed.

### Types and Percentage of Ratings Performed

All homes in the program are fully modeled, performance tested, and rated through HERS.

### Use of Sampling and BOPS

There is currently no use of sampling or BOPS in the Massachusetts program..

### Quality Assurance Procedures

#### Plans evaluation

- Each month, every rater will have at least one set of plans reviewed by a Project Manager to Technical Supervisor.
- This review consists of a step-by-step look through the inputs to REM/Rate, with a copy of the plans and a copy of the Plans Evaluation Form.
- Generally the review will look at whether rating inputs appear reasonable, and any suspect information will be subject to closer scrutiny based on plans and the calculations shown on the form.
- Non-compliance with the Plans Evaluator's Guidelines or inaccuracies of greater than 5% in area or volume calculations are recorded and brought to the attention of the rater.
- The review may consist of a review of the builder agreement package and project specifications as well as the REM/Rate inputs at the discretion of the reviewer, except that at least twice a year the entire package is reviewed.

#### Rating review

- Every 3 months, every rater has at least one final rating reviewed by a Project Manager to Technical Supervisor.
- This review consists of a step-by-step look through the REM/Rate file, with a copy of the Energy Star Inspection Form and any notes kept with the folder.
- Generally the review will look at whether rating inputs appear reasonable, and any suspect information will be subject to closer scrutiny based on plans, notes and the calculations shown on the form.
- Non-compliance with the Plans Evaluator's Guidelines or inaccuracies of greater than 5% in area or volume calculations are recorded and brought to the attention of the rater.

#### Field review

- Every 6 months, a Project Manager to Technical Supervisor will accompany each rater in the field during a first or final inspection.

#### Number of ENERGY STAR Homes Labeled by Program

Total Number of Homes Labeled: 2,307  
Number Labeled in 2001: 841

#### Expected Participants in 2002

1,300

#### Number of Builders Participating in Program

120

### Program Funded Services

- Rating fees
- Rater training
- Program administration
- Program marketing

### Service Costs

\$75 application fee (refundable upon home certification).

### Value-Added Services

- Extensive marketing campaign (billboards, parade of homes events, newspaper ads and earned media stories, educational signage, marketing materials, etc.);
- Dedicated outreach and support to affordable/multifamily sector;
- Home energy rating plan review and recommendations to achieve program standards;
- On-site training of builder, employees and subs and on-going technical assistance;
- Pre-drywall inspection to ensure insulation subs performed;
- Energy efficient lighting design and selection assistance;
- HVAC commissioning; including verification of proper operation of mechanical ventilation, heating and cooling systems and ductwork; Right J software analysis, room-by-room airflow testing; AC charge testing.
- Blower door and duct blaster testing and house inspection to certify subcontractor work and energy efficiency performance;
- ENERGY STAR Homes Program labeling; and
- Code compliance documentation.

### Incentives/Rebates Offered

- \$500 single-family home rebate
- \$200 multi-family unit rebate
- Up to \$900 in rebates for ENERGY STAR lighting, mechanical ventilation (required, \$100), refrigerators (\$100) and dishwashers (\$100)
- \$100 for HERS score of 87 (single family) or 88 (multifamily)
- Additional gas utility rebates for high efficiency gas heating and water heating equipment

### Steps Taken to Reduce Program Costs

Conservation Services Group is a sole source ratings provider, which achieves an economy of scale and keeps per rating costs relatively low.

### Successful Program Elements

- Wisconsin ENERGY STAR Homes Program
- Rebates

### Marketing Elements

- Open House Tours
- Model Home offer (to equip display with Energy Star marketing materials)
- Builder Coop advertising offer (pay 50% of Energy Star ad costs up to a cap)
- Builder, subcontractor, architect training workshops
- Billboards
- Newspaper and radio advertisement
- Media outreach
- Mobile training vans (2)
- Customized on-site builder/subcontractor trainings

### Manufacturer Cost-Sharing/Co-sponsoring of Program Elements

- An Energy Star Home manufacturer “Ally” meeting was held in 1999 to apprise them of the increasing success of the program.
- Manufacturers have co-sponsored newspaper ads, open house tours, and the mobile training vans.

### Lessons Learned

- Direct outreach to builders is best strategy for increasing program participation.
- Failed Energy Star lighting products can negatively affect the perception of the Energy Star Homes program.

# X. Nevada

## General State Information

### State Energy Code Baseline

The State of Nevada's energy code is the 1986 version of the Model Energy Code with state amendments.

### Number of Housing Starts in State in 2001

According to the U.S. Census Bureau, there were permits issued in 2001 for the construction of 36,169 housing units.

### Number of Homes Labeled as ENERGY STAR in 2001

2,077

### % of New Homes Certified as ENERGY STAR in 2001

6.0%

### Total Number of Builders in State

The State of Nevada does not license builders. The National Association of Home Builders reports that the association has 1,646 members in Nevada. The National Association of Home Builders reports that nationally, builders represent 31% of the membership of builder associations.\* The remaining membership is composed of associate members. Applying this percentage, it can be estimated that there are 510 builder members in the state.

\* NAHB DataCard, October 2001

### Housing Market Dynamics

According to the U.S. Bureau of the Census, 89% of the housing starts were in the Las Vegas housing market. All sectors in the state housing market are growing. Like many of the robust housing markets in the Southwest, the Las Vegas market is dominated by large production builders, who construct hundreds of homes a year,

## Certification Program Information

## **Builders Choice Diagnostic Services**

### Territory Covered:

Las Vegas

### Program Sponsors

- Building America Program
- Southwest Gas

### Funding Sources

- Fees for ENERGY STAR labeling.

### Certification Organization Name

Builders Choice Diagnostic Services

### Organization Structure and Features

Builders Choice Diagnostic Services is a for-profit firm. Builders Choice Diagnostic Services has applied to be accredited by the RESNET ENERGY STAR Homes Program Builder Option Package Provider Accreditation Standard.

### Brief Program History

The firm founder, Roger Woods, began rating services as a certified energy rater of the Energy Rated Homes of Nevada program. In 1998, became independent of Energy Rated Homes of Nevada and was recognized by EPA. Mr. Woods expanded his services to include inspection of Building America homes in Las Vegas. In 2000, he founded Builders Choice Diagnostic Services.

### Technical Differences from Baseline HERS 86.0 Points

Not available.

### Types and Percentage of Ratings Performed

Individually inspected BOPS:	16.8%
Sampled BOPS:	83.2%

### Use of Sampling and BOPS

Builders Choice Diagnostic Services labels homes using the EPA BOPS.

### Quality Assurance Procedures

- Central processing of BOPS and Builders Choice quality control review of input before producing ENERGY STAR label.
- Periodic on-site review of ratings based upon consumer complaints and random sampling.
- Client input.

### Number of ENERGY STAR Homes Labeled by Program

Total Number of Homes Labeled: 2,906

Number Labeled in 2001: 1,584

Expected Participants in 2002

2,000

Number of Builders Participating in Program

17

Program Funded Services

- Charge for ratings.

Service Costs

Not available

Value-Added Services

- Participate in Southwest Gas marketing efforts.

Incentives/Rebates Offered

- None

Steps Taken to Reduce Program Costs

- Sampling of ratings

Successful Program Elements

- Building America Program

Marketing Elements

In 2001. EPA and Southwest Gas sponsored an ENERGY STAR marketing campaign. The effort was funded by EPA. The campaign featured a parade of ENERGY STAR labeled homes in Las Vegas, a web site, and cooperative advertising in the real estate section of the state's largest newspaper, The Las Vegas Sun. The effort increased consumer awareness of ENERGY STAR homes and the recruitment of ENERGY STAR builders.

Targeted to Builders

- See above.

Targeted to Consumers

- Same as above.

Manufacturer Cost-Sharing/Co-sponsoring of Program Elements

None

Lessons Learned

Conducting individual ratings is difficult with the company's existing trained staff with the number of homes labeled each year.

Program Theory

Not available.

## ConSol

### Territory Covered:

Las Vegas

### Program Sponsors

- ConSol ComfortWise Program

### Funding Sources

- Fees for ratings
- Sign up fees for builders to participate in ComfortWise Program.

### Certification Organization Name

ConSol

### Organization Structure and Features

ConSol is a for-profit firm. ConSol has applied to be accredited by RESNET's Mortgage Industry National Home Energy Rating System Accreditation Procedures.

### Brief Program History

ConSol is based in California. Before beginning rating services, it provided plan reviews for California builders to demonstrate compliance to the California energy code. Received funding from the U.S. Department of Energy to expand into Las Vegas. With funding from California utilities, ConSol developed the ComfortWise labeling program. EPA has determined that the program's technical standard is equivalent to the ENERGY STAR Program. In addition to labeling, the program offers utility bill guarantees.

### Technical Differences from Baseline HERS 86.0 Points

ConSol uses the Micropas6 California C-HERS software program that was developed for California energy code plan reviews. The program is based on Title 24 California code and not the national HERS baseline. Micropas6 C-HERS has also not yet completed the BESTEST.

### Types and Percentage of Ratings Performed

Individually inspected homes:	0%
Sampled homes:	100%

### Use of Sampling and BOPS

ConSol uses the random sampling protocol developed by the California Energy Commission.

### Quality Assurance Procedures

ConSol registry department reviews the results of every home inspected and tested. In addition, random, surprise field-checks are performed by the

department manager on all raters. Any variations from features specified by the ConSol compliance department and their impact on the home's energy budget are determined. The ConSol mechanical department reviews any impact on the heating and cooling system.

Number of ENERGY STAR Homes Labeled by Program

Total Number of Homes Labeled: 973

Number Labeled in 2001: 477

Expected Participants in 2002

500

Number of Builders Participating in Program

4

Program Funded Services

- Charge for ratings.
- Charge for participating in Comfortwise Program.

Service Costs

Not available

Value-Added Services

- ComfortWise Program

Incentives/Rebates Offered

- None

Steps Taken to Reduce Program Costs

- Sampling of ratings

Successful Program Elements

- Spill over from California market.

Marketing Elements

Targeted to Builders

- One-on-one retail recruitment of builders

Targeted to Consumers

- Collateral marketing material for builder.

Manufacturer Cost-Sharing/Co-sponsoring of Program Elements

None

Lessons Learned

Not available

Program Theory

Not available.

# XI. Ohio

## **General State Information**

### State Energy Code Baseline

The State of Ohio's energy code is the 1995 version of the Model Energy Code. It is mandatory statewide.

### Number of Housing Starts in State in 2001

According to the U.S. Census Bureau, there were permits issued in 2001 for the construction of 50,849 housing units.

### Number of Homes Labeled as ENERGY STAR in 2001

540

### % of New Homes Certified as ENERGY STAR in 2001

1.0%

### Total Number of Builders in State

There is no central licensing in Ohio for residential builders. The Ohio Home Builders Association reports that it has 3,000 builder members.

### Housing Market Dynamics

According to the U.S. Bureau of the Census, Cincinnati, Cleveland, and Columbus are the state's largest housing markets. Thirty-one (31%) of the housing starts are in the Columbus market, 25% of the housing starts are in the Cincinnati housing market and 21% in Cleveland.

## **Certification Program Information**

## **Home Energy Ratings of Ohio (HERO)**

### Territory Covered:

Statewide

### Program Sponsors

- Ohio Office of Energy Efficiency

### Funding Sources

- Fees for ratings
- State Funds

### Certification Organization Name

Home Energy Ratings of Ohio

### Organization Structure and Features

HERO is a program of the State of Ohio's Office of Energy Efficiency. HERO is accredited by RESNET's Mortgage Industry National Home Energy Rating System Accreditation Procedures.

### Brief Program History

HERO was launched in 1994. The program was originally organized as a non-profit organization. Due to the lack of income, the non-profit could not be self-sustaining. In 1988, the program was taken over by the Ohio Office of Energy Efficiency.

### Technical Differences from Baseline HERS 86.0 Points

HERO uses the REM/Rate rating software program. REM/Rate complies with the National Association of State Energy Officials (NASEO) National Home Energy Rating Technical Guidelines. The program uses the HERS baseline of 86.0 points for certification of ENERGY STAR Homes.

### Types and Percentage of Ratings Performed

Individually inspected homes: 23.7%

Sampled homes: 76.3%

### Use of Sampling and BOPS

HERO only uses ratings. In 1990, the Ohio Office of Energy Efficiency, RESNET, EPA, and the Columbus Fannie Mae Partnership office agreed to undertake a pilot rating sampling program in Ohio. The goals of the pilot project are to determine:

- Whether the reliability of a home energy rating can be maintained through a properly structured random sampling protocol.
- What level of quality control oversight that would be necessary for acceptable building performance.

- What training that will be necessary for builders and subcontractors.
- Whether cost savings to builders is significant.
- What are the effects on production of a builder's acceptance of home energy ratings and/or ENERGY STAR Homes Program.

Under the Ohio pilot project, 20% of the homes in a model production will be site inspected. If these homes receive a consistent score, then ratings will be issued for homes in the same model in batches of five as they are completed. As a pilot project quality control, a certain percentage of homes that are issued batch ratings will also be field inspected. The utility records of homes that were site inspected and receive batch certificates will also be monitored.

#### Quality Assurance Procedures

For newly certified raters, the first five ratings are reviewed by HERO staff or peer review. Subsequent to initial certification, 10% of all ratings are reviewed. The review includes:

- Location of home.
- Utility information, including supplier and rates.
- Detailed inputs, including each screen of the inputs for complete information and correct application of the information supplied. The background for comparison is the plan and elevation drawings from the inspection and any associated notes.
- Blower door test results.
- Combustion appliance safety testing results.
- Recommended improvement measures including adequate local cost information.
- Reports, including rating certificate, ENERGY STAR report, and recommendations report.

#### Number of ENERGY STAR Homes Labeled by Program

Total Number of Homes Labeled: 764

Number Labeled in 2001: 540

#### Expected Participants in 2002

2,500

#### Number of Builders Participating in Program

34

#### Program Funded Services

- Ratings
- Rater training

### Service Costs

- Rater training is \$700. The Ohio Office of Energy Efficiency subsidizes a portion of the training costs.
- \$65 per rating.

### Value-Added Services

- Appliance combustion safety testing.

### Incentives/Rebates Offered

There are no rebates for builders to build ENERGY STAR labeled homes. The Ohio Office of Energy Efficiency subsidizes builder training that assists builders to cost-effectively build ENERGY STAR labeled homes.

### Steps Taken to Reduce Program Costs

- The Ohio Sampling Pilot Program

### Successful Program Elements

Sampling of ratings has increased ENERGY STAR labeled homes in Ohio from 100 in 2000 to 540 in 2001. The Ohio Office of Energy Efficiency reports that there were over 500 hundred homes labeled as ENERGY STAR in the first quarter of 2002.

### Marketing Elements

#### Targeted to Builders

- ENERGY STAR booths sponsored by the Ohio Office of Energy Efficiency at trade, home, and garden shows.

#### Targeted to Consumers

- ENERGY STAR booths sponsored by the Ohio Office of Energy Efficiency at trade, home, and garden shows.

### Manufacturer Cost-Sharing/Co-sponsoring of Program Elements

None

### Lessons Learned

- Difficulty in picking up a program that had been pretty much inactive for over a year from a small non-profit organization.

### Program Theory

A business and strategic plan was adopted by the Home Energy Ratings of Ohio Foundation. It has been abandoned and no new plan developed. The program's informal plan is to add additional new construction capacity while ramping up their existing homes business. The existing homes effort will be helped by the Ohio Office of Energy Efficiency's new revolving loan fund for energy efficiency.

The state energy office has also been successful in having several state housing programs use ENERGY STAR as their criteria for new homes.

## XII. Texas

### General State Information

#### State Energy Code Baseline

The Texas legislature enacted two pieces of legislation that, all together, adopted the 2000 International Energy Conservation Code (IECC) as the state's first statewide energy code. The IECC applies in the state's 16 counties that EPA determined was non-attainment in meeting the provisions of the Clean Air Act and 22 other counties identified as "affected counties". It is estimated that these areas compose 70% of the state's new construction activity.

There is a movement to allow ENERGY STAR designation as an alternative compliance to the energy code.

#### Number of Housing Starts in State in 2001

According to the U.S. Census Bureau, there were permits issued in 2001 for the construction of 146,466 housing units.

#### Number of Homes Labeled as ENERGY STAR in 2001

1,365

#### % of New Homes Certified as ENERGY STAR in 2001

0.9%

#### Total Number of Builders in State

There is no central licensing in Texas for residential builders. The Texas Association of Builders reports that it has 9,108 members. The National Association of Home Builders reports that nationally, builders represent 31% of the membership of builder associations.\* The remaining membership is composed of associate members. Applying this percentage, it can be estimated that there are 2,823 builder members in the state.

\* NAHB DataCard, October 2001

#### Housing Market Dynamics

Texas has the second highest residential construction activity in the nation. The Dallas and Houston markets dominate the state's building activity. According to the U.S. Bureau of the Census, 35% of the housing starts are in the Dallas market and 26% in Houston. Texas has one of the most robust housing markets in the nation. The Dallas and Houston markets are dominated by large production builders that build hundreds of homes a year.

### Certification Program Information

## **Energy Sense Systems**

### Territory Covered:

Austin, Houston, San Antonio, and Waco housing markets.

### Program Sponsors

- Reliant Energy
- Oncur (formerly TXU)

### Funding Sources

- Fees for ratings

### Certification Organization Name

Energy Sense Systems

### Organization Structure and Features

Energy Sense Systems is a limited partnership corporation. Energy Sense Systems is accredited by RESNET's Mortgage Industry National Home Energy Rating System Accreditation Procedures.

### Brief Program History

Energy Sense Systems was started in 1991. The program manager, Kathy Howard was the new construction program manager for Houston Light and Power which put her in contact with a number of energy efficient builders in the Houston market.

### Technical Differences from Baseline HERS 86.0 Points

Energy Sense Systems uses the REM/Rate rating software program. REM/Rate complies with the National Association of State Energy Officials (NASEO) National Home Energy Rating Technical Guidelines. The program uses the HERS baseline of 86.0 points for certification of ENERGY STAR Homes.

### Types and Percentage of Ratings Performed

Individually inspected HERS:	1.0%
Sampled HERS:	82.7%
Individually inspected BOPS:	15.7%
Sampled BOPS	0.6%

### Use of Sampling and BOPS

Energy Sense Systems conducts random sampling of ratings using EPA's random sampling protocol. The firm also uses BOPS developed by EPA. The BOPS are supposed to meet the HERS score of 86.0 points in a "worse case" energy configuration.

### Quality Assurance Procedures

- Rater supervisor conducts quality control reviews prior to certifying homes.
- Rater supervisor conducts random on-site review testing.

In terms of its sampling protocol, Energy Sense Systems employs the following:

- Recruit only builders that have a good track record and a commitment to total quality management.
- For the first quarter of participating in a sampling program the builder must have every home inspected and tested. In order to continue, the builder must have passed every home for a quarter.
- After achieving the above, a builder must have ten homes in each subdivision inspected and tested.

#### Number of ENERGY STAR Homes Labeled by Program

Total Number of Homes Labeled: 324

Number Labeled in 2001: 324

#### Expected Participants in 2002

5,000

#### Number of Builders Participating in Program

Seven builders. The number of builders participating is misleading in terms of the penetration in the market. The builders that participate with Energy Sense Systems build an average of 800 homes a year.

#### Program Funded Services

- Plan reviews
- Inspections
- Energy Ratings
- ENERGY STAR labeling
- Testing and inspections for Environments for Living program (insulation utility guarantee program).

#### Service Costs

An average of \$375 per home inspected and labeled as ENERGY STAR.

#### Value-Added Services

- Cooperative marketing
- Plan review
- Sales staff training
- Builder superintendent training
- Code compliance review
- Testing and inspections for Environments for Living program (insulation utility guarantee program).

### Incentives/Rebates Offered

- Oncor (formerly TXU) offers a rebate of \$300 per ENERGY STAR labeled home.
- Reliant Energy in Houston offers a rebate of \$225 per ENERGY STAR labeled home.

### Steps Taken to Reduce Program Costs

- Sampling of ratings

### Successful Program Elements

- Recruiting one large production builder at a time and developing strong relationships with senior management, building superintendents, and marketing staff. Having the company grow as the market grows.
- Development of computerized tracking system that keeps account of the production schedules in a number of subdivisions at a time.

### Marketing Elements

A unique marketing strategy that this program employs is that \$25 of each rebate is dedicated to a cooperative marketing account. This account is used to purchase display ads in the newspapers in the major housing markets. The participating utilities then pay for radio advertisements and billboard display ads.

### Targeted to Builders

- Individual builder recruitment.
- Builder training.

### Targeted to Consumers

- Radio advertisements
- Billboard display ads
- Training builder marketing staff

### Manufacturer Cost-Sharing/Co-sponsoring of Program Elements

None

### Lessons Learned

- Need to develop a software tracking system before signing a large production builder that will have projects in a number of subdivisions in more than one housing market.

### Program Theory

Not available

## **Guaranteed Watt Saver Systems – West, Inc.**

### Territory Covered:

Dallas and Houston housing markets

### Program Sponsors

- Oncur (formerly TXU Utility)
- Reliant Energy

### Funding Sources

- Fees for ratings
- Fees for plan reviews
- Fees for builder training

### Certification Organization Name

Guaranteed Watt Saver Systems – West, Inc.

### Organization Structure and Features

Guaranteed Watt Saver Systems – West, Inc. (GWSSI) is a for-profit corporation. GWSSI is accredited by RESNET's Mortgage Industry National Home Energy Rating System Accreditation Procedures.

### Brief Program History

GWSSI began in 1977. The company took NASA spin-off technology that used a radiant barrier and adapted it to residential energy use. The focus of GWSSI was not only to make strides using the radiant barrier, but also to update the designing process of the residential heating ventilation and air conditioning (HVAC) system. The company also helped pioneer the importance of measuring air tightness of the overall structure using a device called a blower door. Since conception, GWSSI has successfully completed and guaranteed tens of thousands of homes nationwide, giving each homeowner satisfaction and lower utility costs. In 1982, Smart House Consultants joined GWSSI to develop nationwide dealerships. These dealerships make this technology and knowledge available to homes in any climate region. In 1996, the Western region was established in Oklahoma and Kelly Parker, a professional engineer, became the President of Guaranteed Watt Saver Systems - West, Inc. The company was recognized in 1997 by the *Environmental Protection Agency* as the first nationwide program for the construction of *Energy Star Homes*.

### Technical Differences from Baseline HERS 86.0 Points

GWSSI uses the REM/Rate rating software program. REM/Rate complies with the National Association of State Energy Officials (NASEO) National Home Energy Rating Technical Guidelines. The program uses the HERS baseline of 86.0 points for certification of ENERGY STAR Homes.

### Types and Percentage of Ratings Performed

Individually inspected HERS:	58.1%
Sampled HERS:	38.2%
Individually inspected BOPS:	3.5%
Sampled BOPS	0.2%

### Use of Sampling and BOPS

GWSSI conducts random sampling of ratings using EPA's random sampling protocol. The firm also uses BOPS developed by EPA. The BOPS are supposed to meet the HERS score of 86.0 points in a "worse case" energy configuration.

### Quality Assurance Procedures

- Desk Quality Control of Rating Report – GWSSI reviews the rating report data, inputs, and energy improvement measures recommended. The purpose is to ensure that the information collected from the site is being accurately inputted into the rating software program and that the correct rating procedures are being adhered to. GWSSI undertakes a desk quality control on every rating.
- Field Quality Monitoring – GWSSI representatives visit a home that the rater has rated. GWSSI completes quality control monitoring on 2% of every certified rater's ratings.
- Customer Complaints – GWSSI maintains quality control through the handling of and responding to consumer complaints. A complaint may trigger more extensive quality control procedures and could ultimately affect the rater's certification.

### Number of ENERGY STAR Homes Labeled by Program

Total Number of Homes Labeled: 1,898

Number Labeled in 2001: 1,019

### Expected Participants in 2002

3,050 – 2,300 in Houston and 750 in Dallas

### Number of Builders Participating in Program

32 – 12 in Houston and 20 in Dallas

### Program Funded Services

- Energy ratings
- ENERGY STAR certification
- Residential HVAC design
- Energy efficient building specifications
- Energy efficiency training

### Service Costs

- Plan analysis and HVAC sizing - \$0.10 per square foot.
- Inspection and performance testing - \$300 – 450 per house.

### Value-Added Services

- Residential HVAC design
- Energy efficient building specifications
- Energy efficiency training

### Incentives/Rebates Offered

- Oncor (formely TXU) in Dallas offers a rebate of \$300 per ENERGY STAR labeled home.
- Reliant Energy in Houston offers a rebate of \$225 per ENERGY STAR labeled home.

### Steps Taken to Reduce Program Costs

- Sampling of ratings
- Extensive training of builders and subcontractors on proper building performance practices. Educated and experienced builders and subcontractors do the job right the first time and reduce the cost of the rating by lowering the number of inspections needed.

### Successful Program Elements

The key to GWSS meeting the demand for labeling of ENERGY STAR Homes in the Dallas and Houston housing markets is sampling of ratings. The firm believes that for sampling to work the builder must have an excellent quality control process for all of its subcontractors. In addition, extensive training must be giving to the builders' staff and subcontractors on proper building performance practices. GWSS makes this training the keystone of its efforts.

### Marketing Elements

#### Targeted to Builders

- Sales staff training.
- Marketing support services.
- Development of promotional products.
- Home shows.

#### Targeted to Consumers

- Cooperative marketing with utility efforts.
- Home shows

### Manufacturer Cost-Sharing/Co-sponsoring of Program Elements

None

### Lessons Learned

- For sampling to work, the top management of the production building firm must completely understand the concept of building performance and make a corporate commitment to it. Clear communications to the firm's

staff is critical. The builder must be committed to building an improved product and must know what must be done to achieve the desired goal.

Program Theory

See presentation given at the 2002 RESNET Conference posted at [http://www.natresnet.org/conference/2002/presentations/Parker\\_Business.pdf](http://www.natresnet.org/conference/2002/presentations/Parker_Business.pdf).

## XIII.Utah

### General State Information

#### State Energy Code Baseline

The State of Utah's energy code is the 2000 version of the International Energy Conservation Code. Builders can use a home energy rating to demonstrate compliance to the code.

#### Number of Housing Starts in State in 2001

According to the U.S. Census Bureau, there were permits issued in 2001 for the construction of 18,275 housing units.

#### Number of Homes Labeled as ENERGY STAR in 2001

165

#### % of New Homes Certified as ENERGY STAR in 2001

0.9%

#### Total Number of Builders in State

The Utah Department of Professional Licensing reports that there are 6,040 licensed building contractors in the state.

#### Housing Market Dynamics

According to the U.S. Bureau of the Census 53%, of the housing starts are in the Salt Lake City housing market. The state has a robust housing market.

### Certification Program Information

## **Energy Rated Homes of Utah**

### Territory Covered:

Statewide

### Program Sponsors

- Utah Office of Energy Efficiency
- Utah Fannie Mae Partnership Office

### Funding Sources

- Fees for ratings
- Grant from State of Utah

### Certification Organization Name

Energy Rated Homes of Utah

### Organization Structure and Features

Energy Rated Homes of Utah is a program of the Utah Energy Conservation Coalition, a not-for-profit 501 C3 organization. The Utah Energy Conservation Coalition is a statewide nonprofit organization whose purpose is to provide opportunities for the citizens of Utah to receive energy education, to take advantage of special mortgage programs, and to encourage energy conservation in all areas of the housing industry. Energy Rated Homes of Utah is accredited by RESNET's Mortgage Industry National Home Energy Rating System Accreditation Procedures.

### Brief Program History

The Utah Energy Conservation Coalition started Energy Rated Homes of Utah with funding from the Utah Office of Energy Efficiency in 1996.

### Technical Differences from Baseline HERS 86.0 Points

Energy Rated Homes of Utah uses the REM/Rate rating software program. REM/Rate complies with the National Association of State Energy Officials (NASEO) National Home Energy Rating Technical Guidelines. The program uses the HERS baseline of 86.0 points for certification of ENERGY STAR Homes.

### Types and Percentage of Ratings Performed

Individually inspected HERS: 100%

### Use of Sampling and BOPS

Energy Rated Homes of Utah does not use BOPS or random sampling of ratings.

### Quality Assurance Procedures

- Central processing of all ratings.
- Periodic on-site review of ratings submitted.

- Client questionnaires and surveys.

Number of ENERGY STAR Homes Labeled by Program

Total Number of Homes Labeled: 1,129

Number Labeled in 2001: 165

Expected Participants in 2002

500

Number of Builders Participating in Program

11

Program Funded Services

- Rating fees
- Rater training

Service Costs

- Ratings - \$350
- Code compliance documentation - \$40

Value-Added Services

- Training and certification of raters in Arizona, Montana, New Mexico, and Texas.
- Utah Green Builder Program - The Utah Green Building Program encourages a "whole-systems" approach to residential construction through design and building techniques to minimize environmental impact and reduce the energy consumption of a building while contributing to the health of its occupants. The Utah Green Built Program is house specific. Each house must meet the program criteria as set forth in the Green Building Energy Checklist which includes an energy rating of 86 points or greater. The Utah Green Building Program is dedicated to improving the built environment. Part of its mission is to provide a forum and format for a statewide, Utah specific, residential Green Building Program with environmental and economic benefits for all. Membership and affiliation with the Utah Green Building Program is open to any interested individuals. Currently, the Utah Green Building Program is an internal division of the Utah Energy Conservation Coalition governed by a Board of Directors and Corporate Officers who are elected by a vote of the general membership.
- Partnership with Fannie Mae – Through the Utah Fannie Mae Partnership Office, a pilot energy efficient mortgage product is offered. The product offers high loan-to-value ratios, energy savings documented by a rating applied to the PITI for the loan qualification process, and reduced PMI.
- Energy code training.

### Incentives/Rebates Offered

None

### Steps Taken to Reduce Program Costs

- Regional coverage
- Volume pricing

### Successful Program Elements

- Partnership with Fannie Mae Partnership Office
- Utah Green Building Program
- Builder marketing

### Marketing Elements

#### Targeted to Builders

- Annual energy award in homebuilder association parade of homes. All homes in parade are energy rated. Marketing recognition is given by Energy Rated Homes of Utah and the local homebuilder association for the builder that achieves the highest energy rating.
- Membership and active participation in the homebuilder associations in the largest housing markets.

#### Targeted to Consumers

- Annual energy award in parade of homes. The award is featured in media coverage of the parades.
- Web site.
- Quarterly newsletter.
- Monthly “energy awareness” ads in newspapers.
- Home shows.
- Community workshops and seminars.

### Manufacturer Cost-Sharing/Co-sponsoring of Program Elements

None

### Lessons Learned

- Don't focus definition of services as solely providing energy rating services. The field is still too small. Need to use a broad-based approach to energy efficiency when dealing with builders and consumers.

### Program Theory

Energy Rated Homes of Utah is developing a marketing plan.

## **XIV. Wisconsin**

### **General State Information**

#### State Energy Code Baseline

The State of Wisconsin's energy code is the state developed COMM 22. COMM 22 is mandatory statewide. The U.S. Department of Energy reports that the state code exceeds the 1995 version of the Model Energy Code. An ENERGY STAR Home is 25% more efficient than the state energy code.

#### Number of Housing Starts in State in 2001

According to the U.S. Census Bureau, there were permits issued in 2001 for the construction of 35,358 housing units.

#### Number of Homes Labeled as ENERGY STAR in 2001

488

#### % of New Homes Certified as ENERGY STAR in 2001

1.4%

#### Total Number of Builders in State

There is no central licensing in Wisconsin for residential builders. The Wisconsin Builder Association reports that it has 6,122 members. The National Association of Home Builders reports that nationally, builders represent 31% of the membership of builder associations.\* The remaining membership is composed of associate members. Applying this percentage, it can be estimated that there are 3,061 builder members in the state.

\* NAHB DataCard, October 2001

#### Housing Market Dynamics

According to the U.S. Bureau of the Census, 18% of the housing starts are in the Milwaukee housing market and thirteen 13% in the Madison market. The state's housing market is robust. The state's housing market is dominated by small-scale custom homebuilders. Sixty percent (60%) of the builders in the state construct less than ten homes a year. There are only a few builders that build over a hundred homes a year and they are concentrated in the Milwaukee and Madison markets.

### **Certification Program Information**

## **Wisconsin ENERGY STAR Homes**

### Territory Covered:

Statewide

### Program Sponsors

- Wisconsin Energy Bureau
- Wisconsin Energy Conservation Corporation

### Funding Sources

- Public benefit funds
- Fees from rating services

### Certification Organization Name

Wisconsin Home Performance Homes

### Organization Structure and Features

Wisconsin ENERGY STAR Homes is a program of the Wisconsin Energy Conservation Corporation (WECC), a not-for-profit organization. WECC also administers the Wisconsin Home Performance rating program. Wisconsin ENERGY STAR Homes builds on the EPA ENERGY STAR Homes Program by adding building standards that are more specific to Wisconsin's climate and emphasizing combustion safety and durability. The program has "Home Performance Consultants" who work closely with the builder. The consultants must be certified as Wisconsin Home Performance raters. To certify a Wisconsin ENERGY STAR Home, the consultant must make at least three site visits during the construction of the home which includes diagnostic testing. After the final visit, if the rating score is 86 or higher, the consultant can certify the home as a Wisconsin ENERGY STAR Home. Wisconsin Home Performance is accredited by RESNET's Mortgage Industry National Home Energy Rating System Accreditation Procedures.

### Brief Program History

The Wisconsin Home Performance rating program was started in July 1996 with funding from the state energy office. The Wisconsin ENERGY STAR Homes program began in February 1999 with utility public benefit funding.

### Technical Differences from Baseline HERS 86.0 Points

Wisconsin Home Performance uses the REM/Rate rating software program. REM/Rate complies with the National Association of State Energy Officials (NASEO) National Home Energy Rating Technical Guidelines. The program uses the HERS baseline of 86.0 points for certification of ENERGY STAR Homes.

In addition to a HERS score of 86.0 points or higher, the Wisconsin ENERGY STAR Homes Program requires:

- Continuous and durable air barrier.
- Minimum exhaust flow ventilation.
- Dedicated exhaust ventilation for electric and gas kitchen ranges.
- Exhaust ventilation of bathroom fans to the exterior if the home has a centrally ducted ventilation system with an exhaust pickup in bathrooms.
- No unvented combustion appliances including unvented fire places are allowed.
- Sealed or power ventilated heating and hot water systems.
- Installation of a carbon monoxide detector.

Types and Percentage of Ratings Performed

Individually inspected HERS: 100%

Use of Sampling and BOPS

Wisconsin Home Performance does not use BOPS or random sampling of ratings.

Quality Assurance Procedures

- Screening of rater candidates – The Wisconsin program’s quality assurance effort starts with high technical qualifications of rater candidates. Before they can attend the rater training, candidates must pass pre-screening.
- Probation supervision – For the first six months after certification all raters must be accompanied by WECC staff.
- Written and field assessments after rater certification – All raters must pass written and field examinations by WECC staff after six months of their certification. After the first year, the written and field assessments take place on an annual basis. This evaluation not only addresses technical competency but also how the rater interacts with the customer and knowledge of the Wisconsin ENERGY STAR Homes program.
- Every home is inspected three times during phases of construction.

Number of ENERGY STAR Homes Labeled by Program

Total Number of Homes Labeled: 747

Number Labeled in 2001: 489

Expected Participants in 2002

1,000

Number of Builders Participating in Program

11

Program Funded Services

- Rating fees

- Rater training
- Program administration
- Program marketing

#### Service Costs

- Certification of ENERGY STAR Home – The price ranges from \$750 - \$1,000. \$520 of the cost is funded with public benefit funds, resulting in the builder paying between from \$250 to \$300.

#### Value-Added Services

- Wisconsin ENERGY STAR Homes Program.
- Fannie Mae Energy Efficiency Non-Recourse Consumer Loan Program. WECC runs a very successful consumer loan program offered by Fannie Mae. The program finances the installation of energy improvements.

#### Incentives/Rebates Offered

- \$520 for the cost of the certification of ENERGY STAR Home.
- A rebate ranging from \$250 to \$2,5000 to the consumer buying ENERGY STAR labeled home. The amount of the rebate is based on the home's energy rating. The average home rating is 88 resulting in an average rebate of \$550.
- Wisconsin ENERGY STAR Home Energy Efficient Mortgages – Participating lenders offer lower closing costs to consumers who purchase Wisconsin ENERGY STAR Homes. There are 11 lending institutions in the state participating in the program.
- ENERGY STAR Appliance Program – Wisconsin ENERGY STAR Home buyers who install EPA ENERGY STAR labeled refrigerators, dishwashers, and clothes washers receive a \$200 rebate.
- Madison Gas and Electric offers free ratings.

#### Steps Taken to Reduce Program Costs

- Linking the ENERGY STAR and rating programs.
- Processing of ratings. Currently, the rater completes the rating checklist and faxes it to WECC for processing. WECC plans to streamline the process where the rater can submit the inputs on-line.
- Reduce the number of inspections of a home – WECC found that after a year of participation, most builders catch on how to build an ENERGY STAR home. Builders insist, however, that every home must be tested. WECC will drop the requirement for three on-site inspections and only require a final inspection and testing.
- Eliminate rebates for purchase of ENERGY STAR Homes in July 2002.

### Successful Program Elements

- Wisconsin ENERGY STAR Homes Program
- Rebates

### Marketing Elements

#### Targeted to Builders

- Membership and active involvement in homebuilder associations in the state's largest housing markets – WECC strives to be a resource to builders on such issues as mold and indoor air quality. An example of this is that WECC and the Metro Builders Association of Greater Milwaukee recently co-sponsored a conference on mold and other indoor air quality issues. In all of these efforts, WECC heavily markets the benefits of energy efficient construction and ENERGY STAR. This has created a level of trust with builders.

#### Targeted to Consumers

- Earned media – WECC has worked hard with the news departments in the state's largest housing markets to become a resource on energy, indoor air quality, and other housing issues. Whenever an issue emerges, such as the recent mold concern, they use this contact to include stories on the benefits of energy efficiency and the ENERGY STAR Homes Program.
- Utility high bill complaints – The state's utilities refer calls from consumers with high energy bills to WECC.
- Consumer seminars – WECC partners with housing groups in giving consumer seminars on the importance of energy efficiency considerations when buying a home.
- Signage on ENERGY STAR labeled homes – WECC's program managers report the most effective consumer marketing effort is to have yard signs in front of ENERGY STAR labeled homes identifying the home as ENERGY STAR and a contact phone number. This has led to many referral calls.

### Manufacturer Cost-Sharing/Co-sponsoring of Program Elements

None

### Lessons Learned

- Initially in markets dominated by small custom builders, a rebate incentive is key to draw builder's participation.
- As a utility benefit funded program, Wisconsin ENERGY STAR Homes must focus more on appliances. WECC has recently completed an evaluation of the actual energy consumption of labeled homes. They found that the construction practice in the state was energy efficient. This resulted in only a savings of ten percent (10%) over standard practice. More telling, participation in the program resulted in only a four percent (4%) savings in electrical consumption. As result of this evaluation,

WECC will in July 2002 drop the rebates for the purchase of ENERGY STAR Homes and focus on the ENERGY STAR appliance rebates.

### Program Theory

The Wisconsin ENERGY STAR Homes Program is a utility public benefits program. The goal is to invest the funds in an effort that will lead to market transformation that will capturing energy savings today. The program has been successfully linked to a home energy rating program. An issue to the program is that since the program is funded through electrical utility public benefit funds, the program needs to result in electrical savings. Wisconsin is a heating climate state and most residential heating is fueled by natural gas. This requires that a residential construction program be expanded to include electrical appliances in its service emphasis.

**Appendix II**  
**Comparison of Massachusetts and Other**  
**Top Producing ENERGY STAR Programs**

**Table 1. Comparison of Massachusetts and Alaska ENERGY STAR Homes Programs**

<u>Massachusetts</u>	<u>Arizona</u>
<b><u>Program Name</u></b> ENERGY STAR Homes	<b><u>Program Name</u></b> AKWarm
<b><u>Number of ENERGY STAR Homes Labeled in 2001 - % of Permits</u></b> 841 – 5.0%	<b><u>Number of ENERGY STAR Homes Labeled in 2001 - % of Permits</u></b> 1,103 – 38%
<b><u>Program Sponsors</u></b> Electric and gas utilities and non-utility parties (energy office, advocates, environmental groups, etc.) collectively known as the Joint Management Committee (JMC)	<b><u>Program Sponsors</u></b> Alaska Housing Finance Corporation (AHFC)
<b><u>Funding Source</u></b> System Benefits Charge funds (through 2007).	<b><u>Funding Source</u></b> Agency funds
<b><u>Use of Sampling/BOPS</u></b> There is currently no use of sampling or BOPS.	<b><u>Use of Sampling/BOPS</u></b> There is currently no use of sampling or BOPS.
<b><u>Technical Differences from 86 Point Standard/State Energy Code Base</u></b> <b>Differences from 86 Point Base</b> <ul style="list-style-type: none"> <li>• Mechanical ventilation requirement</li> <li>• CO detector requirement</li> </ul> <b>State Energy Code Base</b> <ul style="list-style-type: none"> <li>• MA energy code is equivalent to HERS 83.</li> <li>• HERS is accepted, but rarely used, code-compliance method.</li> <li>• All building envelope penetrations must be sealed; all ducts in unconditioned space must be sealed with mastic and insulated; HVAC systems must not be sized more than 125% of peak heating load.</li> <li>• Recent MA BBRs study found that less than half of new homes built in the state comply with the minimum guidelines of the energy code.</li> </ul>	<b><u>Technical Differences from 86 Point Standard/State Energy Code Base</u></b> <b>Differences from 86 Point Base</b> <p>AHFC uses the AkWarm rating software program that was developed by the agency. The program does not comply with the National Association of State Energy Officials (NASEO) National Home Energy Rating Technical Guidelines. AkWarm’s baseline for certification of ENERGY STAR Homes equates to 88.0 on the national HERS baseline.</p> <b>State Energy Code Base</b> <ul style="list-style-type: none"> <li>• Alaska energy code is equivalent to HERS 83.</li> <li>• HERS is preferred option by builders to demonstrate compliance to code.</li> </ul>

<p><b><u>Program and Value Added Services Offered</u></b></p> <ul style="list-style-type: none"> <li>• Extensive marketing campaign (billboards, parade of homes events, newspaper ads and earned media stories, educational signage, marketing materials, etc.)</li> <li>• Dedicated outreach and support to affordable/multifamily sector</li> <li>• Home energy rating plan review and recommendations to achieve program standards</li> <li>• On-site training of builder, employees and subs and on-going technical assistance;</li> <li>• Pre-drywall inspection to ensure insulation subs performed</li> <li>• Energy efficient lighting design and selection assistance</li> <li>• HVAC commissioning; including verification of proper operation of mechanical ventilation, heating and cooling systems and ductwork; Right J software analysis, room-by-room airflow testing; AC charge testing</li> <li>• Blower door and duct blaster testing and house inspection to certify subcontractor work and energy efficiency performance</li> <li>• ENERGY STAR Homes Program labeling</li> <li>• Code compliance documentation</li> </ul>	<p><b><u>Program and Value Added Services Offered</u></b></p> <ul style="list-style-type: none"> <li>• Outreach</li> <li>• Marketing</li> <li>• Home energy rating</li> <li>• Technical assistance</li> <li>• ENERGY STAR Homes Program labeling</li> <li>• Mortgage loan interest rate reduction for homes that are rated Five Star or better</li> <li>• Home energy rating plan review and recommendations to achieve program standards</li> <li>• Blower door and duct blaster testing and house inspection to certify subcontractor work and energy efficiency performance</li> <li>• Code compliance documentation</li> </ul>
<p><b><u>Service Costs</u></b> \$75 application fee (refundable upon home certification)</p>	<p><b><u>Service Costs</u></b> Raters charge \$175 – 250 for a home energy rating.</p>
<p><b><u>Incentives Offered</u></b></p> <ul style="list-style-type: none"> <li>• \$500 single-family home rebate</li> <li>• \$200 multi-family unit rebate</li> <li>• Up to \$900 in rebates for ENERGY STAR lighting, mechanical ventilation (required, \$100), refrigerators (\$100) and dishwashers (\$100)</li> <li>• \$100 for HERS score of 87 (single family) or 88 (multifamily)</li> <li>• Additional gas utility rebates for high efficiency gas heating and water heating equipment</li> </ul>	<p><b><u>Incentives Offered</u></b> Reduced interest rate for Five star rated homes</p>

<p><b><u>Marketing Elements</u></b></p> <ul style="list-style-type: none"> <li>• Open House Tours</li> <li>• Model Home offer (to equip display with Energy Star marketing materials)</li> <li>• Builder Coop advertising offer (pay 50% of Energy Star ad costs up to a cap)</li> <li>• Builder, subcontractor, architect training workshops</li> <li>• Billboards</li> <li>• Newspaper and radio advertisement</li> <li>• Media outreach</li> <li>• Mobile training vans (2)</li> <li>• Customized on-site builder/subcontractor trainings</li> </ul>	<p><b><u>Marketing Elements</u></b></p> <p>Targeted to Builders</p> <ul style="list-style-type: none"> <li>• Workshops at builder association conventions.</li> </ul> <p>Targeted to Consumers</p> <ul style="list-style-type: none"> <li>• Booth at home shows in state's largest housing markets</li> </ul>
---	---

**Table 2. Comparison of Massachusetts and Arizona ENERGY STAR Homes Programs**

<u>Massachusetts</u>	<u>Arizona</u>
<b><u>Program Name</u></b> ENERGY STAR Homes	<b><u>Program Name</u></b> D.R. Wastchak, L.L.C.
<b><u>Number of ENERGY STAR Homes Labeled in 2001 - % of Permits</u></b> 841 – 5.0%	<b><u>Number of ENERGY STAR Homes Labeled in 2001 - % of Permits</u></b> 6,990 – 12%
<b><u>Program Sponsors</u></b> Electric and gas utilities and non-utility parties (energy office, advocates, environmental groups, etc.) collectively known as the Joint Management Committee (JMC)	<b><u>Program Sponsors</u></b> <ul style="list-style-type: none"> <li>• U.S. Department of Energy’s Building America Program</li> <li>• EPA</li> <li>• Southwest Gas</li> <li>• Environments for Living</li> <li>• Engineered for Life</li> </ul>
<b><u>Funding Source</u></b> System Benefits Charge funds (through 2007).	<b><u>Funding Source</u></b> Proceeds from ratings and testing.
<b><u>Use of Sampling/BOPS</u></b> There is currently no use of sampling or BOPS.	<b><u>Use of Sampling/BOPS</u></b> Sampling of ratings.
<b><u>Technical Differences from 86 Point Standard/State Energy Code Base</u></b> <b>Differences from 86 Point Base</b> <ul style="list-style-type: none"> <li>• Mechanical ventilation requirement</li> <li>• CO detector requirement</li> </ul> <b>State Energy Code Base</b> <ul style="list-style-type: none"> <li>• MA energy code is equivalent to HERS 83.</li> <li>• HERS is accepted, but rarely used, code-compliance method.</li> <li>• All building envelope penetrations must be sealed; all ducts in unconditioned space must be sealed with mastic and insulated; HVAC systems must not be sized more than 125% of peak heating load.</li> <li>• Recent MA BBRs study found that less than half of new homes built in the state comply with the minimum guidelines of the energy code.</li> </ul>	<b><u>Technical Differences from 86 Point Standard/State Energy Code Base</u></b> <b>Differences from 86 Point Base</b> None <b>State Energy Code Base</b> 2002 version of the International Energy Conservation Code as a voluntary standard

<p><b><u>Program and Value Added Services Offered</u></b></p> <ul style="list-style-type: none"> <li>• Extensive marketing campaign (billboards, parade of homes events, newspaper ads and earned media stories, educational signage, marketing materials, etc.)</li> <li>• Dedicated outreach and support to affordable/multifamily sector</li> <li>• Home energy rating plan review and recommendations to achieve program standards</li> <li>• On-site training of builder, employees and subs and on-going technical assistance;</li> <li>• Pre-drywall inspection to ensure insulation subs performed</li> <li>• Energy efficient lighting design and selection assistance</li> <li>• HVAC commissioning; including verification of proper operation of mechanical ventilation, heating and cooling systems and ductwork; Right J software analysis, room-by-room airflow testing; AC charge testing</li> <li>• Blower door and duct blaster testing and house inspection to certify subcontractor work and energy efficiency performance</li> <li>• ENERGY STAR Homes Program labeling</li> <li>• Code compliance documentation</li> </ul>	<p><b><u>Program and Value Added Services Offered</u></b></p> <ul style="list-style-type: none"> <li>• Outreach</li> <li>• Marketing</li> <li>• Home energy rating</li> <li>• Technical assistance</li> <li>• ENERGY STAR Homes Program labeling</li> <li>• Sales training</li> <li>• Sale of ENERGY STAR marketing materials</li> <li>• Coordination of collective builder marketing efforts</li> <li>• HERS ratings</li> <li>• QC testing &amp; inspections during construction</li> <li>• Diagnostic investigations in support of insulation manufacturer utility bill guarantee programs</li> </ul>
<p><b><u>Service Costs</u></b> \$75 application fee (refundable upon home certification)</p>	<p><b><u>Service Costs</u></b> Raters charge \$250 – 300 for each home tested</p>
<p><b><u>Incentives Offered</u></b></p> <ul style="list-style-type: none"> <li>• \$500 single-family home rebate</li> <li>• \$200 multi-family unit rebate</li> <li>• Up to \$900 in rebates for ENERGY STAR lighting, mechanical ventilation (required, \$100), refrigerators (\$100) and dishwashers (\$100)</li> <li>• \$100 for HERS score of 87 (single family) or 88 (multifamily)</li> <li>• Additional gas utility rebates for high efficiency gas heating and water heating equipment</li> </ul>	<p><b><u>Incentives Offered</u></b> None</p>

<p><b><u>Marketing Elements</u></b></p> <ul style="list-style-type: none"> <li>• Open House Tours</li> <li>• Model Home offer (to equip display with Energy Star marketing materials)</li> <li>• Builder Coop advertising offer (pay 50% of Energy Star ad costs up to a cap)</li> <li>• Builder, subcontractor, architect training workshops</li> <li>• Billboards</li> <li>• Newspaper and radio advertisement</li> <li>• Media outreach</li> <li>• Mobile training vans (2)</li> <li>• Customized on-site builder/subcontractor trainings</li> </ul>	<p><b><u>Marketing Elements</u></b></p> <p>Targeted to Builders</p> <ul style="list-style-type: none"> <li>• Training of participating builders' marketing staff. D.R. Wastchak, L.L.C. conducts training for the participating marketing departments on the benefits of ENERGY STAR homes and how to market the benefits to consumers.</li> <li>• D.R. Wastchak, L.L.C. also provides building science training to builders.</li> </ul> <p>Targeted to Consumers</p> <ul style="list-style-type: none"> <li>• D.R. Wastchak, L.L.C., along with Southwest Gas Corporation, participated in an EPA funded ENERGY STAR Homes marketing effort in 2001. This effort included a parade of homes featuring ENERGY STAR labeled homes in the Phoenix market and cooperative advertising in the newspaper.</li> </ul>
---	---

**Table 3. Comparison of Massachusetts and Iowa ENERGY STAR Homes Programs**

<u>Massachusetts</u>	<u>Iowa</u>
<b><u>Program Name</u></b> ENERGY STAR Homes	<b><u>Program Name</u></b> MidAmerican Energy's Energy Advantage Homes Program
<b><u>Number of ENERGY STAR Homes Labeled in 2001 - % of Permits</u></b> 841 – 5.0%	<b><u>Number of ENERGY STAR Homes Labeled in 2001 - % of Permits</u></b> 1,242 – 10%
<b><u>Program Sponsors</u></b> Electric and gas utilities and non-utility parties (energy office, advocates, environmental groups, etc.) collectively known as the Joint Management Committee (JMC)	<b><u>Program Sponsors</u></b> MidAmerican Energy
<b><u>Funding Source</u></b> System Benefits Charge funds (through 2007).	<b><u>Funding Source</u></b> Utility rate base
<b><u>Use of Sampling/BOPS</u></b> There is currently no use of sampling or BOPS.	<b><u>Use of Sampling/BOPS</u></b> A-Tech Energy Corporation uses BOPS provided by EPA and uses the EPA sampling protocol.
<b><u>Technical Differences from 86 Point Standard/State Energy Code Base</u></b> <b>Differences from 86 Point Base</b> <ul style="list-style-type: none"> <li>• Mechanical ventilation requirement</li> <li>• CO detector requirement</li> </ul> <b>State Energy Code Base</b> <ul style="list-style-type: none"> <li>• MA energy code is equivalent to HERS 83.</li> <li>• HERS is accepted, but rarely used, code-compliance method.</li> <li>• All building envelope penetrations must be sealed; all ducts in unconditioned space must be sealed with mastic and insulated; HVAC systems must not be sized more than 125% of peak heating load.</li> <li>• Recent MA BBRS study found that less than half of new homes built in the state comply with the minimum guidelines of the energy code.</li> </ul>	<b><u>Technical Differences from 86 Point Standard/State Energy Code Base</u></b> <b>Differences from 86 Point Base</b> A-Tech Energy Corporation is a BOPS provider. The BOPS are supposed to meet the HERS score of 86.0 points in a “worse case” energy configuration. <b>State Energy Code Base</b> The State of Iowa's residential energy code is based on the 1992 version of the Model Energy Code. On February 10, 1999, the Iowa State Building Code Commissioner accepted home energy ratings as a voluntary method of compliance for the state's energy code.

<p><b><u>Program and Value Added Services Offered</u></b></p> <ul style="list-style-type: none"> <li>• Extensive marketing campaign (billboards, parade of homes events, newspaper ads and earned media stories, educational signage, marketing materials, etc.)</li> <li>• Dedicated outreach and support to affordable/multifamily sector</li> <li>• Home energy rating plan review and recommendations to achieve program standards</li> <li>• On-site training of builder, employees and subs and on-going technical assistance;</li> <li>• Pre-drywall inspection to ensure insulation subs performed</li> <li>• Energy efficient lighting design and selection assistance</li> <li>• HVAC commissioning; including verification of proper operation of mechanical ventilation, heating and cooling systems and ductwork; Right J software analysis, room-by-room airflow testing; AC charge testing</li> <li>• Blower door and duct blaster testing and house inspection to certify subcontractor work and energy efficiency performance</li> <li>• ENERGY STAR Homes Program labeling</li> <li>• Code compliance documentation</li> </ul>	<p><b><u>Program and Value Added Services Offered</u></b></p> <ul style="list-style-type: none"> <li>• Labeling of ENERGY STAR Homes through MidAmerican Energy's Energy Advantage Homes Program.</li> <li>• Qualification of homes for Energy Advantage Homes rebates</li> </ul>
<p><b><u>Service Costs</u></b> \$75 application fee (refundable upon home certification)</p>	<p><b><u>Service Costs</u></b> The cost of ratings is paid through utility rebates.</p>
<p><b><u>Incentives Offered</u></b></p> <ul style="list-style-type: none"> <li>• \$500 single-family home rebate</li> <li>• \$200 multi-family unit rebate</li> <li>• Up to \$900 in rebates for ENERGY STAR lighting, mechanical ventilation (required, \$100), refrigerators (\$100) and dishwashers (\$100)</li> <li>• \$100 for HERS score of 87 (single family) or 88 (multifamily)</li> <li>• Additional gas utility rebates for high efficiency gas heating and water heating equipment</li> </ul>	<p><b><u>Incentives Offered</u></b> Rebates ranging from \$1,000 to \$2,000 per home</p>

<p><b><u>Marketing Elements</u></b></p> <ul style="list-style-type: none"> <li>• Open House Tours</li> <li>• Model Home offer (to equip display with Energy Star marketing materials)</li> <li>• Builder Coop advertising offer (pay 50% of Energy Star ad costs up to a cap)</li> <li>• Builder, subcontractor, architect training workshops</li> <li>• Billboards</li> <li>• Newspaper and radio advertisement</li> <li>• Media outreach</li> <li>• Mobile training vans (2)</li> <li>• Customized on-site builder/subcontractor trainings</li> </ul>	<p><b><u>Marketing Elements</u></b></p> <p>Targeted to Builders</p> <ul style="list-style-type: none"> <li>• Mid-American Energy recruits builders to participate in the Energy Advantage Home Program. Marketing includes web site targeted to builders.</li> <li>• Rebates to builders</li> </ul> <p>Targeted to Consumers</p> <ul style="list-style-type: none"> <li>• Mid-American Energy web site and other marketing to its consumers.</li> </ul>
---	---

**Table 4 Comparison of Massachusetts and Louisiana ENERGY STAR Homes Programs**

<u>Massachusetts</u>	<u>Louisiana</u>
<b><u>Program Name</u></b> ENERGY STAR Homes	<b><u>Program Name</u></b> Energy Rated Homes of Louisiana
<b><u>Number of ENERGY STAR Homes Labeled in 2001 - % of Permits</u></b> 841 – 5%	<b><u>Number of ENERGY STAR Homes Labeled in 2001 - % of Permits</u></b> 1,005 – 7%
<b><u>Program Sponsors</u></b> Electric and gas utilities and non-utility parties (energy office, advocates, environmental groups, etc.) collectively known as the Joint Management Committee (JMC)	<b><u>Program Sponsors</u></b> Louisiana Department of Natural Resources
<b><u>Funding Source</u></b> System Benefits Charge funds (through 2007).	<b><u>Funding Source</u></b> Agency funds
<b><u>Use of Sampling/BOPS</u></b> There is currently no use of sampling or BOPS.	<b><u>Use of Sampling/BOPS</u></b> There is currently no use of sampling or BOPS.
<b><u>Technical Differences from 86 Point Standard/State Energy Code Base</u></b> <b>Differences from 86 Point Base</b> <ul style="list-style-type: none"> <li>• Mechanical ventilation requirement</li> <li>• CO detector requirement</li> </ul> <b>State Energy Code Base</b> <ul style="list-style-type: none"> <li>• MA energy code is equivalent to HERS 83.</li> <li>• HERS is accepted, but rarely used, code-compliance method.</li> <li>• All building envelope penetrations must be sealed; all ducts in unconditioned space must be sealed with mastic and insulated; HVAC systems must not be sized more than 125% of peak heating load.</li> <li>• Recent MA BBRs study found that less than half of new homes built in the state comply with the minimum guidelines of the energy code.</li> </ul>	<b><u>Technical Differences from 86 Point Standard/State Energy Code Base</u></b> <b>Differences from 86 Point Base</b> None <b>State Energy Code Base</b> No residential code for single-family housing

<p><b><u>Program and Value Added Services Offered</u></b></p> <ul style="list-style-type: none"> <li>• Extensive marketing campaign (billboards, parade of homes events, newspaper ads and earned media stories, educational signage, marketing materials, etc.)</li> <li>• Dedicated outreach and support to affordable/multifamily sector</li> <li>• Home energy rating plan review and recommendations to achieve program standards</li> <li>• On-site training of builder, employees and subs and on-going technical assistance;</li> <li>• Pre-drywall inspection to ensure insulation subs performed</li> <li>• Energy efficient lighting design and selection assistance</li> <li>• HVAC commissioning; including verification of proper operation of mechanical ventilation, heating and cooling systems and ductwork; Right J software analysis, room-by-room airflow testing; AC charge testing</li> <li>• Blower door and duct blaster testing and house inspection to certify subcontractor work and energy efficiency performance</li> <li>• ENERGY STAR Homes Program labeling</li> <li>• Code compliance documentation</li> </ul>	<p><b><u>Program and Value Added Services Offered</u></b></p> <ul style="list-style-type: none"> <li>• Rater training</li> <li>• Rating processing</li> <li>• Outreach</li> <li>• Marketing</li> <li>• Inspections and testing</li> <li>• Technical assistance</li> <li>• ENERGY STAR Homes Program labeling</li> </ul>
<p><b><u>Service Costs</u></b> \$75 application fee (refundable upon home certification)</p>	<p><b><u>Service Costs</u></b> \$150 – 200 for rating</p>
<p><b><u>Incentives Offered</u></b></p> <ul style="list-style-type: none"> <li>• \$500 single-family home rebate</li> <li>• \$200 multi-family unit rebate</li> <li>• Up to \$900 in rebates for ENERGY STAR lighting, mechanical ventilation (required, \$100), refrigerators (\$100) and dishwashers (\$100)</li> <li>• \$100 for HERS score of 87 (single family) or 88 (multifamily)</li> <li>• Additional gas utility rebates for high efficiency gas heating and water heating equipment</li> </ul>	<p><b><u>Incentives Offered</u></b></p> <ul style="list-style-type: none"> <li>• State offers up to \$2,000 rebate for ENERGY STAR Home</li> <li>• Utility rebates for \$100 toward the cost of the rating</li> </ul>

<p><b><u>Marketing Elements</u></b></p> <ul style="list-style-type: none"> <li>• Open House Tours</li> <li>• Model Home offer (to equip display with Energy Star marketing materials)</li> <li>• Builder Coop advertising offer (pay 50% of Energy Star ad costs up to a cap)</li> <li>• Builder, subcontractor, architect training workshops</li> <li>• Billboards</li> <li>• Newspaper and radio advertisement</li> <li>• Media outreach</li> <li>• Mobile training vans (2)</li> <li>• Customized on-site builder/subcontractor trainings</li> </ul>	<p><b><u>Marketing Elements</u></b></p> <p>Targeted to Builders</p> <ul style="list-style-type: none"> <li>• The Louisiana Department of Natural Resources' web site has pages dedicated to Energy Rated Homes of Louisiana and the Home Energy Rebate Option Program.</li> <li>• Raters marketing their services.</li> </ul> <p>Targeted to Consumers</p> <ul style="list-style-type: none"> <li>• The Louisiana Department of Natural Resources' web site has pages dedicated to Energy Rated Homes of Louisiana and HERO.</li> <li>• A HERO brochure.</li> <li>• Raters marketing their services.</li> <li>• The Louisiana Department of Natural Resources has coordinated marketing campaigns that resulted in newspaper, radio and television news features ("earned media").</li> <li>• Participating utilities have enclosed flyers on HERS and energy ratings in their utility billings.</li> </ul>
---	---

**Table 5 Comparison of Massachusetts and Nevada ENERGY STAR Homes Programs**

<u>Massachusetts</u>	<u>Nevada</u>
<b><u>Program Name</u></b> ENERGY STAR Homes	<b><u>Program Name</u></b> Builders Choice Diagnostic Services
<b><u>Number of ENERGY STAR Homes Labeled in 2001 - % of Permits</u></b> 841 – 5%	<b><u>Number of ENERGY STAR Homes Labeled in 2001 - % of Permits</u></b> 2,007 – 6%
<b><u>Program Sponsors</u></b> Electric and gas utilities and non-utility parties (energy office, advocates, environmental groups, etc.) collectively known as the Joint Management Committee (JMC)	<b><u>Program Sponsors</u></b> <ul style="list-style-type: none"> <li>• U.S. Department of Energy Building America Program</li> <li>• Southwest Gas</li> </ul>
<b><u>Funding Source</u></b> System Benefits Charge funds (through 2007).	<b><u>Funding Source</u></b> Inspections and testing of homes
<b><u>Use of Sampling/BOPS</u></b> There is currently no use of sampling or BOPS.	<b><u>Use of Sampling/BOPS</u></b> Builders Choice Diagnostic Services labels homes using the EPA sampling protocol.
<b><u>Technical Differences from 86 Point Standard/State Energy Code Base</u></b> <b>Differences from 86 Point Base</b> <ul style="list-style-type: none"> <li>• Mechanical ventilation requirement</li> <li>• CO detector requirement</li> </ul> <b>State Energy Code Base</b> <ul style="list-style-type: none"> <li>• MA energy code is equivalent to HERS 83.</li> <li>• HERS is accepted, but rarely used, code-compliance method.</li> <li>• All building envelope penetrations must be sealed; all ducts in unconditioned space must be sealed with mastic and insulated; HVAC systems must not be sized more than 125% of peak heating load.</li> <li>• Recent MA BBRs study found that less than half of new homes built in the state comply with the minimum guidelines of the energy code.</li> </ul>	<b><u>Technical Differences from 86 Point Standard/State Energy Code Base</u></b> <b>Differences from 86 Point Base</b> None <b>State Energy Code Base</b> The State of Nevada’s energy code is the 1986 version of the Model Energy Code with state amendments.

<p><b><u>Program and Value Added Services Offered</u></b></p> <ul style="list-style-type: none"> <li>• Extensive marketing campaign (billboards, parade of homes events, newspaper ads and earned media stories, educational signage, marketing materials, etc.)</li> <li>• Dedicated outreach and support to affordable/multifamily sector</li> <li>• Home energy rating plan review and recommendations to achieve program standards</li> <li>• On-site training of builder, employees and subs and on-going technical assistance;</li> <li>• Pre-drywall inspection to ensure insulation subs performed</li> <li>• Energy efficient lighting design and selection assistance</li> <li>• HVAC commissioning; including verification of proper operation of mechanical ventilation, heating and cooling systems and ductwork; Right J software analysis, room-by-room airflow testing; AC charge testing</li> <li>• Blower door and duct blaster testing and house inspection to certify subcontractor work and energy efficiency performance</li> <li>• ENERGY STAR Homes Program labeling</li> <li>• Code compliance documentation</li> </ul>	<p><b><u>Program and Value Added Services Offered</u></b></p> <ul style="list-style-type: none"> <li>• Inspections and diagnostic testing</li> <li>• Outreach</li> <li>• Marketing</li> <li>• Inspections and testing</li> <li>• Technical assistance</li> <li>• ENERGY STAR Homes Program labeling.</li> <li>• Participate in Southwest Gas marketing efforts</li> </ul>
<p><b><u>Service Costs</u></b> \$75 application fee (refundable upon home certification)</p>	<p><b><u>Service Costs</u></b> Not available</p>
<p><b><u>Incentives Offered</u></b></p> <ul style="list-style-type: none"> <li>• \$500 single-family home rebate</li> <li>• \$200 multi-family unit rebate</li> <li>• Up to \$900 in rebates for ENERGY STAR lighting, mechanical ventilation (required, \$100), refrigerators (\$100) and dishwashers (\$100)</li> <li>• \$100 for HERS score of 87 (single family) or 88 (multifamily)</li> <li>• Additional gas utility rebates for high efficiency gas heating and water heating equipment</li> </ul>	<p><b><u>Incentives Offered</u></b> None</p>

<p><b><u>Marketing Elements</u></b></p> <ul style="list-style-type: none"> <li>• Open House Tours</li> <li>• Model Home offer (to equip display with Energy Star marketing materials)</li> <li>• Builder Coop advertising offer (pay 50% of Energy Star ad costs up to a cap)</li> <li>• Builder, subcontractor, architect training workshops</li> <li>• Billboards</li> <li>• Newspaper and radio advertisement</li> <li>• Media outreach</li> <li>• Mobile training vans (2)</li> <li>• Customized on-site builder/subcontractor trainings</li> </ul>	<p><b><u>Marketing Elements</u></b></p> <p>In 2001. EPA and Southwest Gas sponsored an ENERGY STAR marketing campaign. The effort was funded by EPA. The campaign featured a parade of ENERGY STAR labeled homes in Las Vegas, a web site, and cooperative advertising in the real estate section of the state's largest newspaper, The Las Vegas Sun. The effort increased consumer awareness of ENERGY STAR homes and the recruitment of ENERGY STAR builders.</p>
---	--

**Table 6 Comparison of Massachusetts and Indiana ENERGY STAR Homes Programs**

<u>Massachusetts</u>	<u>Indiana</u>
<b><u>Program Name</u></b> ENERGY STAR Homes	<b><u>Program Name</u></b> Energy Rated Homes Midwest
<b><u>Number of ENERGY STAR Homes Labeled in 2001 - % of Permits</u></b> 841 – 5%	<b><u>Number of ENERGY STAR Homes Labeled in 2001 - % of Permits</u></b> 1,513 – 4%
<b><u>Program Sponsors</u></b> Electric and gas utilities and non-utility parties (energy office, advocates, environmental groups, etc.) collectively known as the Joint Management Committee (JMC)	<b><u>Program Sponsors</u></b> <ul style="list-style-type: none"> <li>• Indiana Office of Energy Policy</li> <li>• Indianapolis Fannie Mae Partnership Office</li> <li>• EPA ENERGY STAR Homes Program</li> </ul>
<b><u>Funding Source</u></b> System Benefits Charge funds (through 2007).	<b><u>Funding Source</u></b> <ul style="list-style-type: none"> <li>• Processing fees charged to raters</li> <li>• Rater training fees</li> </ul>
<b><u>Use of Sampling/BOPS</u></b> There is currently no use of sampling or BOPS.	<b><u>Use of Sampling/BOPS</u></b> There is currently no use of sampling or BOPS
<b><u>Technical Differences from 86 Point Standard/State Energy Code Base</u></b> <b>Differences from 86 Point Base</b> <ul style="list-style-type: none"> <li>• Mechanical ventilation requirement</li> <li>• CO detector requirement</li> </ul> <b>State Energy Code Base</b> <ul style="list-style-type: none"> <li>• MA energy code is equivalent to HERS 83.</li> <li>• HERS is accepted, but rarely used, code-compliance method.</li> <li>• All building envelope penetrations must be sealed; all ducts in unconditioned space must be sealed with mastic and insulated; HVAC systems must not be sized more than 125% of peak heating load.</li> <li>• Recent MA BBRS study found that less than half of new homes built in the state comply with the minimum guidelines of the energy code.</li> </ul>	<b><u>Technical Differences from 86 Point Standard/State Energy Code Base</u></b> <b>Differences from 86 Point Base</b> None <b>State Energy Code Base</b> The Indiana Energy Conservation Code is based upon the 1992 version of the Model Energy Code.

<p><b><u>Program and Value Added Services Offered</u></b></p> <ul style="list-style-type: none"> <li>• Extensive marketing campaign (billboards, parade of homes events, newspaper ads and earned media stories, educational signage, marketing materials, etc.)</li> <li>• Dedicated outreach and support to affordable/multifamily sector</li> <li>• Home energy rating plan review and recommendations to achieve program standards</li> <li>• On-site training of builder, employees and subs and on-going technical assistance;</li> <li>• Pre-drywall inspection to ensure insulation subs performed</li> <li>• Energy efficient lighting design and selection assistance</li> <li>• HVAC commissioning; including verification of proper operation of mechanical ventilation, heating and cooling systems and ductwork; Right J software analysis, room-by-room airflow testing; AC charge testing</li> <li>• Blower door and duct blaster testing and house inspection to certify subcontractor work and energy efficiency performance</li> <li>• ENERGY STAR Homes Program labeling</li> <li>• Code compliance documentation</li> </ul>	<p><b><u>Program and Value Added Services Offered</u></b></p> <ul style="list-style-type: none"> <li>• Processing of ratings and issuing rating reports</li> <li>• Marketing ENERGY STAR to consumers, builders, and lenders</li> <li>• Training of raters</li> <li>• Lender training – Energy Rated Homes Midwest received funding from the local Fannie Mae Partnership Office to train and recruit lenders to offer energy efficient mortgages.</li> <li>• Outreach</li> <li>• Inspections and testing</li> <li>• Technical assistance</li> <li>• ENERGY STAR Homes Program labeling</li> <li>• Web site</li> <li>• Lender training and recruitment</li> </ul>
<p><b><u>Service Costs</u></b> \$75 application fee (refundable upon home certification)</p>	<p><b><u>Service Costs</u></b></p> <ul style="list-style-type: none"> <li>• Processing of ratings - \$45.00</li> <li>• Rater training and certification - \$600.00</li> </ul>
<p><b><u>Incentives Offered</u></b></p> <ul style="list-style-type: none"> <li>• \$500 single-family home rebate</li> <li>• \$200 multi-family unit rebate</li> <li>• Up to \$900 in rebates for ENERGY STAR lighting, mechanical ventilation (required, \$100), refrigerators (\$100) and dishwashers (\$100)</li> <li>• \$100 for HERS score of 87 (single family) or 88 (multifamily)</li> <li>• Additional gas utility rebates for high efficiency gas heating and water heating equipment</li> </ul>	<p><b><u>Incentives Offered</u></b> None</p>

<p><b><u>Marketing Elements</u></b></p> <ul style="list-style-type: none"> <li>• Open House Tours</li> <li>• Model Home offer (to equip display with Energy Star marketing materials)</li> <li>• Builder Coop advertising offer (pay 50% of Energy Star ad costs up to a cap)</li> <li>• Builder, subcontractor, architect training workshops</li> <li>• Billboards</li> <li>• Newspaper and radio advertisement</li> <li>• Media outreach</li> <li>• Mobile training vans (2)</li> <li>• Customized on-site builder/subcontractor trainings</li> </ul>	<p><b><u>Marketing Elements</u></b></p> <p>Targeted to Builders</p> <ul style="list-style-type: none"> <li>• One-on-one retail marketing to state's largest builders.</li> <li>• Training of raters to recruit builders.</li> <li>• Buildboard advertising of ENERGY STAR. Through a grant from the U.S. Department of Energy, Energy Rated Homes Midwest rented billboards at Indianapolis' busiest intersection that marketed the benefits of an energy rating. While the advertising did not dramatically increase consumer demand, it did lead to a number of builder inquiries that led to the builders being recruited to build ENERGY STAR Homes.</li> </ul> <p>Targeted to Consumers</p> <ul style="list-style-type: none"> <li>• Cooperative advertising of ENERGY STAR builders in Indianapolis Star (state's largest newspaper). With funding from EPA, Energy Rated Homes Midwest negotiated a matching ad campaign for ENERGY STAR Homes in the real estate section of the Indianapolis Star for several months. The ad campaign involved ENERGY STAR builders matching the funding and having their firms listed in the ad.</li> <li>• ENERGY STAR Homes Fair – In cooperation with EPA, Energy Rated Homes held an ENERGY STAR Homes fair in Indianapolis in October 2001.</li> </ul>
---	--

**Table 7 Comparison of Massachusetts and Wisconsin ENERGY STAR Homes Programs**

<u>Massachusetts</u>	<u>Nevada</u>
<b><u>Program Name</u></b> ENERGY STAR Homes	<b><u>Program Name</u></b> Wisconsin ENERGY STAR Homes
<b><u>Number of ENERGY STAR Homes Labeled in 2001 - % of Permits</u></b> 841 – 5%	<b><u>Number of ENERGY STAR Homes Labeled in 2001 - % of Permits</u></b> 488 – 1.4%
<b><u>Program Sponsors</u></b> Electric and gas utilities and non-utility parties (energy office, advocates, environmental groups, etc.) collectively known as the Joint Management Committee (JMC)	<b><u>Program Sponsors</u></b> <ul style="list-style-type: none"> <li>• Wisconsin Energy Bureau</li> <li>• Wisconsin Energy Conservation Corporation</li> </ul>
<b><u>Funding Source</u></b> System Benefits Charge funds (through 2007).	<b><u>Funding Source</u></b> <ul style="list-style-type: none"> <li>• Public benefit funds</li> <li>• Fees from rating services</li> </ul>
<b><u>Use of Sampling/BOPS</u></b> There is currently no use of sampling or BOPS.	<b><u>Use of Sampling/BOPS</u></b> There is currently no use of sampling or BOPS

**Technical Differences from 86 Point Standard/State Energy Code Base**

**Differences from 86 Point Base**

- Mechanical ventilation requirement
- CO detector requirement

**State Energy Code Base**

- MA energy code is equivalent to HERS 83.
- HERS is accepted, but rarely used, code-compliance method.
- All building envelope penetrations must be sealed; all ducts in unconditioned space must be sealed with mastic and insulated; HVAC systems must not be sized more than 125% of peak heating load.
- Recent MA BBRS study found that less than half of new homes built in the state comply with the minimum guidelines of the energy code.

**Technical Differences from 86 Point Standard/State Energy Code Base**

**Differences from 86 Point Base**

In addition to a HERS score of 86.0 points or higher, the Wisconsin ENERGY STAR Homes Program requires:

- Continuous and durable air barrier
- Minimum exhaust flow ventilation
- Dedicated exhaust ventilation for electric and gas kitchen ranges
- Exhaust ventilation of bathroom fans to the exterior if the home has a centrally ducted ventilation system with an exhaust pickup in bathrooms
- No un-vented combustion appliances including un-vented fire places are allowed
- Sealed or power ventilated heating and hot water systems.
- Installation of a carbon monoxide detector

**State Energy Code Base**

The state code exceeds the 1995 version of the Model Energy Code. An ENERGY STAR Home is 25% more efficient than the state energy code.

<p><b><u>Program and Value Added Services Offered</u></b></p> <ul style="list-style-type: none"> <li>• Extensive marketing campaign (billboards, parade of homes events, newspaper ads and earned media stories, educational signage, marketing materials, etc.)</li> <li>• Dedicated outreach and support to affordable/multifamily sector</li> <li>• Home energy rating plan review and recommendations to achieve program standards</li> <li>• On-site training of builder, employees and subs and on-going technical assistance;</li> <li>• Pre-drywall inspection to ensure insulation subs performed</li> <li>• Energy efficient lighting design and selection assistance</li> <li>• HVAC commissioning; including verification of proper operation of mechanical ventilation, heating and cooling systems and ductwork; Right J software analysis, room-by-room airflow testing; AC charge testing</li> <li>• Blower door and duct blaster testing and house inspection to certify subcontractor work and energy efficiency performance</li> <li>• ENERGY STAR Homes Program labeling</li> <li>• Code compliance documentation</li> </ul>	<p><b><u>Program and Value Added Services Offered</u></b></p> <ul style="list-style-type: none"> <li>• Outreach</li> <li>• Marketing</li> <li>• Inspections and testing</li> <li>• Technical assistance</li> <li>• ENERGY STAR Homes Program labeling</li> <li>• Rater training</li> <li>• Program administration</li> <li>• Wisconsin ENERGY STAR Homes Program</li> <li>• Fannie Mae Energy Efficiency Non-Recourse Consumer Loan Program - WECC runs a very successful consumer loan program offered by Fannie Mae. The program finances the installation of energy improvements.</li> </ul>
<p><b><u>Service Costs</u></b> \$75 application fee (refundable upon home certification)</p>	<p><b><u>Service Costs</u></b> Ratings - \$350</p>
<p><b><u>Incentives Offered</u></b></p> <ul style="list-style-type: none"> <li>• \$500 single-family home rebate</li> <li>• \$200 multi-family unit rebate</li> <li>• Up to \$900 in rebates for ENERGY STAR lighting, mechanical ventilation (required, \$100), refrigerators (\$100) and dishwashers (\$100)</li> <li>• \$100 for HERS score of 87 (single family) or 88 (multifamily)</li> <li>• Additional gas utility rebates for high efficiency gas heating and water heating equipment</li> </ul>	<p><b><u>Incentives Offered</u></b> Certification of ENERGY STAR Home – The price ranges from \$750 - \$1,000. \$520 of the cost is funded with public benefit funds, resulting in the builder paying between from \$250 to \$300.</p>

### Marketing Elements

- Open House Tours
- Model Home offer (to equip display with Energy Star marketing materials)
- Builder Coop advertising offer (pay 50% of Energy Star ad costs up to a cap)
- Builder, subcontractor, architect training workshops
- Billboards
- Newspaper and radio advertisement
- Media outreach
- Mobile training vans (2)
- Customized on-site builder/subcontractor trainings

### Marketing Elements

#### Targeted to Builders

- Active involvement in homebuilder associations in the state's largest housing markets – WECC strives to be a resource to builders on such issues as mold and indoor air quality. An example of this is that WECC and the Metro Builders Association of Greater Milwaukee recently co-sponsored a conference on mold and other indoor air quality issues. In all of these efforts, WECC heavily markets the benefits of energy efficient construction and ENERGY STAR. This has created a level of trust with builders.

#### Targeted to Consumers

- Earned media – WECC has worked hard with the news departments in the state's largest housing markets to become a resource on energy, indoor air quality, and other housing issues. Whenever an issue emerges, such as the recent mold concern, they use this contact to include stories on the benefits of energy efficiency and the ENERGY STAR Homes Program.
- Utility high bill complaints – The state's utilities refer calls from consumers with high energy bills to WECC.
- Consumer seminars – WECC partners with housing groups in giving consumer seminars on the importance of energy efficiency considerations when buying a home.
- Signage on ENERGY STAR labeled homes – WECC's program managers report the most effective consumer marketing effort is to have yard signs in front of moENERGY STAR labeled homes identifying the home as ENERGY STAR and a contact phone number. This has led to many referral calls.

