DRAFT ENERGY STAR® Qualified Homes 2011

Wisconsin Energy Conservation Corporation's Response

July 10, 2009

On behalf of the Wisconsin Energy Conservation Corporation (WECC), we appreciate the opportunity to provide the Environmental Protection Agency (EPA) with comments and inputs to their DRAFT ENERGY STAR Qualified Homes 2011 proposal (ENERGY STAR 2011). WECC, as a long term partner with many ENERGY STAR programs, stands alongside the EPA in advocating the increase of energy efficiency in new homes. However, we have significant concerns about the impact the DRAFT ENERGY STAR 2011 will have on our builder partners, partnering consultants (raters), and ultimately the programs we administer in the Midwest including Focus on Energy's Wisconsin ENERGY STAR Homes Program.

INTRODUCTION

WECC, founded in 1980, is a nonprofit organization specializing in the design, implementation, and administration of energy efficiency programs. WECC is a national leader in energy efficiency programs by demonstrating profitability and value of market channel integration. WECC is the program administrator for Focus on Energy, Wisconsin's statewide energy efficiency and renewable energy program. Focus on Energy was created by the Wisconsin Legislature in 1999 and further expanded in 2005. The goal of Focus on Energy is to increase Wisconsin's energy independence by helping residents and businesses implement efficiency and renewable energy projects that otherwise would not occur. Focus on Energy offers two award winning residential programs: Wisconsin ENERGY STAR Homes and Home Performance with ENERGY STAR. In addition to the Focus on Energy program, WECC administers and implements energy efficiency programs for clients throughout the Midwest. WECC is a longstanding member of the Residential Energy Services Network (RESNET) and acts as an accredited Home Energy Rating System (HERS) provider and trainer in support of our Focus on Energy programs and other programs throughout the Midwest.

The Wisconsin ENERGY STAR Homes Program (Program) began in 2001 as a statewide program, after beginning as a pilot in 1998. Since the inception of the Program, over 11,000 new homes have received certification. The Program's market penetration reached 17.7% of Wisconsin's new home starts for the calendar year 2008.

Success of the Wisconsin ENERGY STAR Homes Program is a result of many factors, of which the following are just a few:

- Wisconsin has a long tradition—extending back to the 1980s—of supporting residential energy efficiency programs as part of a balanced approach to managing the state's energy needs.
- The Wisconsin ENERGY STAR Homes Program is based on credibility, honesty and integrity providing the Wisconsin residential building industry with reliable, relevant, and

accurate information on proven energy efficiency and high performance building technology. Focus on Energy has accomplished this through trainings, conferences, marketing, and the development of a well-trained private rater infrastructure delivering certification services in Wisconsin.

- Wisconsin ENERGY STAR Home's standards for building tightness, combustion safety, mechanical ventilation, full height foundation wall insulation, and sealed sump pits in addition to the national ENERGY STAR platform address building issues of concern to the building community, buying public, and Focus on Energy's regulator (Wisconsin Public Service Commission). These additional standards, combined with a homeowner manual, have increased energy efficiency, reduced callbacks and strengthened the regional value and acceptance of the national ENERGY STAR label in Wisconsin's building market—resulting in substantial gains in program growth and recognition.

The Wisconsin ENERGY STAR Homes Program has earned the confidence of Wisconsin's building industry and is often used as a resource for building science information by builders, trades contractors, supply houses, lumber dealers, building associations, and consumers statewide. All of this trust is premised on the fact that the Program promotes and requires sound building practices and techniques relevant to Wisconsin's climate, market, and housing stock and more importantly are of value to our builder partners, contractors, and homeowners.

RESPONSE

WECC's response follows the format outlined in the DRAFT ENERGY STAR Qualified Homes 2011 Requirements document. Direct Wisconsin ENERGY STAR Homes Program impacts are included after the comments on the mandatory requirements and Checklists. Additionally, it is important to note that WECC, through Focus on Energy is a supporting member of the Consortium for Energy Efficiency's (CEE) comment letter on the ENERGY STAR 2011 proposed changes.

ENERGY STAR Prescriptive Path

In Wisconsin the majority of new homes are built by custom builders. Wisconsin's builder partners largely prefer using the performance path option because it offers greater flexibility in demonstrating ENERGY STAR compliance. It is for this reason WECC's comments are focused on the performance path and proposed mandatory requirements.

ENERGY STAR Performance Path

WECC is concerned that the appeal and flexibility of the EPA's proposed Performance Path compliance option is substantially compromised through the addition of the new Checklists and significant number of prescriptive items. WECC does not support the mandatory requirements as proposed by EPA. Specifically, WECC does not agree with the "all or nothing" approach the Checklists require for ENERGY STAR certification. EPA's ENERGY STAR 2011 proposal might better be served through the adoption of tiered requirements (and associated recognition, such as LEED for Homes offers). This platform approach to baseline compliance then requires only a specific number of substantiated energy related items be implemented. In this scenario, ENERGY STAR would continue to maintain current builder participation and engage new builders while raising the bar for energy performance.

Size Adjustment Factor
In general, WECC agrees with EPA's proposal to account for home size in establishing energy efficiency performance criteria for labeled homes. The Program would be in favor of the Size Adjustment Factor, provided it is embedded within the compliance software (which is our understanding). The major concerns are the lack of a consistent HERS Index to which builder partners and homeowners have become accustomed and the perception of a moving target for builders who keep the same specifications but offer a variety of floor plans. To address this concern, WECC would support recent work done by the Florida Solar Energy Center (FSEC) to categorize a HERS Index threshold based on house size and climate.

Additionally, while WECC appreciates what EPA is seeking to accomplish with its proposed change in the HERS Index Target approach, we do have concerns about the proposed departure from the current HERS Index—closely mimicking the concerns expressed by CEE—including:

- Market confusion that could result from the introduction of a new energy efficiency metric—the ENERGY STAR HERS Index Target—that is related to, but different than, an existing one. Increasingly, the HERS Index is being used in the marketplace by both sellers and buyers as a means of differentiating performance. While we appreciate that the ENERGY STAR label is binary, the Program's anecdotal evidence suggests the market demand for this additional level of information is strong. Further, it is important from both a program sponsor perspective as well as from a market actor's perspective that one home be directly comparable to another.
- Proposed ENERGY STAR HERS Index Target will impose additional administrative burdens on Wisconsin ENERGY STAR Homes, builder partners, and raters, including retraining—particularly if software vendors do not make the necessary adjustments to reflect the new ENERGY STAR 2011 program requirements in a timely manner.
- Clarity regarding whether the proposed approach addresses the apparent disparity in how the HERS Index would measure the efficiency of homes with gas versus electric heating. We would appreciate additional information from EPA on these issues.

To address these concerns, WECC, through Focus on Energy supports CEE's proposal that EPA work with RESNET and other stakeholders to address any shortcomings with the existing HERS Index, rather than create a new, modified Index.

Envelope - Thermal Bypass Inspection Checklist (TBC)
WECC agrees with the items included in the TBC except for the requirement to seal sheetrock to attic top plates (Checklist Item 5.1). While the Program feels this is a best practice measure, the Program does not believe it merits a mandatory requirement—and is not cost effective—in already substantially tight construction market.

Envelope - Quality Framing Checklist
While WECC agrees with the concept of quality framing and reduced thermal bridging, we recognize these as non-energy related benefits in typical Wisconsin new construction housing and are not justified as a mandatory requirement.

Specifically, WECC does not support the requirement for raised heel trusses (Checklist Item 1.1). This item has not been demonstrated to be cost effective, per the EPA's stated cost effectiveness policy, in terms of the incremental costs (including additional exterior sheathing and finishing material costs) and derived energy savings. Table 1 reflects the average of three different model homes results in an average annual savings of $22.30. The Appendix includes descriptions of the three homes used in this and subsequent sections.

Table 1. Energy Savings Calculations for Raised Heel Truss Requirement

REM/Rate Modeled Home Number	Raised Heel* Truss Annual Operating Costs ($)	Standard Heel** Truss Annual Operating Costs ($)	Annual Savings Difference ($)	Annual Savings Difference (%)
22	3,154	3,174	20	-0.6
70	2,132	2,147	15	-0.7
113	4,514	4,546	32	-0.7
			Average = $22.30	**Average = 0.66%**

* According to building codes, raised heel means there is sufficient height at the top plates to accommodate full depth insulation of R49). Depending on insulation material, this may need to be 12-16".
** Standard heel is defined to mean as designed per structural and architectural features. Typically this is 7" height at top plates.
NOTE: Without doing elaborate area calculations, R38 was used for the entire ceiling areas with the standard truss. This should exceed the actual impact of the standard heel truss for this comparison.

Table 2 shows the energy savings calculations for the Optimum Value Engineered (OVE) framing requirement of 17% Framing Factor (FF) compared to 25% FF. Again, this item has not been demonstrated as cost effective per EPA stated policy in terms of the incremental costs and derived energy savings. Table 2 reports the difference between the three modeled homes with an annual average savings of $26.30 would be realized by applying OVE.

WECC has past experience with OVE framing through partnering with Building America Program in constructing prototype homes. Based on the Program's experience (and those of the participating builders), lower material costs with increased profit margin did not produce even modest gains in energy performance.

Nationally, the inclusion of the proposed Quality Framing Checklist will add an additional framing site visit where insulated sheathing, SIPs or ICFs are not used in construction. This, along with the time and training required to design and implement an OVE framing package, are often an overlooked cost to the builder and will increase initial costs of EPA compliance. In addition, the proposed Checklist puts raters in potential conflict with local code officials and others responsible for the structural integrity of the building.

WECC suggests ENERGY STAR 2011 requirements allow alternatives to raised heel trusses and OVE framing, and leave cost shifting items as optional for builder consideration. In fact, the entire Quality Framing Checklist could be offered as a suggested best practice guideline.

Table 2. Homes Configured to ENERGY STAR 2011- Changing Framing Factor*of Walls

REM/Rate Modeled Home Number	FF @ 17% Annual Operating Costs ($)	FF @ 25% Annual Operating Costs ($)	Annual Savings Difference ($)	Annual Savings Difference (%)
22	3,154	3,190	36	-1.1
70	2,132	2,147	15	-0.7
113	4,514	4,541	28	-0.6
			Average = $26.30	**Average = 0.76%**

* Framing Factor derived from REM/Rate ENERGY STAR Reference Design Home.

Cooling & Heating System - Quality HVAC Installation Contractor Checklist

WECC does not support the inclusion of this Checklist. In general WECC finds the focus on air conditioner and heat pump installation as a mandatory requirement as lacking justification in a heating-dominated climate. Additionally, the Program does not believe the Checklist is practical or feasible to achieve within the HVAC industry serving Wisconsin's market or those in similar climates. WECC has serious concerns over the effectiveness of the Checklist in securing greater energy savings and addressing issues of increasing both energy efficiency and comfort, for which it is intended.

In Wisconsin, a significant effort has been made by Focus on Energy and the Energy Center of Wisconsin (ECW) to address best practices within the HVAC industry. These efforts have included partnerships with leading equipment distributors across the state to provide contractors with information and training on heat load/design calculations, flow and charge best practices, code requirements, limits on equipment sizing inputs, and in-field system performance research. Such research has been conducted by ECW and Integrated Building and Construction Solutions (IBACOS) through a Building America grant.

Supporting this position is ECW's Report 241-1, *Central Air Conditioning in Wisconsin: A Compilation of Recent Field Research*. In this report, research relevant to Wisconsin's housing stock and building practice questions the effectiveness of the Quality HVAC Installation Contractor Checklist items in Wisconsin's market. In particular, this report found that aggregate savings attributed to tuning air conditioning systems via correct flow and charge was only on the order of 3% to 5%—averaging approximately $6 to $7 annual savings for the Wisconsin homeowner. This finding, combined with the fact that thermal expansion value (TXV) equipped systems constitute one-half of all systems sold in Wisconsin and are less susceptible to efficiency degradation from refrigerant charge errors, prompted Focus on Energy's Heating and Cooling Program to suspend standalone air conditioning incentives based on flow and charge requirements.

Additionally, based on the experience and input from ECW researchers, the Program does not believe the requirement for air flow to be within 5% of design is feasible. Measuring superheat

and subcool temperatures may produce variations larger than the tolerances defined in the manufacturer's specifications.

In summary, the ECW report found that the perceived penalties of over-sized air conditioning systems in regards to energy savings and dehumidification were negligible—contradicting EPA's reasons for inclusion of the Quality HVAC Installation Contractor Checklist. These findings have subsequently been corroborated in a June, 2009, white paper by Proctor Engineering Group, *AC Sizing, Electrical Peak and Energy Savings*.

Cooling & Heating System - Quality HVAC Installation Rater Checklist
WECC does not support the inclusion of this Checklist, as it will extend raters' liability into a field of expertise beyond their reasonable means to accurately assess or verify. While WECC acknowledges only a signature is required to confirm completion and compliance on the part of the HVAC contractor, liability on the rater's part is implicit in the Checklist.

Additionally, WECC does not support Duct Quality Installation items on this Checklist, as these items are largely non-energy related and not clearly defined. Specifically, the requirement prohibiting any 90 degree bend in duct work (Checklist Item 2.1) is not feasible (or at least very difficult) to achieve in many homes, particularly two-story homes utilizing engineered (TJI) floor joists. Another Checklist item requirement limits the amount of excess or coiled flex duct (Checklist Item 2.2) which is subjective without additional clarification. The Checklist item requirement the Program has the most concern over is the prohibition of using building cavities as returns (Checklist Item 2.6)—the standard practice in Wisconsin with multi-return systems—as not effective in terms of energy savings while at the same time doubling installation costs. Lastly, the maximum allowable total duct leakage requirement (Checklist Item 2.8) is not effective in achieving energy savings in substantially tight, pressure-balanced housing.

Research completed by ECW in August 2008, Report 243-1, *A Field Study of Exterior Duct Leakage in New Wisconsin Homes,* contradicts the inclusion of these last two mandatory requirements (Checklist Items 2.6 and 2.8) in that there is no supporting evidence within Wisconsin's market to substantiate their effectiveness to builder participants. This ECW study found the following:

- Most homes in Wisconsin have all of the ductwork and HVAC equipment located within the conditioned space. Limited amount ductwork runs through unconditioned spaces.
- National standards for testing and required default distribution efficiency assumptions are an unnecessary burden in Wisconsin new construction homes, as they are primarily intended for housing stock where basements are less common and homes have substantial amounts of ductwork in unconditioned attics or crawl spaces.
- Duct leakage under actual operating conditions was generally less than that measured by standard duct pressurization tests. Estimates based on duct pressurization tests result in overestimated duct leakage to the outside.
- Seasonal duct distribution system losses in typical Wisconsin homes appear to be significantly lower than RESNET default assumptions.

- Estimated actual losses in low (duct) exposure homes is generally less than 5% and in moderate (duct) exposure homes less than 10%—with most of the impact attributed to conductive losses rather than air leakage.

Based on the findings from this ECW report, increased liability, and lack of supporting documentation, WECC recommends the Quality HVAC Installation Rater Checklist be removed as requirement for certification.

Water Efficiency – Average flow-rate for all shower-heads shall be ≤ 2.0 gallons per minute

WECC applauds EPA's intentions in addressing water efficiency and recognizes the water/energy connection and water as a declining precious resource in many parts of the country. However, the Program does not support the proposed measures as mandatory requirements. We feel the requirement is not particularly feasible for Wisconsin's significant number of custom home builder partners, where homeowners almost exclusively pick out their own plumbing fixtures towards the end of the new construction process. WECC believes that this water efficiency item is better addressed through a more aggressive promotion of EPA's current Water Sense program.

Water Efficiency – Hot water distribution system shall use demand pumping, manifold, or core layout

For hot water distribution systems, WECC finds the proposed requirement is lacking in specificity. Additionally, the requirement is not feasible to achieve within the proposed ENERGY STAR 2011 implementation timeframe due to a lack of market readiness.

Lights and Appliances – All installed refrigerators, dishwashers, and clothes washers shall be ENERGY STAR qualified

WECC is a national leader in supporting EPA's programs addressing energy efficiency in appliances and lighting. There is no disagreement with the role appliances and lighting can play in energy efficiency. In fact, WECC strongly supports the inclusion of all ENERGY STAR qualified appliances and lighting in new residential construction. However, there is a strong concern over eliminating any home from certification based on this mandatory requirement. Builders lack influence over homeowner decisions at the retail level in selecting ENERGY STAR appliances and lighting. In Wisconsin's largely custom built market, homeowners are typically given allowances for appliances and lighting. WECC's experience indicates that alternative delivery processes through channel based programs are more effective. Our preferred approach to including ENERGY STAR appliances and lighting is an aggressive channel based program targeting new home construction.

Lights and Appliances – Advanced Lighting Package (ALP) or ENERGY STAR bulbs in 80% of sockets, shall be installed

WECC agrees that addressing the lighting installed in new homes is important and applauds the EPA for allowing the option of either an ALP or 80% ENERGY STAR qualified bulbs in the sockets at the time of certification. As we note above, home owner choice will limit those who go with the ALP, however we believe we can work with builders to meet the 80% guideline.

Lights and Appliances – All installed bathroom exhaust and ceiling fans shall be ENERGY STAR qualified

The Program does not support the requirement that all installed bathroom or ceiling fans be ENERGY STAR qualified. Requiring all bath fans to be ENERGY STAR qualified would double or triple the costs of providing spot moisture control without increasing energy savings (given typical low run times in secondary bathrooms). WECC suggests modifying the proposed requirement to state at least one bath fan meet the requirement. In regards to ceiling fans WECC shares the same concerns we note in the Appliance section above. In addition, in the Wisconsin climate the motor efficiency of ceiling fans accounts for a very small proportion of the energy savings. Instead, because the greatest potential for savings is in the light kit, WECC supports addressing this opportunity through the ALP or the 80% installation guideline noted above.

IAQ & Durability – Indoor Air quality Checklist

WECC commends EPA for their inclusion of the proposed ventilation requirements for ENERGY STAR labeled homes. However, adoption of this Checklist, largely mirroring ASHRAE's 62.2 Standard for Low Rise Residential Ventilation requirement, has not been demonstrated to produce cost-effective energy savings in Wisconsin's market. WECC does support RESNET's interpretation of the ASHRAE 62.2 standard. The Program supports this Checklist as a voluntary, best practice, similar to EPA's current Indoor Air Quality - Plus Package.

IAQ & Durability – Water-Managed Construction Checklist

WECC recognizes exterior moisture management as critical to building durability. Many of the checklist items are current practices covered by code in Wisconsin's market. For these reasons, WECC suggests that the checklist items be viewed as a voluntary program distinct from code and therefore removing the raters from verifying code compliance.

ENERGY STAR Reference Design

WECC supports the technical specifications of the climate zone-specific ENERGY STAR Reference Design Home when used as the new reference home for showing compliance with the Performance Path for ENERGY STAR. WECC endorses RESNET's reference to the Florida Solar Energy Center's HERS Index proposal in RESNET's Summary and Positions On EPA's Proposed 2011 ENERGY STAR New Homes Guidelines.

WECC believes using the current process of having a standard reference design home, configured to ENERGY STAR 2011 specifications, would have sufficient energy savings to meet EPA's policy goal of achieving 15% energy savings with respect to prevailing minimum code standards (e.g. IECC 2009).

To support this position, WECC submits the following Exhibit 5 in Figure 1 (originating from EPA's ENERGY STAR 2011 Overview of Evolving ENERGY STAR Qualified Homes Program and Methodology for Estimating Savings) and compared to the WECC's own computer modeling estimates (Table 3 and Table 4). These two tables provide information using REM/Rate 12.7 software on three typical Wisconsin homes compared to both IECC 2006 and

IECC 2009 and show that average utility bill savings will be higher than that in Exhibit 5 projections.

Figure 1. Exhibit 5 from ENERGY STAR 2011 Overview of Evolving ENERGY STAR Qualified Homes Program and Methodology for Estimating Savings

Exhibit 5: ENERGY STAR Qualified Home "Version 3" Annual Savings

Metric	Savings Assessment
Electricity	1,644 kWh
Natural Gas	260 therms
Utility Bill	$481
Greenhouse Gas Emissions	0.66 MTCe
Analytical Parameter	**Value**
Code Baseline	2006 IECC
AC Baseline	13 SEER
REM/Rate version	12.6
Based on:	Population-weighted average of 10 representative homes

Table 3. Replication of Exhibit 5 - Wisconsin-Specific Modeling in Comparison to IECC 2006

REM/Rate Modeled Home Number	2006 IECC Annual Costs ($)	EPA's Version 3 Costs ($)	Annual Savings Difference ($)	Annual Savings Difference (%)
22	4,217	3,154	1,063	33.7
70	2,767	2,132	635	29.7
113	5,698	4,514	1,184	26.2
			Average = $960	**Average = 29.8%**

* Costs used were EIA 2009 projections: 0.0949 per KWH & 1.259 per therm

Table 4. Replication of Exhibit 5 - Wisconsin-Specific Modeling in Comparison to IECC 2009

REM/Rate Modeled Home Number	2009 IECC Annual Costs ($)	EPA's Version 3 Costs ($)	Annual Dollar Savings Difference ($)	Annual Percent Savings Difference (%)
22	3,901	3,154	747	23.7
70	2,595	2,132	464	21.8
113	5,314	4,514	800	17.7
			Average = $670	**Average = 21%**

* Costs used were EIA 2009 projections: 0.0949 per KWH & 1.259 per therm

Program Impact
WECC is concerned about the potential for a significant drop in builder participation numbers in the Wisconsin ENERGY STAR Homes Program due to the absence of cost-effective energy savings in the ENERGY STAR 2011 proposed changes. As an energy efficiency program sponsor, the Program is required by the Wisconsin Public Service Commission to demonstrate cost effectiveness. If the new requirements prohibit the program from passing cost effectiveness screenings, WECC will need to consider other models for a new homes program in Wisconsin. We therefore encourage EPA to evaluate whether the goals for ENERGY STAR 2011 can be achieved with changes to the program that have specific energy-saving benefit and are less sweeping in scope and in cost. In the comments preceding, we suggested several revisions to the proposed Checklist requirements that we believe could help to accomplish this. The following sections outline what WECC believes to be various impacts on market actors partnering with the Wisconsin ENERGY STAR Homes Program.

Builder Partners
The anticipated builder attrition based on the extensive ENERGY STAR 2011 mandatory requirements will render the ENERGY STAR program in Wisconsin ineffective. Due to the difficult economy, Wisconsin ENERGY STAR Homes' active builder partners are at 60 for the last year compared to a 490 over the past 5 years. In the absence of cost-effective energy savings, WECC is concerned about the potential for additional significant drop-off in builder participation in the Wisconsin ENERGY STAR Homes program—including modular builder partners

In reaching out to the Wisconsin ENERGY STAR Homes builder community, WECC has initially found builder response to be unfavorable regarding the proposed ENERGY STAR 2011 changes—largely based on the additional building cost and work flow interruptions caused by the several mandatory checklists that do not carry direct energy efficiency savings.

WECC believes the proposed new Checklists are, in many respects, well-grounded in building science. However, the Program also believes that proper implementation of these Checklists is likely to come at a high price. As part of the Program's builder interviews, builders were asked to provide cost estimates should they have to comply with ENERGY STAR 2011 proposed changes. Builder responding estimate an additional:

- $4,500 - $6,500 in per building material costs;
- $3,500 - $5,500 in per building labor costs; and
- $1,000 - $2,500 in per building liability costs.

Additionally, Wisconsin raters have estimated additional price increases to the builder ranging from $500 - $1,000 per home.

Given the $9,500 - $15,500 per home price increase to comply with ENERGY STAR 2011 proposed changes, it is highly likely these additional costs will prove too burdensome for the vast majority of Wisconsin builder partners to continue their partnership with Wisconsin ENERGY STAR Homes. Additionally, EPA has not shown evidence that builders or consumers

would be willing to bear these additional costs—particularly given the current housing crisis, which does not seem to have a definitive end in sight.

Of course, the Wisconsin ENERGY STAR Homes Program is voluntary for builders—as are all other ENERGY STAR for Homes programs around the country. Thus, if the Program's mandatory requirements become financially burdensome to builders, they will simply not participate. Based on anecdotal evidence, including interviews with several builder partners in Wisconsin, WECC estimates a significant drop in builder participation should the EPA choose to move forward with the ENERGY STAR 2011 in its current state. This would be devastating to the Wisconsin ENERGY STAR Homes Program. That is, the increased cost and paperwork will cause builders to choose not to participate in the ENERGY STAR program. Builders will continue to build homes outside of the Program, and from a program sponsor perspective, Focus on Energy will have lost any opportunity to influence the energy efficiency levels in new home construction in Wisconsin.

Raters

One of the keys to success for the Wisconsin ENERGY STAR Homes Program is the use of independent market providers (raters) as the third-party verifiers for new home certifications. This model provides an invaluable asset for both the builder and the homeowner—ensuring an unbiased set of eyes overseeing the construction process.

The increased burden associated with the five proposed ENERGY STAR 2011 Checklists raters must complete will increase their costs through additional site visits, time spent on site visits, follow-up, paperwork, training, and liability. This will lead to significant builder attribution, which will cause many of the raters to go out of business. Those left will likely ally with other energy efficiency programs or simply find other sources of income.

CONCLUSION

It is the shared interests and history between the Wisconsin ENERGY STAR Homes Program and the EPA's national ENERGY STAR for Homes program that leads us to comment on the ENERGY STAR 2011 proposal. WECC is committed to the continued promotion of energy efficiency through the ENERGY STAR label in all efforts here in Wisconsin and in our efforts throughout the Midwest. WECC continues to share ideas and technical information with other program administrators around the country in an effort to help advance programs, but always keeps in mind the regional differences that make each program unique and valuable in their respective market.

The EPA states that cost effectiveness is a core element across all the checklists included in the ENERGY STAR 2011 proposal. Yet, from our perspective it has not been demonstrated that these new requirements will indeed be cost effective in Wisconsin or other cold climates. To the contrary, WECC has demonstrated in this response that for several items there are no appreciable energy savings. Without appreciable energy savings and with the increased costs associated with those measures we can conclude that the ENERGY STAR 2011 proposal will not pass cost effectiveness screening in the state of Wisconsin. Additionally, the lack of actual energy savings as a result of using the Thermal Bypass Inspection Checklist does not support

EPA's claim that this modification is a fine tuning of the ENERGY STAR for Homes process and we do not support the claim that this produces accurate, statistically-valid and rigorously-defensible results. Given this, it would be very difficult for builders, raters and program managers to endorse the mandatory requirements of any additional Checklists.

Wisconsin Energy Conservation Corp agrees with the core principles utilized in development of the new guidelines, including:

- Maintain the ENERGY STAR designation as representing a premium product in terms of *energy efficiency*;
- Assure homes can earn the ENERGY STAR label with "*tried-and-true-technologies;*"
- Ensure the *cost-effectiveness* of recommended energy efficiency improvements;
- Require *third-party verification* of the energy performance of ENERGY STAR qualified homes; and
- Offer builders the *flexibility* of both performance and prescriptive verification options.

Given the previously noted Program Impacts on builder partners and raters, should the EPA decide to move forward with the ENERGY STAR 2011 proposed changes as is, WECC on behalf of Focus on Energy would need to seriously consider developing a residential construction program that is no longer solely predicated on the National ENERGY STAR Homes model.

Thank you for the opportunity to express our concerns and position on your proposed new guidelines for ENERGY STAR qualified homes.

Sincerely,

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REFERENCES

Energy Center of Wisconsin 2008. *Central Air Conditioning in Wisconsin: A Compilation of Recent Field Research*. 241-1.

Proctor Engineering Group 2009. *AC Sizing, Electrical Peak and Energy Savings*. White Paper.

Energy Center of Wisconsin 2008. *A Field Study of Exterior Duct Leakage in New Wisconsin Homes*. 243-1.

APPENDIX

Table 5. shows the configuration of 3 homes that were modeled using REM/Rate 12.7. These 3 homes adequately represent the 3 most common types, sizes and configurations of homes built in the Wisconsin ENERGY STAR® Homes program as well as being 'typical' of new homes built in Wisconsin.

TABLE 5. REM/Rate Model Home Characteristics

REM/Rate Modeled Home Number	CFA* (square feet)	FFLA** (square feet)	Volume (cubic feet)	Type
22	4,512	2,732	37,193	2-story
70	3,260	1,630	27,340	ranch
113	6,868	3,407	69,603	ranch

*CFA = Conditioned Floor Area
**FFLA = Finished Floor Area