



28 August 2009

TO: Brian Killins  
Natural Resources Canada

FR: Jacki Golike, CAE  
Executive Director  
Home Ventilating Institute

CC: HVI Board of Directors  
HVI Member H/ERV Manufacturers

RE: **HVI position on NRCAN, EPA efforts to establish Energy Star program for H/ERVs in North America**

Thank you for hosting the August 12 webinar concerning the development of an Energy Star program for Heat Recovery and Energy Recovery Ventilators in North America. Following the meeting, HVI member manufacturers met via teleconference to discuss the information you presented and address questions you posed to those participating in the webinar. The following assertions and recommendations have been reviewed by interested manufacturers and represent the consensus position of the Home Ventilating Institute at this time. Please contact me directly if you require clarification on any of the seven points presented herein.

1. **H/ERV shipping statistics.** HVI does not currently have a statistics program for these products. You can be assured that HVI members are committed to reporting their Energy Star-qualified product sales to EPA when the program is operational.

2. **Economic analysis of H/ERV products.** HVI members believe H/ERV products will provide positive economic benefits throughout the U.S. and Canada. H/ERVs, like most mechanical ventilation systems, ensure that air in houses is renewed whenever the occupants need it, providing ample ventilation in a most energy-efficient manner. When compared to other mechanical ventilation solutions, they may reduce the load on the heating or cooling system. The size of conventional heating and air conditioning equipment may be reduced. Conventional equipment may operate more reliably for less service and longer life due to moderated air conditions being introduced into equipment. The home's maintenance may be reduced and reliability enhanced through a balanced air pressure approach. Better occupant comfort can be maintained. Also, the ventilation is provided by H/ERVs without affecting the pressure balance between inside and outside of the house. All these factors should be considered when looking at the overall economic performance compared to alternatives.

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**3. Establishment of climate zone recommendations.** HVI strongly opposes the concept that there may be zones where H/ERV products should not be recommended. H/ERV equipment provides many benefits beyond energy savings. Recommendations for application should be left up to the local engineers, designers, contractors, and homeowners. Also, if the HVI product certification report shows that the product has been successfully tested for the climate conditions in which it will be installed, there should be no programmatic restrictions on its use.

**4. Heat recovery versus energy recovery.** HVI recommends, in all programmatic documentation, that there be little or no mention of or distinction made between heat recovery ventilators and energy recovery ventilators. There is little practical differentiation between how they are sold or used. Differences in qualification thresholds will ensure that the most efficient model is selected regardless of the technology type.

**5. HVI supports a three zone approach to Energy Star Qualification.**

Zone 1 would correspond to what you called "Cooling Zone" in your Draft 2 Requirements slides. We recommend Zone 1 geographically corresponds to the hot humid zone in the ASHRAE 62.2 climate map (see attached modified version of the ASHRAE 62.2 map shown on page 4 of this letter). (It should be noted that this corresponds to the area below the white line on the ASHRAE 90.1 map that was previously provided to you by HVI although the ASHRAE 62.2 reference is more appropriate since it is a residential ventilation standard.)

Zone 2 would correspond to what you called Neutral Zone in your Draft 2 Requirements slides. We recommend that Zone 2 be the balance of the U.S. not included in Zone 1.

Zone 3 would be what you call Heating Zone in your Draft 2 Requirements slides. We recommend that Zone 3 includes all of Canada. This boundary recognizes long standing Canadian needs as recognized by Canadian codes, standards and government programs.

Note that a specific model could be Energy Star-qualified for use in any one, two, or all three zones. The sample Energy Star labels (as shown on the next page) would then be adapted accordingly.

### Sample Labels for each Zone

#### Energy Star Heat or Energy Recovery Ventilator for **Zone 1.**

This product earned the Energy Star by meeting strict efficiency guidelines set by the U.S. EPA. It meets Energy Star requirements for Zone 1 on the adjacent map.

SRE at 32°F (0°C)	TRE at 95°F (35°C)	Airflow*	Power Use	Airflow Efficiency
%	%	CFM	Watts	CFM/Watt

\*This product is Energy Star qualified at this airflow rate. Other airflow rates may be possible with the product. Heat Recovery and Energy Recovery Ventilators have efficiency measured in terms of Sensible Heat Recovery Efficiency (SRE) and/or Total Energy Recovery Efficiency (TRE), and Airflow Efficiency. Airflow is measured in cubic feet per minute (CFM). Power is measured in watts. To maximize energy saving, choose a ventilator appropriate for your climate and application. The product should have:

- High airflow efficiency (CFM/watt)
- High SRE
- High TRE

#### Energy Star Heat or Energy Recovery Ventilator for **Zone 2.**

This product earned the Energy Star by meeting strict efficiency guidelines set by the U.S. EPA. It meets Energy Star requirements for Zone 2 on the adjacent map.

SRE at 32°F (0°C)	Airflow*	Power Use	Airflow Efficiency
%	CFM	Watts	CFM/Watt

\*This product is Energy Star qualified at this airflow rate. Other airflow rates may be possible with the product. Heat Recovery and Energy Recovery Ventilators have efficiency measured in terms of Sensible Heat Recovery Efficiency (SRE) and/or Total Energy Recovery Efficiency (TRE), and Airflow Efficiency. Airflow is measured in cubic feet per minute (CFM). Power is measured in watts. To maximize energy saving, choose a ventilator appropriate for your climate and application. The product should have:

- High airflow efficiency (CFM/watt)
- High SRE

#### Energy Star Heat or Energy Recovery Ventilator for **Zone 3.**

This product earned the Energy Star by meeting strict efficiency guidelines set by the U.S. EPA. It meets Energy Star requirements for Zone 3 on the adjacent map.

SRE at 32°F (0°C)	SRE at -13°F (-25°C)	Airflow*	Power Use	Airflow Efficiency
%	%	CFM	Watts	CFM/Watt

\*This product is Energy Star qualified at this airflow rate. Other airflow rates may be possible with the product. Heat Recovery and Energy Recovery Ventilators have efficiency measured in terms of Sensible Heat Recovery Efficiency (SRE) and Airflow Efficiency. Airflow is measured in cubic feet per minute (CFM). Power is measured in watts. To maximize energy saving, choose a ventilator appropriate for your climate and application. The product should have:

- High airflow efficiency (CFM/watt)
- High SRE

**HVI Proposed Heat Recovery and Energy Recovery Ventilator Qualification Zones for Energy Star**



**6. Sensible Recovery Efficiency (SRE).** HVI recommends that SRE performance levels to achieve Energy Star qualification revert to those included in NRCan's Draft 2 of the program specification (previously referred to as the 'final' version) while keeping the airflow efficacy at 0.9 CFM/watt as proposed in the PowerPoint presentation of August 12, 2009.

First of all, it seems somewhat illogical that some exhaust fans without any heat recovery would be eligible to bear the Energy Star label while the majority of the H/ERVs would not. It can be proven that the lowest efficiency H/ERV is more energy-efficient than the top-rated Energy Star-labeled exhaust fan.

Also, we wish to reinforce to you that the SRE values have already been discounted for the electricity consumption of the H/ERVs; the real net value of recovering thermal energy is actually always about 5 percent higher than the SRE rating.

Further, there have been numerous meetings and teleconferences among stakeholders of the industry where this topic was debated. After several months of discussion, meetings and exchanges of correspondence, an agreement was reached for the Canadian region and it would be a shame to lose that accomplishment and a tremendous waste of time and resources to re-open the issue again.

**7. Manufacturer selection of rated airflows.** The Energy Star airflow rating shall be the rated airflow at -25°C for Zone 3, at 0°C for Zone 2, and at 35°C for Zone 1. If there are multiple tests conducted at each temperature, then the manufacturer may select which test result to use that meets the SRE or TRE requirement for that zone.

For example, if there are three tests at 0°C that all meet Energy Star requirements, the manufacturer can pick the rating they wish for a Zone 2 product. For a Zone 1 or Zone 3 product, the corresponding 0°C test shall be the one with an airflow that is no less than 10 percent or 10 L/s (whichever is greater) than the -25°C or 35°C test and with no upper limit on the airflow. The rationale for this is to minimize any re-testing for products that would qualify for Energy Star except for the '10 percent requirement' in the current proposed draft.

In addition, due to the testing procedure for HRVs and ERVs, it is difficult to anticipate the exact final rated airflows for the -25°C test.

A manufacturer must select start conditions for this test at 22°C. Then the temperature is reduced to -25°C for 72 hours with the last 12 hours used to determine Maximum Ventilation which is reported as the "Net Airflow" by the test lab and used as the rated airflow for that test.

Condensation, air density and defrost cycles affect the final airflow. For some energy rating programs and building codes, a minimum airflow of 30 L/s at -25°C is required. To avoid going below this airflow, a manufacturer may wish to test at 35 L/s. This would then make the 0°C test at 30 L/s outside the proposed Energy Star specification.