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Re: Central Air Conditioning and Air Source Heat Pump Comments in Options (revised)

Dear Ms. Schmeltz:

NYSERDA recognizes that the ENERGY STAR[®] program is embarking on a challenging and somewhat contentious endeavor in revamping the central air conditioning and air source heat pump specification, especially in light of the fact that some stakeholders believe significant changes to the equipment-only specification are unnecessary. However, without incorporating installation requirements, gains from the equipment-only specification are being negated by the large number of systems that are improperly installed. It is critically important to recognize that health, comfort, safety, reliability and durability of buildings, equipment and most importantly, occupants, is influenced negatively by the lack of a specification dealing with installation.

It is important to highlight the fact that ENERGY STAR and many of its partners have invested significant resources advancing building science programs following a “whole building” rather than an “individual system” approach. This methodology is in use in the Home Performance with ENERGY STAR program that is starting to expand nationally. When it comes to installed products, the ENERGY STAR program must address the complexities of installation or risk losing credibility due to lack of performance. Some quality focused HVAC contractors have echoed this concern. In the interest of consumer protection and our commitments to our partners in Home Performance with ENERGY STAR, we must ensure our promotion of ENERGY STAR products are justified by realized energy savings. It is very important to consider the fact that HVAC systems consume 50% +/- of the energy in a home. According to research referenced in the “Options Paper” about 74% +/- of the systems have at least one or more problems that impact system efficiency. So the evidence is strong that installation must be addressed. The final specification set forth will impact strategic business planning for manufacturers, distributors, trade associations, contractors and countless other stakeholders involved. For this reason it is imperative that it is fully thought out, and designed to work from the onset.

Several market forces in the HVAC industry are simultaneously occurring that may well influence specification design. The first is the one promulgating this specification revision, the minimum efficiency increase to 13 SEER on January 23, 2006 for central air conditioning and air source heat pumps. The second factor is the changes expected for furnaces and boilers currently undergoing initial comments during an Advance Notice of Proposed Rule Making (ANOPR). It is likely that ENERGY

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STAR will need to address the furnace and boiler category products in the near future and the air handlers impact on this specification. The third force is the NATE certification program, whose continued growth is key to having a competent technician infrastructure nationally. The new senior level HVAC efficiency analyst certification could also play a key role in the CAC/ASHP specification. The fourth force is the recent funding of the Building Performance Institute (BPI) by EPA to develop a national infrastructure to deliver comprehensive energy efficiency improvements in homes. Based on the above considerations, I offer the following comments from NYSERDA's Residential ENERGY STAR Products Program. ***We offer ENERGY STAR our assistance where feasible, to ensure the specification developed is comprehensive and sufficiently addresses the installation issues.***

We support continuation of an ENERGY STAR label on the CAC/ASHP product category with a quality installation component adopted as an integral element of the specification. The product label could indicate that the product qualifies for the ENERGY STAR only when coupled with an ENERGY STAR quality installation.

We encourage ENERGY STAR to consider the fact that the best decision in this revision may not be the popular one.

We do not support abandoning CAC/ASHP as an ENERGY STAR product category as this would send the wrong message to the various stakeholders and it is definitely the wrong action to take when there are good options currently available as outlined in the remainder of this document.

Section I. Equipment Criteria Response

High Performance Equipment Labeling SEER, EER and HSPF

We support the use of SEER, EER & HSPF in the equipment portion of the specification.

We would ask ENERGY STAR to consider allowing 13 SEER equipment coupled with a quality installation to qualify for ENERGY STAR because far more systems could be positively impacted in this manner across the nation. This approach provides a platform for a consistent national message to the market that installing the equipment and addressing the system is more important than just installing the high SEER/EER/HSPF equipment alone. It is also important to emphasize that the "Options Paper" specifically discusses the fact that 14 SEER is not cost effective for most of the country when compared with 13 SEER based on DOE lifecycle cost analysis. Therefore, making 13 SEER with proper installation the requirement to earn the ENERGY STAR may very well be a sensible approach for stakeholders to consider since it could be much more widely implemented and may indeed prove to be a cost effective option for the majority of the country. This approach would help level the playing field for contractors and this is something that is important to contractors that would seriously influence their overall buy-in. This approach also allows individual programs around the country to continue to focus on higher efficiency equipment using a tiered approach so their specific programmatic goals can be met.

Evaporator Access/Maintainability/Measurement and Refrigerant Flow Devices

We support the use of equipment access panels in the equipment portion of the specification.

Making equipment that is accessible is important to ensure proper maintenance service can be accommodated after the installation during planned maintenance. The level of access should be discussed with industry to balance what is cost effective and practical against what is desired by ENERGY STAR and the stakeholders.

We support the use of diagnostic indicators and advanced diagnostic tools in the specification. On board diagnostics tools are excellent if the technician that is troubleshooting a problem knows what the

diagnostic indicators or instrument readings mean, can subsequently confirm the problem through troubleshooting techniques and then ultimately correct the problem using the knowledge gained from the diagnostics. Placing a diagnostic instrument into a technician's hands when he or she does not have the necessary troubleshooting skills (training) will result in a parts changer, not a problem solver.

We support multiple access points for evaporator measurements, if it is deemed to be feasible.

Evaporator measurement access points are going to vary from installation to installation due to the actual as-built conditions. Therefore manufacturers may be required to provide access that still cannot be used practically in the field. The best solution might be to ensure this is addressed on both the equipment and field installation side of the specification.

We support the use of TXV style flow metering devices in the specification. These devices maximize system capacity control by preventing flooding or starving of the evaporator more effectively than fixed orifice metering devices. It is important to remember that TXV devices are more susceptible to fouling caused by certain non-condensable products often left in the refrigerant piping systems. With a poor quality installation it is well documented that non-condensable materials tend to be higher, making the likelihood of fouling an even greater concern. So attempts to alleviate charge problems with a TXV or similar device may cause a problem in the not-so-distant future with compressor wear and eventual failure if the issue of non-condensable materials is not adequately addressed. Although 40 CFR Section 608 covers at least in part, the proper evacuation and charging of systems, over a decade after its inception, this is still a real problem in the HVAC industry.

Product Testing Criteria

We support an ENERGY STAR specification that requires product be tested at conditions listed in the "Options Paper" and results made publicly available in order to earn the ENERGY STAR. We would support a more stringent requirement that a chart be included in all ENERGY STAR products OEM literature showing the impacts of improper installation on equipment performance.

Section II. Installation Criteria Response

Design and Installation

We support inclusion of a requirement that all systems, new or retrofit, MUST have recognized industry calculations performed in order to earn the ENERGY STAR. Consideration should be given to using only ANSI approved trade manuals that provide detailed procedures. This will take the burden off of ENERGY STAR in determining whose manual or procedures are acceptable and whose are not.

We support the use of a detailed set of installation procedures as a requirement for earning the ENERGY STAR. Industry has already conducted substantial work in the area of what elements a proper installation should include. Using an industry recognized, standardized resource such as the NATE Knowledge Area of Technical Expertise (KATE) a comprehensive approach to follow could easily be developed that could be incorporated into the manufacturer installation instructions. Perhaps ENERGY STAR could work closely with manufacturing and the NATE and BPI technical committees on this so it is a well-represented industry consensus position.

Refrigerant Charge and Airflow

We support inclusion of a requirement that all systems new or retrofit meet or exceed OEM specifications in terms of charge and airflow to earn the ENERGY STAR. This would necessarily consist of an in-field verification and adjustment protocol specified by the manufacturer.

Duct Systems

We support inclusion of a requirement that all duct systems, new or retrofit, meet or exceed an established duct performance specification in order to earn the ENERGY STAR. The industry has yet to agree on a consensus standard when it comes to acceptable levels of duct leakage, methods of test and measurement and the most appropriate procedures to seal, repair or recommend replacement if needed. ENERGY STAR might want to consider partnering with industry to help facilitate a national resolution of this issue. This could then be the basis for the specification.

Analyze Performance

We support a comprehensive specification that requires the installation contractor to collect system performance data, record the information and report the information in order to earn the ENERGY STAR. The list of items in the “Options Paper” is a good starting point. However, an industry group, ENERGY STAR and the partners, perhaps working in conjunction with NATE, should determine what should be collected. ***NYSERDA would also support development of a universal system for collecting and tracking this information nationally, perhaps using the internet.***

Commissioning Report

We support a commissioning report concept as part of the specification requirement for ENERGY STAR, which could be incorporated into the reporting mentioned above.

Section III. Options for Field Verification Response

We support verification of the installation in order to earn the ENERGY STAR. NYSERDA has spent the last several years using a form of self verification for the Home Performance program. In the NY model **BPI accredited contractors** with **BPI certified technicians** must **test in** and **out** of **all** the buildings they work in. The onus is on the contractor to perform these tests on every project but they are subject to a third party inspection at any time. If contractors are empowered and trusted to do what’s right given the proper tools and a level playing field, our anecdotal evidence is showing that contractors will follow the procedures the majority of the time because they believe it is the right way to conduct business all the time. In addition, marketing the importance of the testing to consumers is also a key to this specification’s success.

We support a requirement that systems, in order to earn the ENERGY STAR, be installed by a NATE certified technician. The efficiency community and the HVAC industry recognize the value of NATE certification. We realize that certification alone does not guarantee performance results. This is why we are so supportive of an installation-based ENERGY STAR specification with an industry-based verification component. ***As an implementation strategy we suggest the new Senior Level NATE HVAC Efficiency Analyst be identified as the verification authority.*** Authorizing those who are NATE HVAC Efficiency Analyst certified to verify and sign off on installations would create an immediate market for this new certification. It could provide new business opportunities for companies and individuals. It could allow companies to certify their own installations, provided they have a NATE HVAC Efficiency Analyst on staff, who subsequently reports the results which are then subject to an independent inspection.

We would strongly encourage ENERGY STAR to also allow BPI accredited contractors who have the appropriately certified technicians on staff to be used for verification of system installations. This would continue to show that HVAC and the Building Science industry can and should work together and create a natural fit for the two entities in the marketplace. In addition it could help BPI in

their efforts to expand under the award made by EPA referenced earlier in this document. Determining exactly how this should be accomplished can be discussed prior to the draft specification being released.

Section IV. Options for Labeling Qualified Installations

We support a concept of labeling the equipment and the installation. In order to achieve an equitable solution on the labeling issue the stakeholders should be brought together to discuss which options would work the best under the specification model being proposed.

Section V. Phase in of New Specification

We would recommend and strongly support that the revised specification including installation be phased in concurrently with the January 23, 2006 specification change. This would allow the marketplace time to continue to work on infrastructure development.

Section VI. Other Considerations

We would support the improvement of CFM/watt ratios across the evaporator coils provided it does not penalize or stifle innovation.

We would support the use of integrated pressure and temperature sensors if they could be built to withstand transportation, installation and other rigors and maintain accuracy without substantially increasing the installed cost which is already suspect in terms of overall cost effectiveness as reference previously in this report.

We support use of a variety of on board diagnostic devices but is sensitive to the fact that certain accessories will cause nuisance complaints to contractors, manufacturers and efficiency groups or utilities.

It is important to emphasize that *NATE and BPI are working together* on certain certifications that they currently offer. Most prominently is the NATE Heat Pump exam, which is used as a prerequisite for the BPI Cooling Specialist designation. *It is also important to remember NATE is a certification that shows that at the time of the exam the technician knew how to install or service the specific HVAC system being tested. BPI does not specifically test for knowledge of the trade; BPI is testing that demonstrates an understanding of how the HVAC system interacts with the other Building Systems.* The NATE and BPI programs complement each other, with their certifications both contributing to quality installations.

We support the need for a technician to perform a comprehensive evaluation of all systems prior to making any recommendations.

(As stated previously) We support inclusion of a requirement that all duct systems new or retrofit meet or exceed an established duct performance specification in order to earn the ENERGY STAR.

We do not support the concept that all components come from a single manufacturer. It is not even practical to consider.

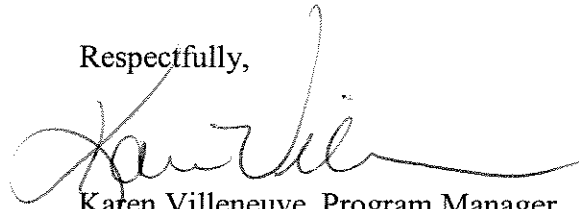
Closing Statements

We strongly recommend that in order to prevent market confusion a similar approach be adopted and implemented for all residential HVAC equipment, not just air conditioning and heat pumps.

This will provide an across-the-board installation specification that can be used for all HVAC installation and service work.

Thank you for the opportunity to comment. NYSERDA looks forward to the opportunity to review and provide input on the draft specification. If there are any questions on the specific details of this document please contact Bill Parlapiano, NYSERDA Project Manager, at 1-866-697-3732 x. 3355.

Respectfully,



Karen Villeneuve, Program Manager
Residential Programs

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