[Federal Register: April 28, 2006 (Volume 71, Number 82)]
[Proposed Rules]
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[DOCID:fr28ap06-19]

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DEPARTMENT OF ENERGY

Office of Energy Efficiency and Renewable Energy

10 CFR Part 431

[Docket No. EE-RM/TP-99-450]
RIN No. 1904-AB64

Energy Efficiency Program for Commercial and Industrial Equipment: Efficiency Certification, Compliance, and Enforcement Requirements for Commercial Heating, Air Conditioning and Water Heating Equipment

AGENCY: Office of Energy Efficiency and Renewable Energy, Department of Energy.

ACTION: Supplemental notice of proposed rulemaking.

SUMMARY: In a notice of proposed rulemaking published December 13, 1999, (NOPR) the Department of Energy (DOE or the Department) proposed to adopt (1) energy conservation requirements that the Energy Policy and Conservation Act, as amended, (EPCA or the Act) specifically mandated for commercial warm air furnaces, and (2) provisions applying generally to covered commercial heating, air conditioning and water heating equipment, including furnaces, (collectively referred to as ``commercial HVAC & WH equipment'') to assure their compliance with EPCA requirements. On October 21, 2004, DOE adopted a final rule incorporating the requirements for furnaces but only certain of the general provisions proposed for commercial HVAC & WH equipment. As to the latter, the Department did not adopt the NOPR's proposals for manufacturers to use to determine and certify compliance, and or most

of its enforcement proposals, which remain under consideration. These include proposals about manufacturers' use of testing and calculation methods to rate the efficiency of their equipment, the role of voluntary independent certification programs in assuring the accuracy of the ratings, and the testing regimen and criteria that DOE would use in enforcement proceedings, which are the subjects of today's notice. The Department is now soliciting comments on several additional proposed options that DOE is now considering for the rule.

In addition, the Energy Policy Act of 2005, Public Law 109-58, (EPACT 2005) created a new category of covered equipment and set forth definitions, test procedures, and energy conservation standards for very large commercial package air conditioning and heating equipment. The Department has codified the definitions and energy conservation standards in Title 10, Code of Federal Regulations, Part 431. 70 FR 60407 (October 18, 2005). The Department is applying to that equipment the proposed compliance and enforcement requirements that are the subject of this supplemental notice. (The Department notes that the recent amendments to EPCA set forth in EPACT 2005 do not otherwise affect the issues raised in today's notice.)

DATES: The Department will accept comments regarding today's proposals until June 12, 2006.

ADDRESSES: You may submit comments, identified by docket number EE-RM/TP-99-450 and/or RIN number 1904-AB64, by any of the following methods:

Federal eRulemaking Portal: http://www.regulations.gov.

Follow the instructions for submitting comments.

E-mail: commercial-- HVACandWH-- rule@ee.doe.gov. Include EE-RM/TP-99-450 and/or RIN number 1904-AB64 in the subject line of the message.

Mail: Ms. Brenda Edwards-Jones, U.S. Department of Energy, Building Technologies Program, Mailstop EE-2J, Reopening Notice for Efficiency Certification and Enforcement of Air Conditioning and Water Heating Products, EE-RM/TP-99-450 and/or RIN 1904-AB64, 1000 Independence Avenue, SW., Washington, DC 20585-0121. Telephone: (202) 586-2945. Please submit one signed paper original.

Hand Delivery/Courier: Ms. Brenda Edwards-Jones, U.S. Department of Energy, Building Technologies Program, Room 1J-018, 1000 Independence Avenue, SW., Washington, DC 20585.

Instructions: All submissions received must include the agency name and docket number or Regulatory Information Number (RIN) for this rulemaking. For detailed instructions on submitting comments and additional information on the rulemaking process, see section IV of this document (Submission of Comments).

Docket: For access to the docket to read background documents or

comments received, go to the U.S. Department of Energy, Forrestal Building, Room 1J-018 (Resource Room of the Building Technologies Program), 1000 Independence Avenue, SW., Washington, DC, (202) 586-9127, between 9 a.m. and 4 p.m., Monday through Friday, except Federal holidays. Please call Ms. Brenda Edwards-Jones at the above telephone number for additional information regarding visiting the Resource Room. Please note: The Department's Freedom of Information Reading Room (formerly Room 1E-190 at the Forrestal Building) is no longer housing rulemaking materials. The docket will also be posted to the Federal Docket Management System through the Federal eRulemaking Portal (http://www.regulations.gov) after the comment period closes. You can also

electronically obtain a copy of this notice and related background documents from DOE's Building Technologies Program's Web site at the following URL address: http://www.eere.energy.gov/ buildings/

appliance--standards/ notices--rules.html.

FOR FURTHER INFORMATION CONTACT: James Raba, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Mail Station, EE-2J, 1000 Independence Avenue, SW., Washington, DC 20585-0121, (202) 586-8654. E-mail: jim.raba@ee.doe.gov. Thomas DePriest, U.S. Department of Energy, Office of the General Counsel, GC-72, 1000 Independence Avenue, SW., Washington, DC 20585, (202) 586-9507, E-mail: Thomas.DePriest@hq.doe.gov.

SUPPLEMENTARY INFORMATION:

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I. Background

The Energy Policy and Conservation Act (EPCA or the Act) (42 U.S.C. 6311-6316) establishes energy conservation requirements for certain commercial and industrial equipment. For commercial heating, ventilating, air conditioning and water heating (HVAC & WH) equipment, EPCA provides energy conservation standards and authorizes the Department of Energy (DOE or Department) to amend these standards. (42 U.S.C. 6313(a)) The Act also provides test procedures for this equipment, and authorizes the Department to amend these test procedures. (42 U.S.C. 6314(a)) Finally, EPCA authorizes the Secretary to implement these energy conservation requirements by issuing the necessary rules requiring manufacturers of covered commercial and industrial equipment to submit information and reports, and taking enforcement action. (42 U.S.C. 6316(b))

As indicated in the SUMMARY above, the notice of proposed rulemaking (NOPR) included proposed rules covering manufacturers' compliance with energy conservation requirements for all commercial HVAC and WH equipment and DOE enforcement of these requirements. 64 FR 69598 (December 13, 1999). Specifically, the Department proposed methods for manufacturers to use to implement the DOE test procedures

to determine the efficiency or energy use ratings of this equipment, 64 FR at 69602-06 and 69612-14, procedures for certifying such ratings to the Department, 64 FR at 69604, 69614-16, and criteria and procedures for enforcement actions by the Department for alleged violations of energy conservation standards, 64 FR at 69605, 69616-18.

On January 27, 2000, DOE convened a public hearing to receive oral comments on the proposed rule. The Department also received written statements in advance of the hearing and written comments after the hearing. These oral comments and written submissions, as well as the Department's further review of the proposed rule, raised the issues addressed in today's supplemental notice of proposed rulemaking (SNOPR). While still considering adoption of the proposals contained in the NOPR, the Department seeks comment on the alternative language and options that it is proposing in this SNOPR. The DOE wishes to emphasize that it will continue to consider for adoption all of the proposals set forth in the NOPR and the SNOPR.

The Department also notes that the proposed rule language in today's SNOPR, which would be incorporated into Title 10 Code of Federal Regulations (10 CFR Part 431), uses subpart designations and section numbers that correspond to those used in the NOPR. However, since the issuance of the NOPR, the Department has reorganized and renumbered the rules in part 431. It did so, first in the final rule for furnaces and commercial HVAC and WH equipment, referred to above, 69 FR 61916 (October 21, 2004), and more recently in a final rule to incorporate certain requirements contained in EPACT 2005. 70 FR 60407 (October 18, 2005).

The Department has retained the subpart designation and numbering approach it used in the NOPR to facilitate stakeholder comparison of the NOPR proposals with today's proposals. When the Department adopts a final rule that addresses the issues raised by the NOPR and this SNOPR, it will base the structure and numbering of the provisions in that rule on part 431 as it exists at that time. Given the current structure of part 431, DOE anticipates that it would include provisions as to compliance determination for commercial HVAC and WH equipment in subpart J, and for enforcement in subpart U. See 10 CFR Part 431 subparts J and K (2005) and 70 FR at 60416. Today's proposals would not affect the recent amendments to part 431 that incorporated requirements contained in EPACT 2005. 70 FR 60407. Rather these proposals would add to, but not replace or alter, provisions currently in part 431.

Finally, sections 136(a)(3), 136(b)(5), and 136(f)(1) of EPACT 2005 amend sections 340(8), 342(a), and 343(a)(4) respectively, of EPCA, 42 U.S.C. 6311(8), 6313(a), and 6314(a)(4) to add definitions, energy conservation standards, and test procedures, respectively, for very large commercial package air-conditioning and heating equipment rated at or above 240,000 and below 760,000 British thermal units per hour (Btu/h) cooling capacity. The Department has incorporated the new EPCA

energy conservation standards and definitions under subpart F of 10 CFR part 431. 70 FR 60415. In particular, the Department inserted a definition of ``very large commercial package air-conditioning and heating equipment'' into Sec. 431.92 of 10 CFR part 431. Thus, that equipment is now included in the equipment covered by this rulemaking.

II. Discussion

A. Methods for Manufacturers To Follow To Determine Energy Efficiency Ratings of Their Equipment

1. Background

In the NOPR, the Department proposed to require manufacturers to determine initially the efficiency of each of their types of commercial HVAC and WH equipment either by testing the equipment \1\ using the applicable DOE test procedure, or by calculating the efficiency of the equipment through use of an alternative efficiency determination method (AEDM). To use an AEDM, a manufacturer would have to establish the AEDM's validity through the following process: (1) Apply the AEDM to a limited number of basic models to calculate their efficiency, (2) measure the efficiency of these same basic models by testing them, and (3) compare the test results with the calculations. The proposed rule would allow manufacturers to participate in Voluntary Industry Certification Programs (VICPs) to help establish the accuracy of manufacturer efficiency ratings and their compliance with Federal efficiency standards. Firms participating in VICPs would be subject to less stringent requirements for test sampling of equipment and for determining the validity of AEDMs than firms that did not participate in VICPs.

\1\ The Department commonly refers to such testing as ``certification testing.'' Under DOE's regulations for consumer appliances in 10 CFR Part 430, each manufacturer must certify to DOE the efficiency rating of each of its basic models, and manufacturer generally derives that rating from testing it performs to determine initially the model's rating. The Department contemplates adoption of this same scheme for commercial HVAC and WH equipment.

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2. General Standards for Testing by Manufacturers

Section 431.481(b) of the proposed rule contains general requirements for certification testing and for testing to validate AEDMs for commercial HVAC and WH equipment. Paragraph (3) of that section states that such testing must ``[m]eet industry standards for the accuracy of testing and of rating results for the equipment being tested * * *.'' 64 FR at 69612. In its comments, the Gas Appliance

Manufacturers Association (GAMA) asserts that the meaning of the term ``industry standards'' is unclear. (GAMA, No. 3 at 4) \2\

\2\ A notation in the form ``GAMA, No. 3 at 4'' identifies a written comment DOE received in this rulemaking after issuance of the NOPR. This notation refers to a comment (1) by GAMA, (2) in document number 3 in the docket in this matter, and (3) appearing at page 4 of document number 3.

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This provision is designed to require that measurements performed during testing meet the industry standards for accuracy that exist at the time a test is performed. Although the term ``industry standards'' may appear vague, DOE believes specific numerical criteria would be inappropriate in the rule because industry measurement standards can vary for different test procedures and types of equipment, and over time. The Department's intent is that ``industry standards'' as it uses that term in the proposed regulation would be evidenced by sources such as accuracy requirements in applicable test procedures and in ratings of measurement equipment, and would require, for example, that measurements conducted under DOE test procedures be performed using the laboratory-grade equipment, calibration standards and methods that represent the ``best practices'' used in the industry. In sum, the Department would require each manufacturer to perform the testing so as to minimize measurement uncertainty, in accordance with currently accepted industry measurement practices.

The Department is proposing a revision to proposed Sec. 431.481(b)(3) that would incorporate these concepts, and that would make clear that the rule is referring to measurement accuracy. The revised language DOE is considering would eliminate the reference to ``rating results'' and add the term ``measurement accuracy.'' The DOE solicits public comment on the alternative proposal that if a manufacturer tests a basic model to determine its efficiency or to validate an AEDM, it must meet industry standards for the measurement accuracy of testing for the equipment being tested including accuracy requirements in applicable test procedures, accuracy achieved by laboratory-grade equipment, and the accuracy of calibration standards.

3. Test Sampling by a VICP Participant

In the NOPR the Department proposed in Sec. 431.483 that when a manufacturer not participating in a VICP tests equipment under the regulations, it would have to use a test sampling procedure similar to what DOE requires in 10 CFR Part 430 for consumer appliances. 64 FR at 69613. By contrast, DOE proposed no specific sampling procedure for

testing by VICP participants, and instead proposed that when a participant tests a basic model it ``must use statistically valid and accurate methods to arrive at the efficiency rating of such basic model.'' 64 FR at 69613 (proposed Sec. 431.482(b)). The Department proposed less stringent requirements for initially establishing the efficiency of equipment from VICP participants because, unlike the equipment of non-participants, the efficiency ratings of their equipment would be subject to verification and other oversight by the VICP.

The Department continues to believe that VICP participants should be subject to less stringent test sampling requirements than non-participants and that they should have substantial discretion to choose a sampling plan. Nevertheless, upon further consideration DOE believes the ``statistically valid and accurate methods'' standard for testing by VICP participants may be too vague. Furthermore, the goal of any testing to determine a basic model's rating is to give reasonable assurance that the rating accurately reflects on average the efficiency of all units sold, and the regulations should require that manufacturers' testing programs meet this standard. Therefore, the Department is proposing to revise proposed Sec. 431.482(b) as follows:

A VICP participant that tests a basic model pursuant to this subpart must use statistically valid and accurate methods to arrive at the efficiency rating of the tested basic model. Such methods must give reasonable assurance that the manufacturer's efficiency rating for a basic model does not exceed the mean energy efficiency of the population for that basic model.

4. Criteria for AEDM Validation and Use of AEDMs

An AEDM is a method for determining the efficiency of equipment by means of a calculation, rather than by testing the equipment. In the NOPR, the Department proposed in Sec. 431.481(a) to allow each manufacturer to determine the efficiency of each of its commercial HVAC and WH basic models either by testing the model or by using an appropriate AEDM. 64 FR at 69612. A manufacturer could use an AEDM that met certain general criteria and had been validated (i.e., the manufacturer had established its accuracy). 64 FR at 69612-13. Validation of an AEDM by a manufacturer not participating in a VICP would be based on comparing the efficiency ratings derived from testing three or more basic models with the efficiency ratings derived from applying the AEDM to those same basic models. A VICP participant would have to make such a comparison for one or more basic models. When a manufacturer made the comparison for two or more basic models, the proposed rule would permit use of the AEDM only if the average efficiency rating, derived from applying the AEDM to these basic models, is within one percent of the average rating derived from testing them, and if the AEDM and testing results are within five

percent of each other for each of the basic models. (See proposed Sec. Sec. 431.482(c) and 431.483(b), 64 FR at 69613.) For VICP participants who made the comparison for only one basic model, the Department proposed that the difference between the AEDM and test results must be within one percent for the AEDM to be valid. (See proposed Sec. 431.482(c), 64 FR at 69613.)

In its comments, the California Energy Commission (CEC) objects to the five-percent provision. It appears to assert that DOE should not permit use of an AEDM unless the AEDM produces the same results as testing. The CEC also claims that the proposed AEDM provisions would allow use of an AEDM to rate each basic model at a level up to five percent higher than test results for that model would warrant, and that this would unfairly penalize manufacturers who base their ratings on physical testing, which CEC asserts is the preferred method. (CEC, No. 7 at 8)

The Department believes that some of CEC's concerns may have merit, and, upon further consideration, also has other concerns about the proposed provisions for validating AEDMs. First, as stated above, the proposed rule would permit VICP participants to validate an AEDM by comparing AEDM and test results for only one basic model. The Department now questions whether such a limited comparison provides a sufficient basis for concluding that an AEDM is accurate.

Second, the Department is concerned about the possibility that use of AEDMs under the proposed rule could result in overrating equipment. The five-percent criterion provides that when a manufacturer validates an AEDM by applying it to more than one basic model, it must predict an efficiency for each that is within plus or minus 5 percent of the test results for that model. This means that the proposal would allow an AEDM to have a range of uncertainty of 10 percent, and a built-in potential for overrating and under-rating of five percent each. This may allow too great a potential for overrating, and may also raise questions about the accuracy of ratings. The proposed tolerances for validating AEDMs, coupled with the lack of limitations on the basic models that manufacturers can use for such validation, also may create potential for abuses in using AEDMs. A manufacturer

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could, for example, validate an AEDM based on comparison of AEDM results and test results for a group of basic models that consists of a high-selling model for which the AEDM produces a rating five percent above results from testing, and low-selling basic models, unrepresentative of those generally sold by the manufacturer, that the AEDM under-rates by off-setting amounts. As the CEC indicates, in such a situation the proposed rule would not preclude the manufacturer from using the AEDM result to rate the high-selling basic model at a level

five percent above the level of the test results for that basic model. In addition, the manufacturer's use of the AEDM to calculate the efficiency of other relatively high-selling basic models could result in their being overrated as well. Such overrating could cause substantial sales in violation of Federal energy conservation standards, and result in substantially more energy use than the standards contemplate.

No evidence presented thus far in this proceeding contradicts the Department's reason for proposing to allow AEDMs, namely that the potentially large number of basic models for commercial equipment warrants use of AEDMs to mitigate the test burden on manufacturers. 64 FR at 69604. Thus, the Department is not inclined to require, as CEC suggested, that AEDMs always produce the same results as testing. This would virtually eliminate their use, since it is extremely difficult to develop an analytical model which has that degree of accuracy.

The DOE is considering, however, adoption of alternatives to some of the proposed provisions concerning AEDMs in order to address the other issues that CEC raised and the concerns discussed above that the Department now has about these provisions. Several of these alternatives concern the requirements for validating AEDMs and are designed to address concerns about accuracy in the initial ratings of covered equipment. The use of an AEDM to determine the energy efficiency of a basic model of covered equipment is already one step removed from an actual measurement of that equipment, and it is essential that the AEDM produce a reliable result.

First, the Department is considering a requirement that VICP participants validate their AEDMs by comparing test results and AEDM results for three or more basic models, as the NOPR proposed for non-participants. This is an alternative to the proposal that VICP participants validate their AEDMs by comparing results for one or more basic models. Mathematical or computer-based simulations, such as AEDMs, are most reliable when validated over a range of conditions, rather than for one condition. When a manufacturer validates an AEDM for only one basic model, applying the AEDM to other models is an extrapolation of that single basic model, with an uncertain reliability. By contrast, validation of an AEDM by reference to three basic models would encompass a range of conditions, and establish its accuracy over a wider range of variables. This would help ensure that each AEDM accurately reflects variations among the basic models it covers. Three validation points is also the minimum number needed to establish or verify a simulation that reflects a non-linear correlation among variables. This is the most common correlation among variables, including those that affect the efficiency of equipment. In sum, requiring VICP participants to validate AEDMs using three basic models rather than one should permit more accurate verification of their AEDMs, should improve the accuracy of their AEDM results, and would

still limit the testing burden because DOE would not be requiring testing for many basic models. Although verification testing would provide an incentive to VICP participants to use accurate AEDMs, this incentive might not offset the risk that use of AEDMs validated by reference to a single point would result in inaccurate initial equipment ratings. Finally, given the greater risk of inaccurate ratings from use of a single validation point, the Department believes it may be unreasonable to allow VICP participants to use only one validation point while requiring non-participants to use at least three.

Second, the Department is considering a requirement that, for any basic model used to validate an AEDM, the predicted efficiency calculated from applying the AEDM must be within two percent of the test results for that basic model, instead of five percent as proposed in the NOPR. Adoption of today's proposal would mean that an AEDM could have a range of error of no more than four percent, and a potential for overrating of two percent. For ratings derived from testing, the Department is proposing that the rating must either have approximately a 95-percent degree of confidence (for non-VICP participants) \3\ or be generated by methods that give reasonable assurance that it does not exceed the mean for the population of the equipment (for VICP participants). Given these requirements, the NOPR proposal to allow an AEDM to have an error of five percent for the validation points could provide too much potential for an AEDM to produce erroneous results. To reduce this possibility, the AEDM should be as accurate as practicable for the validation points. A tolerance band of 2 percent appears sufficient to allow for a reasonable amount of measurement uncertainty and modeling error.

\3\ This confidence limit requirement would not permit a manufacturer to rate any equipment at a higher efficiency or lower energy use than the mean of test measurements for that equipment. The requirement would not, for example, provide a five-percent ``tolerance'' that would allow a model to be rated five percent above test results. Rather the requirement that a rating be at or above the 95-percent confidence limit is a statistical test as to the accuracy of a rating, and would sometimes require a manufacturer to rate equipment below the level of the mean of the test sample.

Third, DOE is considering a requirement that the basic models a manufacturer uses to validate an AEDM must be the manufacturer's highest-selling basic models to which the AEDM could apply. Such a requirement would reduce the likelihood that a manufacturer could validate an AEDM using low-sales-volume equipment and then apply it to

high-sales-volume equipment, and would prevent a manufacturer from meeting the validation requirements for average accuracy by overrating a high-selling basic model and under-rating of one or more low-selling models. It would also give greater assurance that each manufacturer's AEDM(s) would represent the characteristics of equipment it commonly sells.[FEDREG][VOL]*[/VOL][NO]*[/NO][DATE]*[/DATE][PRORULES][PRORULE][PREAMB][AGENCY]*[/AGENCY][SUBJECT]*[/SUBJECT][/PREAMB][SUPLINF][HED]*[/HED]

Fourth, DOE is considering the option of requiring that a manufacturer, for any basic model it tests in order to validate an AEDM, rate the efficiency of that basic model using the test results (not AEDM results). This would preclude a manufacturer from using an AEDM to rate equipment at a higher level than the validation test results permit. The proposed rule was not intended to give a manufacturer a choice between using existing AEDM and test results. Rather, the purpose of allowing use of an AEDM to calculate efficiency is to relieve the undue burdens DOE understood would result from a requirement that manufacturers do efficiency testing on every basic model of commercial HVAC and WH equipment. Thus, there is no justification for permitting a manufacturer to use an AEDM to rate a basic model for which it has already determined the efficiency rating through testing.

This requirement, in combination with the requirements the Department is considering that all manufacturers use at least three basic models to validate each of their AEDMs, and use the highest-selling basic models to which

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the AEDM could apply, would have the effect of requiring that a manufacturer rate its three highest-selling basic models based on testing rather than use of AEDMs. This would help ensure more accurate ratings for the high-selling models. Requiring a manufacturer to rate only the highest-selling basic models based on testing would still allow the intended benefit from the use of AEDMs because lower-selling basic models are relatively numerous, and therefore represent a substantial testing burden.

Fifth, because the Department is also concerned about the general potential for manipulating AEDMs to overrate equipment, DOE is considering the addition of general language to its regulations to prohibit a manufacturer from knowingly using an AEDM to overrate the efficiency of a basic model. For example, this provision would preclude a manufacturer from using an AEDM, after a basic model has been tested, to create a higher rating than is warranted by the test results.

The Department is proposing several changes to the regulation language in the NOPR, to implement the foregoing five proposals. As

presented in this SNOPR, DOE proposes to include a new Sec. 431.481(c) and deletion of proposed Sec. Sec. 431.482(c) and 431.483(b)(1). The new paragraph would require a manufacturer that uses an AEDM under this subpart to validate it as follows: (i) Using the AEDM, the manufacturer must calculate the efficiency of three or more of its basic models, which must be the manufacturer's highest-selling basic models to which the AEDM apply; (ii) the manufacturer must test each of these basic models in accordance with Sec. 431.481(b) of this subpart, and either Sec. 431.482(b) or 431.483(a), whichever is applicable; and (iii) the predicted efficiency calculated for each such basic model from application of the AEDM must be within two percent of the efficiency determined from testing that basic model, and the average of the predicted efficiencies calculated for the tested basic models must be within one percent of the average of the efficiencies determined from testing these basic models.

The DOE also proposes to add language to proposed Sec. 431.481(a) to provide that a manufacturer must determine and rate the efficiency of a basic model from test results if it has tested that basic model to validate an AEDM. In addition, DOE would add a new paragraph (4) to Sec. 431.481(c) that would prohibit a manufacturer from knowingly using an AEDM to overrate the efficiency of a basic model.

The Department is also considering, and requests comment on, a number of other alternatives to the NOPR's proposals on AEDMs. With regard to validation of an AEDM, the Department is concerned about whether the permissible deviations it is considering between test results and AEDM results are at the proper levels. In addition to considering the allowance of a two-percent deviation for any single basic model used to validate an AEDM, as set forth above, and five percent as proposed in the NOPR, the Department is also considering whether some level between those figures is more appropriate. The DOE also is concerned that these levels and the one-percent average deviation for all basic models used to validate an AEDM, may be too generous and may underestimate the levels of accuracy an AEDM can achieve. Therefore, DOE is also considering adoption of an average permissible deviation between test and AEDM results of 0.5 percent, instead of the one percent proposed in the NOPR, with a maximum permissible deviation of one percent for any given basic model.

With regard to the proposal to prohibit a manufacturer from knowingly using an AEDM to overrate equipment, the Department is concerned that other ways may exist in which a manufacturer seeking to evade energy conservation requirements under EPCA could misuse an AEDM. For example, a manufacturer might use an AEDM that provides accurate ratings for the models used for validation, but overrates other models. Thus, as an alternative to the proposed general language to prohibit use of an AEDM to overrate equipment, the Department is considering broader language that would prohibit ``using an AEDM to circumvent

applicable requirements.''

As previously stated, the effect of certain alternative options described in this notice would be to require each manufacturer to determine from testing the efficiency ratings of at least its three highest-selling basic models. The Department is concerned that such a requirement might be viewed as arbitrary, since it would apply to each manufacturer regardless of its size and the number of basic models it produces. The Department's reason for proposing to allow use of AEDMs--to reduce the testing burden on manufacturers that produce numerous basic models of commercial HVAC and WH equipment--cuts two ways in this respect. First, it could support requiring each manufacturer to perform a uniform, minimum amount of testing, and as a result allowing manufacturers of large numbers of basic models to use AEDMs to rate a larger proportion and number of their models. But second, it could also support requiring each manufacturer to test the same proportion of its basic models, with manufacturers of large numbers of basic models testing more models than manufacturers of fewer basic models. This would still reduce the test burden of manufacturers of larger numbers of models far below what it would be if DOE prohibited use of AEDMs. Moreover, it might be unreasonable for the Department to require in effect that the three highest-selling basic models be tested, for example, by both a firm for which those basic models constitute forty percent of production and a firm for which they are ten percent of production. For these reasons, DOE is also considering adoption of one or more of the following approaches for a manufacturer to follow in testing its highest selling basic models: (1) A manufacturer would determine from testing the ratings for some minimum proportion of its total number of basic models, (2) a manufacturer would determine from testing the ratings of basic models that account for some minimum proportion of its sales, or (3) a manufacturer would determine from testing the rating of each basic model that exceeds a certain percentage of its overall sales. For any of these approaches it adopts, the Department would specify the applicable proportion or percentage in the final rule. The Department is undecided as to what these figures would be, but is considering a proportion in the range of one-third to two-thirds and 15 to 40 percent for the first and second approaches, respectively, and three to ten percent for the third. The Department specifically requests comment on this issue.

B. Voluntary Industry Certification Programs (VICPs)

1. Background

As discussed in more detail in the NOPR, the VICP is a voluntary program (usually run by a trade association) that collects, disseminates and verifies information as to the performance of one or more types of equipment. 64 FR at 69603. The Department proposed that

manufacturers could participate in DOE-approved VICPs to help assure that the manufacturers' efficiency ratings are accurate and comply with applicable requirements. The DOE also proposed the features that a VICP would need to have in order to receive DOE approval. The program would have to include, for example, collection and dissemination

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of efficiency ratings for each basic model of equipment, periodic testing of each basic model to determine the accuracy of the manufacturer's efficiency rating for the model, action when a manufacturer's rating was inconsistent with the test results, and reporting of certain information to DOE. The NOPR also addressed how the organization operating a VICP could obtain DOE approval of the VICP and the duration of that approval.

Sections B.2. through B.5., which follow, concern elements that the organization operating the VICP would have to include in the VICP in order to receive approval for the VICP from DOE. Section B.5. also addresses the proposed requirement that the organization operating an approved VICP must report changes in its program to the Department.

2. General Standards for Testing by a VICP

The NOPR proposed that verification testing under the VICP meet ``industry standards for the accuracy * * * of rating results.'' 64 FR at 69613. A similar provision applicable to manufacturer testing, is discussed in section II.A.2. above. The GAMA indicated that DOE should explain what is meant by ``industry standards'' in this context. (GAMA, No. 3 at 6) For the reasons discussed in section II.A.2, the Department is proposing adoption in the final rule of language on VICP observance of industry standards in verification testing that is virtually identical to the revised language it is considering for manufacturer testing. That language, which would replace proposed section 431.484(a)(8), is as follows:

The program's verification testing meets industry standards for the measurement accuracy of testing for the equipment being tested. This includes accuracy requirements in applicable test procedures, accuracy achieved by laboratory-grade equipment, and the accuracy of calibration standards.

3. Determining the Validity of Manufacturers' Efficiency Ratings

Section 431.484 of the proposed rule would require a VICP to have ``an appropriate standard'' for determining whether a manufacturer's claimed efficiency rating for a product is valid. 64 FR at 69613. This provision concerns two facets of verification of manufacturers' ratings under a VICP. First, it applies to the method (such as a sampling plan) by which the organization operating the VICP determines a basic model's efficiency from the verification testing it has conducted. Second, it applies to the criteria (such as tolerances) that the organization

operating the VICP uses when it compares the manufacturer's rating for a basic model to the efficiency that the organization has determined under the VICP, to decide whether the manufacturer's rating is valid. The provision requires the use of methods and criteria that are sufficiently rigorous so as to give reasonable assurance that any rating the organization finds valid under the VICP would, on average, apply to all units of the model. The Department is concerned that an ``appropriate standard'' test for determining the validity of manufacturers' ratings may be overly vague, and that organizations seeking approval from DOE of VICPs under the regulations might not understand that these concepts are implicit in the rule and might submit inadequate programs to DOE.

The Department also expressed concern in the NOPR that manufacturers, knowing the criteria used under the VICP to verify the accuracy of their efficiency ratings, might systematically overrate their equipment. 64 FR at 69605-06. Typically, the organizations operating the VICPs currently test one or at most two units when doing verification testing of a basic model under a VICP. If the efficiency measured from the single unit, or from the average of the two units, is within a set percent (such as five percent) of the manufacturer's rating for the basic model, the organization operating the VICP accepts the manufacturer's rating as valid. To address the possibility that manufacturers participating in a VICP might systematically overrate equipment by five percent or slightly less, so as to be able to pass verification testing while claiming a higher rating than is warranted, the Department proposed to require the organizations operating the VICPs to submit to the Department annually summary data on verification test results under the VICP and the ratings of tested models. The Department could then take action with respect to a particular VICP if it appeared that systematic overrating of equipment covered by that VICP had occurred. The Department is concerned that this approach might address any overrating only prospectively and might be insufficient to deter VICP participants from overrating their equipment.

To address these concerns, the Department is considering two additions to the proposed rule. First, it is considering additional language to clarify what would constitute an ``appropriate standard'' under a VICP for determining the validity of manufacturers' efficiency ratings. Second, DOE is considering the option of adding criteria for DOE approval of any VICP that would find a manufacturer's rating for a basic model valid when the verification test results are within a given percentage of the rating. These criteria would require that the VICP include the specific percentage(s) used, that the size of each percentage relate to the equipment to which it applies, and that the organization operating the VICP revise its program if, during any calendar year, it finds valid manufacturer ratings that average more than one percent above the verification test results under the VICP.

Therefore, the Department is proposing substitute language for proposed Sec. 431.484(a)(9) of the NOPR. The DOE solicits public comment on this alternative proposed language.

The Department is also considering, and seeks comment on, other options to assure that VICPs operate under appropriate standards for determining whether manufacturers' efficiency ratings are valid. For the efficiency figure from verification testing of a basic model under the VICP, DOE is considering a requirement that such figure must be valid at the 95-percent confidence limit, or at some other fixed confidence limit based on the inherent manufacturing variability or measurement uncertainty for the equipment in question. If the manufacturer's rating were higher than that, the organization operating the VICP would have to find the rating invalid. (This is the same approach that would apply to testing by non-VICP participants.) For comparison under the VICP of the performance from verification testing with the manufacturer's rating of a basic model, the Department is also considering a requirement that, where the measurement under the VICP is below the manufacturer's rating (or above for an energy use rating), the organization operating the VICP must require the manufacturer to justify its rating. Absent a satisfactory justification, the manufacturer's rating would be invalid under the VICP. A satisfactory justification would have to be based on other measurements of the model's efficiency, to show either or both of the following: (1) The manufacturer's rating is valid at the 95-percent confidence limit, or at some other fixed confidence limit based on the inherent manufacturing variability or measurement uncertainty for the equipment in question (this would be

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the same approach applicable to testing by non-VICP participants); (2) the verification test results fall within the lesser of two standard deviations or 95 percent of the manufacturer's rating.

The Department is considering the types of verification requirements described in the previous paragraph for several reasons. First, they might provide greater assurance than is provided by the proposals in the NOPR, or above in this notice, that organizations operating VICPs would use rigorous standards to verify manufacturer ratings. Second, although certification testing requirements for VICP participants would still be less stringent than for non-participants, such requirements might ensure that participants and non-participants would be subjected to the same type of standard. And finally, these proposals would provide clearer criteria for DOE to use in its determination of whether to approve a VICP.

4. Manufacturer Challenges of Equipment Ratings

The CEC suggested that the Department add as a condition of its

approval that each VICP include a provision allowing a manufacturer to challenge ratings by other manufacturers. (CEC, No. 7 at 6). It is DOE's understanding that, as stated by CEC, the existing program of the Air-Conditioning & Refrigeration Institute (ARI) has long allowed for such challenges. The possibility of such challenges may deter overstatement of efficiency ratings, and therefore the Department is proposing to add to the final rule the following conditions set forth in proposed Sec. 431.484(a) for DOE approval of a VICP:

The program contains provisions under which each participating manufacturer can challenge ratings submitted by other manufacturers, which it believes to be in error.

5. VICP Reporting to the Department

As indicated above, in the NOPR the Department proposed that each organization operating a VICP would have to report to DOE annually on verification testing results under the VICP. Another proposed condition of DOE approval of a VICP is that each basic model covered by a VICP be tested under the program at least once every five years. To enable the DOE to monitor compliance with this latter requirement, the Department is considering, and seeks comment on, a requirement that each organization operating a VICP report to DOE annually the model numbers, organized by type of equipment and manufacturer, covered by the basic models it has tested during the previous twelve months.

Addressing the duration of DOE's approval of VICPs, proposed Sec. 431.484(b) provides as follows:

Approval will remain in force for five years, unless material changes occur in the program. In the event of changes, the VICP must promptly notify the Department, which may then rescind or continue the approval.

The Department designed the second of these sentences to require the organization operating any DOE-approved VICP to ``notify the Department'' immediately whenever the organization made any changes in its program, so as to allow the Department to evaluate the changes and to rescind approval of the program if such changes were material. Because the word ``promptly'' might be considered vague, and given the obvious importance to DOE of immediate receipt of information as to any changes in an approved VICP, the Department is proposing inclusion of the following sentence in the final rule, in place of the second sentence just quoted:

If the organization operating an approved VICP makes any changes in its program, the organization must notify the Department of such changes within 30 days of their occurrence, and the Department may then rescind or continue its approval.

C. Enforcement by the Department

1. Enforcement Testing--General

Although most of the NOPR's proposed enforcement provisions are very similar to those currently in 10 CFR parts 430 and 431 (for consumer appliances and electric motors, respectively), the proposals for enforcement testing of commercial HVAC and WH equipment deviate in a few significant respects from the enforcement testing provisions now in those parts. The Department proposed in the NOPR to test initially two units of a basic model to determine its compliance with the applicable energy conservation standard, except that under certain circumstances DOE would test one unit. 64 FR at 69616. The proposed rule also provides that DOE would find the model to be in compliance if the average result for the two tested units (or the result from testing a single unit) is 95 percent or more of the applicable efficiency standard, or 105 percent or less of an energy use standard. 64 FR at 69617. If the test results are outside the five-percent tolerance, and would thereby result in a determination of non-compliance, a manufacturer could elect to have DOE test one or two more units. The Department would then determine whether the model was in compliance by averaging the results from both rounds of testing, and then applying the five-percent criterion. By contrast, parts 430 and 431 contemplate an initial round of enforcement testing of a minimum of four or five units, and a maximum of 20, as well as application of sophisticated statistical tests to determine whether the test results establish that the basic model is out of compliance.

In their comments, CEC and the Oregon Office of Energy (OOE) assert that the proposed five-percent criterion provides insufficient assurance of compliance, stating that it would allow a model to be found in compliance even if each sample unit tested at a level below the minimum standard. (CEC, No. 7 at 6-7 and 8-9, Tr.\4\ 139, 140-41; OOE, Tr. 138, 141, 144) Upon further review of the proposed provisions for enforcementp testing, DOE believes this concern has substantial merit. In addition, by allowing a basic model to pass so long as the test results were no more than five percent below the standard, this provision appears to be considerably more lenient than part 430, particularly in instances where the spread in test results is small. The proposed methodology and much smaller sample sizes might also provide much less accurate results and a greater possibility of errors than the methodology in part 430.

\4\ ``Tr.'' followed by a number or numbers, refers to a page or pages in the transcript of the January 2000 hearing.

The CEC and OOE seem to be advocating that the Department revise the enforcement testing proposal to provide that a basic model would be found in compliance only if the mean of the model's enforcement testing results meets or exceeds the applicable standard. The Department is not inclined to adopt this approach because it could create too great a risk of erroneously finding a manufacturer out of compliance. As long as the mean of all units of a basic model (the ``population'') met or exceeded the minimum standard, the basic model would be in compliance with the regulations. From a statistical standpoint, for any given basic model with a normal distribution of performance, half of the units produced will perform better than the mean for the population of all units and half will perform worse. Thus, if the mean performance of the population were at the standard level, the basic model would be in compliance but half of its units would be expected to perform above the standard and half below, and

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there would be a 50-percent chance that the mean of a test sample would be below the standard. If the DOE's enforcement rules were to provide that a basic model would be found in compliance only if the mean performance of the test sample was at or above the applicable standard, the Department would have a 50-percent chance of finding equipment out of compliance even if the mean of its entire population meets the standard. The Department is reluctant to adopt rules that would entail such a large risk of an incorrect decision of noncompliance, since such a decision would require a manufacturer to discontinue distribution of the equipment and subject the manufacturer to other remedial actions and penalties.

The Department did not incorporate part 430's enforcement testing provisions into the proposed rule because of the significant differences between consumer products and commercial equipment. Each manufacturer of a consumer appliance tends to produce a relatively small number of basic models, each in a relatively large quantity. The size of the product, as well as the cost of each unit, tend to be lower than commercial equipment. At any time, a sufficient number of units of any residential equipment model will likely be available to allow sample sizes to be large. Thus, part 430 uses a statistical method that is more rigorous than would be possible with smaller sample sizes. Specifically, the method of part 430 is based on a double sample, with a maximum sample size of 20 units. The size of the combined sample provides a 95-percent confidence level in the accuracy of the sample mean. Under this method, the Department computes an efficiency level that constitutes a lower control limit. This level is based on the applicable standard, the test sample measurements, and the variance among these measurements, but can be no lower than five percent below

the standard. As long as the sample mean is at least equal to the lower control limit, DOE considers the basic model to be in compliance.

This approach helps to avoid false negative determinations (i.e. erroneously finding a basic model out of compliance). By allowing a finding of compliance in some instances where the sample mean of a basic model is slightly lower than the standard, it takes into account situations where the sample mean may be below the standard even though the population of the product is not. On the other hand, the rigorous statistical basis for the enforcement determination promotes accurate ratings by manufacturers, and provides some control of overrating. This is because the enforcement methodology creates a substantial risk for a manufacturer of a finding of non-compliance where it produces a basic model that clearly fails to meet the applicable standard.

On the other hand, it is the Department's understanding that each manufacturer of commercial HVAC and WH equipment tends to produce a large range of models, many of which it produces in small quantities. Purchasers often select a model from a catalog to suit a specific application, and some models are manufactured only on order. Commercial equipment is more costly in general, and may also be quite large in size. Although not all of these factors apply to every model of commercial HVAC and WH equipment, the enforcement regulations need to take these market characteristics into account. Thus, sample sizes of up to 20 units, as provided in part 430, would generally be prohibitive for commercial HVAC and WH equipment, and enforcement testing provisions for this equipment must accommodate a sample size as small as one. The NOPR proposals to test initially two units and to find a basic model of equipment in compliance if test results were within five percent of the applicable standard, were a response to these concerns. But for the reasons stated above, the Department is now reconsidering whether these proposals are the best approach for addressing the characteristics of commercial equipment.

As an alternative to these proposals, the Department is now considering for commercial HVAC and WH equipment an enforcement testing approach resembling that in part 430. This approach would approximate the statistical method used there, using smaller sample sizes. Compared to the NOPR proposal, the sample sizes would generally be larger, DOE would do more tests, and the pass/fail criterion would be more stringent. The Department believes this approach would provide more accurate results than the proposed method, and reduce the possibility that DOE might erroneously find a basic model to be in or out of compliance. It would serve the goals of providing a fair and accurate determination of the energy efficiency (or use) of the model being tested, and of fairly balancing the manufacturer's risk of being falsely found to be non-compliant with the risk to the consumer of a false finding of compliance. As with the NOPR's proposal, the sample sizes would be consistent with the constraints imposed by the volume

and nature of commercial HVAC and WH equipment. Thus, the Department's new approach would serve the goals of being neither unduly burdensome nor excessively time-consuming or expensive to conduct.

The specifics of the approach the Department is now proposing are as follows. First, DOE would generally test four units of a basic model, but would test fewer if only a lesser number were available or if testing of such lesser number were otherwise warranted. (The circumstances under which DOE would test fewer than four units are discussed below.) If DOE were to test three or four units, it would test each unit once; if it tested two units it would test each twice; and if it tested one unit it would test that unit four times. Second, DOE would compute the mean of the test results, as provided in the NOPR, but would also calculate a lower control limit. The lower control limit would be the greater of either: (1) 97.5 percent of the applicable energy efficiency standard, or (2) the applicable energy efficiency standard minus the product of the sample standard error and the t-value for a 97.5-percent, one-sided confidence limit. The sample standard error would be the same as in part 430 (Appendix A to subpart F, steps 3 and 4). (For an energy use standard, DOE would calculate an upper control limit, which would be the lesser of either 102.5 percent of the applicable standard, or the standard plus the product of the sample standard error and the t-value for a 102.5-percent, one-sided confidence limit.) Third, a basic model would be in compliance only if the mean measurement for the sample meets or exceeds the lower control limit in the case of an efficiency standard or is less than or equal to the upper control limit in the case of an energy use standard.

From the standpoint of statistical accuracy, testing more units of a basic model and conducting multiple tests on each model would provide greater accuracy and less chance of making an error in a compliance determination. Concerns over the testing burden and availability of test units, however, limit the number of tests that DOE can reasonably require for commercial equipment. Thus, some compromise must be reached. A test sample size of four units would at least allow the statistical calculations to provide the basis for evaluating confidence limits, and would equal the minimum sample size in part 430. In cases where four units are not available, testing three would still allow confidence limits to be determined, as would making multiple measurements of one or two units. Multiple measurements of a single unit

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would not incorporate the effects of equipment variability, but would help account for the effects of measurement uncertainty. The determination of a control limit based on confidence limits would allow for some tolerance to avoid falsely finding a basic model to be out of

compliance, but still encourage manufacturers to accurately rate their equipment.

The Department believes that using 97.5- and 102.5-percent, one-sided confidence limits, and allowing the mean of the enforcement test sample to be a maximum of 2.5 percent below the applicable standard, would provide sufficient tolerances to reflect the normal manufacturing and measurement variability that might affect sample units for the equipment involved here. The ARI and GAMA operate VICPs to verify manufacturer efficiency ratings of residential and commercial air conditioning equipment and water heaters, respectively. The ARI finds a rating valid if it is no more than five percent above the results of a single verification test ARI performs, or above the average of two tests if the first test result is more than five percent below the rating. The GAMA uses the same approach, but with an allowed deviation of two percent for commercial equipment and 3.5 percent for residential products. In addition, under today's proposal, the initial round of DOE enforcement testing would typically involve four units, or three or four tests, and, as discussed below, several more tests could result from manufacturer option testing. Because this approach involves more than the one or two tests performed by ARI and GAMA, it would involve much less risk that the sample test results will be below the mean of the population. For these reasons, DOE believes that although the five-percent figure proposed in the NOPR for enforcement tolerances is appropriate in the context of part 430's methodology for consumer products, for the equipment here and for the methodology DOE is now considering a 2.5-percent tolerance seems reasonable. Moreover, use of the 2.5-percent figure rather than five percent would create less of an incentive for manufacturers to produce equipment with high variability in order to obtain a greater tolerance during enforcement testing. Nevertheless, DOE encourages interested parties to provide to the Department, in response to this notice, any data they have that indicates a tolerance other than 2.5 percent might be warranted for any or all of the equipment involved in this proceeding.

As indicated, the above-described approach for enforcement testing would allow the number of units tested to vary depending on the circumstances. The same is true to some extent of the proposal in the NOPR, which provides that DOE would initially test two units of a basic model to determine its compliance, except in two situations. First, the Department proposed to test only one unit, and base the compliance determination on that test, if that is the only unit available for testing. Second, if a basic model is very large or has unusual testing requirements, DOE proposed to allow itself the discretion to test only one unit upon a manufacturer's request supported by sufficient justification. 64 FR at 69616. The GAMA advocated expansion of the second exception to include situations where a manufacturer demonstrates limited availability of a basic model because it has a low

sales volume or is produced only for special orders. (GAMA, No. 3 at 8, Tr. 120)

The GAMA's concern would seem to be covered by the first exception, which would address any situation, including low sales volume or limited production of a basic model, that results in only one or a few units being available for testing. But it appears to the Department at this point that in the context of both the NOPR proposal to generally test two units and the option described above to generally test four, the testing of fewer units probably should not be limited to the circumstances described in the NOPR (limited availability of units, or the large size or unusual testing requirements for a basic model). Other circumstances could make it impractical to test the specified number of units. The Department is inclined to the view that, whenever such circumstances occur, the rule should permit a manufacturer of commercial HVAC and WH equipment to request and justify, and permit DOE the discretion to allow, testing of fewer than the specified number of units during enforcement testing. The Department is incorporating this approach into the option for enforcement testing on which it seeks comment today, and would also incorporate it into the final rule even if it were to adopt the NOPR proposal to generally require the testing of two units.

In addition, the NOPR would require the Department to test one unit where only one is available at the time of the test notice. As indicated above, DOE is considering a provision that would increase its discretion to test fewer than the number of units specified in the rule when warranted by the limited availability of units or other reasons. Similarly, the Department is now also considering a provision that would give DOE the discretion, when fewer than the specified number are initially available, to conduct enforcement testing over a period of time as more units become available. Specifically, where fewer than the specified number are available at the time of the test notice, but one or more additional units are expected to become available within the next six months, this provision would allow DOE to test either: (1) Only the initially available unit(s), (2) those unit(s) and subsequently available unit(s), or (3) only units that subsequently become available. Once again, the Department is incorporating this approach into the enforcement testing option on which it seeks comment today, but would also incorporate it into the final rule even if it adopts the NOPR proposal to generally require the testing of two units.

Finally, as stated above, the NOPR provides that where enforcement testing results in a determination of non-compliance, DOE would test one or two more units if the manufacturer so requests. The Department would then determine compliance by averaging the results from both rounds of testing, applying the 2.5-percent criterion. In conjunction with DOE's consideration of an increase in the initial-test-sample size, generally to four units, the Department is also considering

allowing a manufacturer to request testing of up to six additional units following a determination of non-compliance from the initial round of testing. The reason for permitting such additional testing follows the same logic given above, namely that it would provide for greater accuracy in estimating the population mean, and less chance of making an incorrect determination of compliance or non-compliance. The limit of ten total test units ensures a conclusion to the enforcement process, while still allowing a manufacturer to have DOE do additional testing to prove compliance. During the additional testing, each unit would be tested the same number of times as units were tested during the round of testing that resulted in the non-compliance determination. This would enable the results from the two rounds of testing to be treated on an equal basis. The two sets of results would be combined to determine an overall (combined) sample mean, standard deviation, and control limit. The control limit would be compared to the overall sample mean, in the same manner as with the initial test sample, to determine compliance.

This approach is similar to the approach in part 430 for additional testing at the election of a manufacturer.

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In conjunction with consideration both of this approach and of the NOPR proposals for such testing, the Department also is considering adoption of the following: (1) Language, comparable to that in Appendix A to subpart F of part 430, which makes clear that a manufacturer can make one request (not one or more sequential requests) to have DOE test up to six additional units; (2) the part 430 provisions (Sec. 430.70(a)(6)(iv)-(v)) as to distribution of a basic model that undergoes manufacturer-option testing; and (3) provisions that would apply to manufacturer-option testing the relevant portions of proposed Sec. 431.506(a)(3)-(5) and (b) for initial enforcement testing (concerning such matters as notification of testing, shipment of test units, and use of test data).

The Department proposes to implement the foregoing proposals by adopting new language for Sec. Sec. 431.506(c), 431.506(f) and 431.507. The DOE solicits public comment on the proposed alternative language.

The Department is also considering, and seeks comment on, a number of other alternatives to the proposals in the NOPR concerning enforcement testing. First, as a slight variation on the alternative approach just described, the Department is considering adoption of a requirement that, where only one unit is tested, three tests be performed rather than four as set forth above. This would slightly reduce the enforcement testing burden, while still accounting for measurement uncertainty to the same extent as testing three units,

which the above approach permits. However, four test results would provide more confidence in the sample mean.

Second, the Department is considering adoption of the enforcement testing approach in the NOPR--an initial test of one or two units, testing of up to two more if the manufacturer requests, and a finding of compliance if the mean is not more than a specified percent below the standard--but with the specified percent being three rather than five percent. This would reduce the likelihood of a false finding of compliance while at the same time keeping to a minimum the burden of enforcement testing and simplifying the process. For reasons similar to those discussed above with respect to the control limits DOE is proposing, the three-percent figure appears to be reasonable in light of the tolerances used by ARI and GAMA to verify ratings in their VICPs and the fact that these VICPs conduct fewer tests of a basic model than the enforcement approach in the NOPR contemplates. It would, however, have most of the disadvantages, described above, of the enforcement testing proposals in the NOPR.

Third, the Department is considering adoption of the NOPR proposals, but with the added provisions that (1) for any basic model for which annual production exceeds some figure such as 500 or 1000 units, the approach in Part 430 would be used, and (2) the maximum number of units to be tested would be a number such as 10 or 20, or a percentage of production (for example, one or two percent) up to a maximum such as 10 or 20 units. This approach would mitigate the disadvantages of the proposals in the NOPR by using a more accurate and sophisticated enforcement methodology for models sold in large volumes. And the methodology would have the advantage of being an existing approach that has long been in the Department's regulations.

2. Enforcement Testing--Defective Units and Retention of Sample Units

The Department proposed in the NOPR that a unit selected for enforcement testing would be ``defective,'' and the Department could authorize its replacement during the testing, if it ``is inoperative or is found to be in noncompliance due to failure of the unit to operate according to the manufacturer's design and operating instructions.'' Proposed Sec. 431.506(e)(3), 64 FR at 69616. The GAMA requested expansion of this description of a defective unit to include specifically a water heater found to be in noncompliance due to an insulation void of \1/3\ of one percent or more of its tank surface area. According to GAMA, such a unit would have a significant insulation void, and ``should not be included in the test sample because it is not representative of the manufacturer's production.'' The GAMA also indicated the regulation could place the burden of proof on a manufacturer to establish that a test unit is not representative of its production. (GAMA, No. 3 at 8, No. 6 at 2, Tr. 123-25, 126-27, 130) The ARI stated that it takes such an approach in its voluntary program. (ARI, Tr. 125-26) The OOE stated that its extensive

examination of water heaters has shown that many have ``thin spots'' in their insulation, and it suggested the possibility of a statistical test to determine whether a unit with such a defect is an ``outlier,'' i.e., the unit has one or more characteristics that make it unrepresentative of the manufacturer's production of units of the same design. (OOE, Tr. at 128-29, 131, 132) The CEC asserted, however, that the rule should allow replacement during enforcement testing only of inoperable units, because a consumer could well buy and operate a unit which operates improperly or is defective. (CEC, No. 7 at 11, Tr. 127-28)

The Department's purpose in proposing to exclude a defective unit from consideration in enforcement testing is to assure that a unit that is unrepresentative of the manufacturer's production does not skew the test result. The Department is reluctant to presume, as GAMA seems to suggest, that every water heater with an insulation void above a certain size is unrepresentative of units produced by every water heater manufacturer. Nevertheless, when such a water heater is shown to be unrepresentative of a manufacturer's production it should be excluded from enforcement testing, as should other equipment with unrepresentative manufacturing defects. Given the dramatic effect that such equipment can have on test results, and consequently on a manufacturer, the possibility of an isolated sale of such a piece of equipment would not seem to warrant its inclusion in enforcement testing, as suggested by CEC. On the other hand, CEC's comments also suggest that if a consumer is reasonably likely to purchase a unit with a given defect, distribution of such units could adversely affect consumers and energy consumption. The Department is inclined to the view that such a unit could not fairly be considered to be unrepresentative of a manufacturer's production, and that it should be included in testing.

In balancing the interests of the consumer and of achieving EPCA's conservation goals, against the interests of a manufacturer in an enforcement action, the Department also sees merit in CEC's suggestion that inoperative units be treated differently from those that operate but not according to the manufacturer's design and instructions. Clearly, the former will neither be used by consumers nor cause unexpected energy use, and should always be discarded from testing. And although the Department disagrees with CEC that units which operate improperly should never be excluded from enforcement testing, it believes such units should be excluded only if they are unrepresentative of the manufacturer's production, as with units that have manufacturing defects.

For these reasons, the Department is considering adoption of a provision that a unit found in noncompliance due either to a manufacturing defect, or to a failure to operate according to the manufacturer's design and instructions, could be classified as

defective only if the manufacturer demonstrates by statistically valid means that the unit is

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unrepresentative of the population of production units from which it was obtained. (The DOE would adopt these provisions in conjunction with the NOPR proposal to treat any inoperative unit as defective and allow its replacement during enforcement testing.)

The Department also proposed in the NOPR that, as part of enforcement testing, DOE would collect a ``batch'' of production units of a basic model, and select from this ``batch'' the units to be tested. The manufacturer would have to retain all units that are in the batch but are not selected for testing until DOE determines whether the basic model is in compliance. Proposed Sec. 431.506(d), 64 FR at 69616. The GAMA questioned the retention requirement, indicating that it could unnecessarily burden manufacturers who could otherwise sell these units. (GAMA, No. 3 at 8, Tr. 122) This proposed requirement is from the enforcement testing provisions of 10 CFR Part 430. Section 430.70(a)(4) (ii) provides that test results for the sample of units initially selected from a batch may necessitate selection and testing of a second sample of units, and hence the requirement to retain the batch. Also, in 10 CFR Part 431, Sec. 431.192(d)(2), which pertains to electric motors, contains a similar provision. The NOPR, however, contains no requirement to select a second sample. For enforcement testing of HVAC and WH equipment, requiring a manufacturer to retain units remaining in a batch after selection of the test units would be justified only by the provision for testing an additional unit in place of a defective unit.

As previously discussed, the Department is proposing that a unit would be classified as defective, and could be replaced during enforcement testing, only if (1) it is inoperative or (2) the manufacturer demonstrates, in accordance with certain criteria, that the unit has a manufacturing defect or does not operate properly. If DOE adopts these proposals, once DOE determines during an enforcement proceeding that the units selected from a batch for testing are operative and the manufacturer no longer seeks to claim that any unit(s) is defective, no reason would exist to require retention of the units remaining in the batch. Accordingly, the Department is considering adoption of a provision under which the manufacturer would be required to retain all units in the batch until DOE has determined the test units to be operative, and once a manufacturer discards from the batch any unit that the Department has not selected for testing, it may no longer claim a tested unit to be defective.

The Department proposes to implement the foregoing approach by adopting substitute language for proposed Sec. 431.506(e)(3) and

431.506(d)(2).

3. Enforcement of Design Standards

When DOE issued the NOPR, the energy conservation standards in place for commercial HVAC and WH equipment did not provide any design standards, i.e., did not require a particular design for any equipment. Consequently, the NOPR proposed no enforcement procedure for addressing an allegation of non-compliance with a design standard. The Department has since adopted a design standard for unfired hot water storage tanks, effective October 29, 2003. 66 FR 3336, 3356 (January 12, 2001). Therefore, the Department is proposing the adoption in its final regulation concerning enforcement for commercial HVAC and WH equipment of the following language, largely copied from 10 CFR Sec. 430.70(d), which provides a procedure for the Department to use to evaluate compliance with an applicable design standard:

In the case of a design standard, the Department can determine that a model is noncompliant after the Department has examined the underlying design information from the manufacturer and after the manufacturer has had the opportunity to verify compliance with the applicable design standard.

D. Conclusion

The Department seeks comments on the issues arising from the proposals discussed above, which the Department is considering as alternatives or additions to the proposals in the NOPR.

III. Procedural Requirements

A. Review Under Executive Order 12866

The Office of Information and Regulatory Affairs of the Office of Management and Budget (OMB) has determined that today's regulatory action is not a ``significant regulatory action'' under Executive Order 12866, ``Regulatory Planning and Review,'' 58 FR 51735 (October 4, 1993). Accordingly, this action was not subject to review under the Executive Order.

B. Review Under the Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601 et seq.) requires preparation of an initial regulatory flexibility analysis for any rule that by law must be proposed for public comment, unless the agency certifies that the rule, if promulgated, will not have a significant economic impact on a substantial number of small entities. As required by Executive Order 13272, ``Proper Consideration of Small Entities in Agency Rulemaking,'' 67 FR 53461 (August 16, 2002), DOE published procedures and policies on February 19, 2003, to ensure that the

potential impacts of its rules on small entities are properly considered during the rulemaking process (68 FR 7990). The DOE has made its procedures and policies available on the Office of General Counsel's Web site: http://www.gc.doe.gov.

The DOE reviewed today's proposed rule under the provisions of the Regulatory Flexibility Act and the procedures and policies published on February 19, 2003. On the basis of information presented in the NOPR concerning manufacturers of the commercial equipment that would be affected by this rulemaking (64 FR 69606-07), DOE concluded that the rule, if promulgated, would not have a significant economic impact on a substantial number of small entities. The DOE has concluded that the rule as modified by today's SNOPR would not have a significant economic impact on a substantial number of small entities. Accordingly, DOE has not prepared a regulatory flexibility analysis for this rulemaking. The DOE will transmit the certification and supporting statement of factual basis to the Chief Counsel for Advocacy of the Small Business Administration for review pursuant to 5 U.S.C. 605(b).

C. Review Under the Paperwork Reduction Act

The preamble to the NOPR described the recordkeeping and reporting requirements that would be imposed on manufacturers of commercial heating, air conditioning, and water heating equipment by the proposed rule, and DOE invited public comment on the proposed information collection and recordkeeping requirements (64 FR 69608-09). The only additional reporting requirement that today's SNOPR proposes is that each DOE-approved VICP report annually a list of the models it has tested, and DOE invites comment on that proposal.

D. Review Under the National Environmental Policy Act

The DOE has determined that this rule falls into a class of actions that are categorically excluded from review under the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) and the Department's implementing regulations at 10 CFR part 1021. As discussed in the NOPR (64 FR 69606), this rule is covered by the

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Categorical Exclusion in paragraph A6 to subpart D, 10 CFR part 1021. Accordingly, neither an environmental assessment nor an environmental impact statement is required.

E. Review Under Executive Order 13132

Executive Order 13132, ``Federalism,'' 64 FR 43255 (August 4, 1999)

imposes certain requirements on agencies formulating and implementing policies or regulations that preempt State law or that have federalism implications. The Executive Order requires agencies to examine the constitutional and statutory authority supporting any action that would limit the policymaking discretion of the States and carefully assess the necessity for such actions. The Executive Order also requires agencies to have an accountable process to ensure meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications. On March 14, 2000, DOE published a statement of policy describing the intergovernmental consultation process it will follow in the development of such regulations (65 FR 13735). The DOE has examined today's supplemental proposed rule and has determined that it does not preempt State law and does not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. No further action is required by Executive Order 13132.

F. Review Under Executive Order 12988

With respect to the review of existing regulations and the promulgation of new regulations, section 3(a) of Executive Order 12988, ``Civil Justice Reform'' (61 FR 4729, February 7, 1996), imposes on Federal agencies the general duty to adhere to the following requirements: (1) Eliminate drafting errors and ambiguity; (2) write regulations to minimize litigation; and (3) provide a clear legal standard for affected conduct rather than a general standard and promote simplification and burden reduction. Section 3(b) of Executive Order 12988 specifically requires that Executive agencies make every reasonable effort to ensure that the regulation: (1) Clearly specifies the preemptive effect, if any; (2) clearly specifies any effect on existing Federal law or regulation; (3) provides a clear legal standard for affected conduct while promoting simplification and burden reduction; (4) specifies the retroactive effect, if any; (5) adequately defines key terms; and (6) addresses other important issues affecting clarity and general draftsmanship under any guidelines issued by the Attorney General. Section 3(c) of Executive Order 12988 requires Executive agencies to review regulations in light of applicable standards in section 3(a) and section 3(b) to determine whether they are met or it is unreasonable to meet one or more of them. The DOE has completed the required review and determined that, to the extent permitted by law, this proposed rule meets the relevant standards of Executive Order 12988.

G. Review Under the Unfunded Mandates Reform Act of 1995

Title II of the Unfunded Mandates Reform Act of 1995 (Pub. L. 104-

4) requires each Federal agency to assess the effects of Federal regulatory actions on State, local, and tribal governments and the private sector. For a proposed regulatory action likely to result in a rule that may cause the expenditure by State, local and tribal governments, in the aggregate, or by the private sector of $100 million or more in any one year (adjusted annually for inflation), section 202 of the Act requires a Federal agency to publish estimates of the resulting costs, benefits, and other effects on the national economy (2 U.S.C. 1532(a),(b)). The Act also requires a Federal agency to develop an effective process to permit timely input by elected officers of State, local, and tribal governments on a proposed ``significant intergovernmental mandate,'' and requires an agency plan for giving notice and opportunity for timely input to potentially affected small governments before establishing any requirements that might significantly or uniquely affect small governments. On March 18, 1997, DOE published a statement of policy on its process for intergovernmental consultation under the Act (62 FR 12820) (also available at http://www.gc.doe.gov). The proposed rule published today

contains neither an intergovernmental mandate nor a mandate that may result in expenditure of $100 million or more in any year, so these requirements do not apply.

H. Review Under the Treasury and General Government Appropriations Act, 1999

Section 654 of the Treasury and General Government Appropriations Act, 1999 (Pub. L. 105-277) requires Federal agencies to issue a Family Policymaking Assessment for any rule that may affect family well-being. This rule would not have any impact on the autonomy or integrity of the family as an institution. Accordingly, DOE has concluded that it is not necessary to prepare a Family Policymaking Assessment.

I. Review Under Executive Order 12630

The DOE has determined pursuant to Executive Order 12630, ``Governmental Actions and Interference with Constitutionally Protected Property Rights,'' 53 FR 8859 (March 18, 1988) that this regulation would not result in any takings which might require compensation under the Fifth Amendment to the United States Constitution.

J. Review Under the Treasury and General Government Appropriations Act, 2001

The Treasury and General Government Appropriations Act, 2001 (44 U.S.C. 3516, note) provides for agencies to review most disseminations of information to the public under guidelines established by each

agency pursuant to general guidelines issued by OMB. The OMB guidelines were published at 67 FR 8452 (February 22, 2002), and DOE's guidelines were published at 67 FR 62446 (October 7, 2002). The DOE has reviewed today's notice under the OMB and DOE guidelines and has concluded that it is consistent with applicable policies in those guidelines.

K. Review Under Executive Order 13211

Executive Order 13211, ``Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use,'' 66 FR 28355 (May 22, 2001) requires Federal agencies to prepare and submit to the Office of Information and Regulatory Affairs (OIRA), Office of Management and Budget, a Statement of Energy Effects for any proposed significant energy action. A ``significant energy action'' is defined as any action by an agency that promulgated or is expected to lead to promulgation of a final rule, and that: (1) Is a significant regulatory action under Executive Order 12866, or any successor order; and (2) is likely to have a significant adverse effect on the supply, distribution, or use of energy, or (3) is designated by the Administrator of OIRA as a significant energy action. For any proposed significant energy action, the agency must give a detailed statement of any adverse effects on energy supply, distribution, or use should the proposal be implemented, and of reasonable alternatives to the action and their expected benefits on energy supply, distribution, and use. Today's regulatory action would not have a significant adverse effect on the supply, distribution, or use of energy and, therefore, is not a significant

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energy action. Accordingly, DOE has not prepared a Statement of Energy Effects.

L. Review Under Section 32 of the Federal Energy Administration Act of 1974

The DOE is required by section 32 of the Federal Energy Administration Act of 1974 to inform the public of the use and background of any commercial standard in a proposed rule (15 U.S.C. 788). As explained in the NOPR (64 FR 69608), DOE will consult with the Attorney General and the Chairman of the Federal Trade Commission concerning the impact on competition of any commercial standard not required to be used by EPCA before incorporating it in a final rule.

IV. Submission of Comments

The Department will accept comments, data, and information

regarding this supplemental proposed rule no later than the date provided at the beginning of this notice. Please submit comments, data, and information electronically. Send them to the following e-mail address: commercial--HVAC&WH _rule@ee.doe.gov. Submit electronic comments in WordPerfect, Microsoft Word, PDF, or text (ASCII) file format and avoid the use of special characters or any form of encryption. Identify comments in electronic format with the docket number EE-RM/TP-99-450, and wherever possible include the electronic signature of the author. Absent an electronic signature, comments submitted electronically must be followed and authenticated by submitting the signed original paper document. The DOE does not accept telefacsimiles (faxes).

According to 10 CFR 1004.11, any person submitting information that he or she believes to be confidential and exempt by law from public disclosure should submit two copies: One copy of the document including all the information believed to be confidential, and one copy of the document with the information believed to be confidential deleted. The Department of Energy will make its own determination about the confidential status of the information and treat it according to its determination.

Factors of interest to the Department when evaluating requests to treat submitted information as confidential include: (1) A description of the items, (2) whether and why such items are customarily treated as confidential within the industry, (3) whether the information is generally known by or available from other sources, (4) whether the information has previously been made available to others without obligation concerning its confidentiality, (5) an explanation of the competitive injury to the submitting person which would result from public disclosure, (6) when such information might lose its confidential character due to the passage of time, and (7) why disclosure of the information would be contrary to the public interest.

V. Approval of the Office of the Secretary

The Secretary of Energy has approved publication of today's Proposed Rulemaking.

List of Subjects in 10 CFR Part 431

Administrative practice and procedure, Energy conservation, Reporting and recordkeeping requirements, Commercial and industrial equipment.

Issued in Washington, DC, on March 28, 2006.
Douglas L. Faulkner,
Acting Assistant Secretary, Energy Efficiency and Renewable Energy.

For the reasons set forth in the preamble, the proposed rule that proposed to amend 10 CFR part 431 which was published at 64 FR 69597 on December 13, 1999, is proposed to be amended as set forth below:

PART 431--ENERGY EFFICIENCY PROGRAM FOR CERTAIN COMMERCIAL AND INDUSTRIAL EQUIPMENT

1. The authority citation for part 431 continues to read as follows:

Authority: 42 U.S.C. 6311-6316.

2. In Sec. 431.481, the first sentence of paragraph (a); the introductory sentence of paragraph (b) and paragraph (b)(3) are revised, and new paragraphs (c)(3) and (c)(4) are added, to read as follows:

Subpart M--Methods of Determining Efficiency of Commercial HVAC & WH Products.

Sec. 431.481 Requirements applicable to all manufacturers.

(a) General. A manufacturer of a commercial HVAC & WH product may not distribute any basic model of such equipment in commerce unless the manufacturer has determined the efficiency of the basic model either from testing of the basic model or from application of an alternative efficiency determination method (AEDM) to the basic model, in accordance with the requirements of this section, provided, however, that a manufacturer must determine and rate the efficiency of a basic model from test results if it has tested that basic model to validate an AEDM. * * *

* * * * *

(b) Testing. If a manufacturer tests a basic model pursuant to this section to determine its efficiency, the manufacturer must:

* * * * *

(3) Meet industry standards for the measurement accuracy of testing for the equipment being tested. This includes accuracy requirements in applicable test procedures, accuracy achieved by laboratory-grade equipment, and the accuracy of calibration standards,

* * * * *

(c) * * *

(3) Validation of an AEDM. To use an AEDM under this subpart, the manufacturer must validate it as follows:

(i) Using the AEDM, the manufacturer must calculate the efficiency of three or more of its basic models. They must be the manufacturer's highest-selling basic models to which the AEDM could apply.

(ii) The manufacturer must test each of these basic models in accordance with Sec. 431.481(b) of this subpart, and either Sec. Sec. 431.482(b) or 431.483(a), whichever is applicable.

(iii) The predicted efficiency calculated for each such basic model from application of the AEDM must be within two percent of the efficiency determined from testing that basic model, and the average of the predicted efficiencies calculated for the tested basic models must be within one percent of the average of the efficiencies determined from testing these basic models.

(4) Limitation on use of an AEDM. A manufacturer may not knowingly use an AEDM to overrate the efficiency of a basic model.

* * * * *

3. In Sec. 431.482, paragraph (b) is revised and paragraph (c) is removed.

Sec. 431.482 Additional requirements applicable to VICP participants.

* * * * *

(b) Testing. A VICP participant that tests a basic model pursuant to this subpart must use statistically valid and accurate methods to arrive at the efficiency rating of the tested basic model. Such methods must give reasonable assurance that the manufacturer's efficiency rating for a basic model does not exceed the mean energy efficiency of the population for that basic model.

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Sec. 431.483 Additional requirements applicable to non-VICP participants.

4. In Sec. 431.483, paragraph (b)(1) is removed.

5. In Sec. 431.484, revise paragraphs (a)(8), (a)(9), (b) and add new paragraph (a)(14) to read as follows:

Sec. 431.484 Voluntary independent certification programs (VICP).

(a) * * *

(8) The program's verification testing meets industry standards for the measurement accuracy of testing for the equipment being tested. This includes accuracy requirements in applicable test procedures, accuracy achieved by laboratory-grade equipment, and the accuracy of calibration standards.

(9)(i) The program includes appropriate standards for the accuracy of its verification testing results and for determining whether the efficiency rating a manufacturer claims for equipment is valid. Such

standards must include criteria which give reasonable assurance that a manufacturer's efficiency rating for a basic model represents the mean performance for all units it manufactures of that model, and could include, for example, statistically valid methods, such as a sampling plan, for determining the efficiency of a basic model.

(ii) If the program provides that a manufacturer's rating for equipment will be valid so long as the verification test results under the VICP are within a given percentage of the rating, then the program must meet the following requirements:

(A) It must specify the percentage(s) it uses and the equipment categories to which each such percentage applies;

(B) Each such percentage must correspond to the normal manufacturing variability and measurement uncertainty for the equipment to which the percentage applies; and

(C) The program must provide that if, during a calendar year, the average of the manufacturers' efficiency ratings found valid under the VICP is more than one percent above (or more than one percent below for energy use ratings) the average of the efficiencies from the verification tests under the VICP of the models covered by these ratings, then the organization operating the VICP will revise its program to provide reasonable assurance that in the future the ratings it finds valid will average no more than one percent above verification test results.

* * * * *

(14) The program contains provisions under which each participating manufacturer can challenge ratings submitted by other manufacturers, which it believes to be in error.

(b) If the organization operating an approved VICP makes any changes in its program, the organization must notify the Department of such changes within 30 days of their occurrence, and the Department may then rescind or continue its approval.

Subpart O--Certification and Enforcement Provisions Applicable to Commercial HVAC & WH Products

6. In Sec. 431.506, revise paragraphs (c), (d)(2), (e)(3), and (f) to read as follows:

Sec. 431.506 Enforcement for performance standard.

* * * * *

(c) Sampling. To determine whether a manufacturer's basic model complies with the applicable energy performance standard, the Department will conduct testing in accordance with the procedures set forth in this section, the provisions of Sec. 431.507(a), the applicable test procedures specified in this part, and the following

provisions:

(1) Except as required or provided in paragraphs (c)(2) or (c)(3) of this section, initially the Department will test four units.

(2) Except as provided in paragraph (c)(3) of this section, if fewer than four units of basic model are available for testing when the manufacturer receives the test notice, then

(i) DOE will test the available unit(s); or

(ii) If one or more other units of the basic model are expected to become available within six months, DOE may instead, at its discretion, test either

(A) The available unit(s) and one or more of the other units that subsequently become available (up to a maximum of four); or

(B) Up to four of the other units that subsequently become available.

(3) Notwithstanding paragraphs (c)(1) and (c)(2) of this section, if testing of the available or subsequently available units of a basic model would be impractical, as for example where a basic model is very large, has unusual testing requirements, or has limited production, the Department may in its discretion decide to base the determination of compliance on the testing of fewer than the available number of units, if the manufacturer so requests and demonstrates that the criteria of this paragraph are met.

(4) When testing units under paragraphs (c)(1), (c)(2), or (c)(3) of this section, DOE shall perform the following number of tests:

(i) If DOE tests three or four units, it will test each unit once;

(ii) If DOE tests two units, it will test each unit twice; or

(iii) If DOE tests one unit, it will test each unit four times.

(5) When it tests three or fewer units, the Department will base the compliance determination on the results of such testing in a manner otherwise in accordance with this section.

(6) For the purposes of paragraphs (c)(1) through (c)(3) of this section, available units are those which are available for commercial distribution within the United States.

(d) * * *

(2) The Department will randomly select from the batch individual units to comprise the test sample. The DOE will achieve random selection by sequentially numbering all of the units in a batch and then using a table of random numbers to select the units to be tested. The manufacturer must keep on hand all units in the batch until such time as the inspector determines that the unit(s) selected for testing is(are) operative. Thereafter, once a manufacturer distributes or otherwise disposes of any unit in the batch, it may no longer claim under paragraph (e)(3) of this section that a unit selected for testing is defective due to a manufacturing defect or failure to operate in accordance with its design and operating instructions.

(e) * * *

(3) A test unit is defective if such unit is inoperative. A test unit is also defective if it is found to be in noncompliance due to a manufacturing defect or due to failure of the unit to operate according to the manufacturer's design and operating instructions, and the manufacturer demonstrates by statistically valid means that, with respect to such defect or failure, the unit is not representative of the population of production units from which it is obtained. Defective units, including those damaged due to shipping or handling, must be reported immediately to DOE. The Department will authorize testing of an additional unit on a case-by-case basis.

(f) Testing at manufacturer's option.

(1) If the Department determines a basic model to be in noncompliance with the applicable energy performance standard at the conclusion of DOE's initial enforcement testing under this section and Sec. 431.507(a), the manufacturer may make a request that DOE test an additional number of units of the basic model (not to exceed six) at the manufacturer's expense. Testing under this paragraph must be conducted in accordance with the applicable test procedure specified in this part,

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paragraphs (a)(5), (b), (d) and (e) of this section, and Sec. 431.507(a)(6)(ii).

(2) The Department will advise the manufacturer of the method for selecting the additional units for testing, the date and time at which testing is to begin, the date by which testing is scheduled to be completed, and the facility at which the testing will occur.

(3) The manufacturer must cease distribution of the basic model being tested under the provisions of this paragraph from the time the manufacturer elects to exercise the option provided in this paragraph until the Department determines that the basic model is in compliance. The DOE may seek civil penalties for all units distributed during such period.

(4) If the additional testing results in a determination of compliance, the Department will issue a notice of allowance to resume distribution.

7. Section 431.507 is revised to read as follows:

Sec. 431.507 Enforcement for performance standard and design standard; compliance determination procedure.

(a) The Department will determine compliance with performance standards for commercial HVAC and WH products as follows:

(1) After it has determined the sample size, the Department will measure the energy performance for each unit in accordance with the

following table:

Sample size	Number of tests for each unit
4	1
3	1
2	2
1	4

(2) Compute the mean of the measured energy performance (x1) for all tests as follows:
[GRAPHIC] [TIFF OMITTED] TP28AP06.001

where xi is the measured energy efficiency or consumption from test i, and n1 is the total number of tests.

(3) Compute the standard deviation (s1) of the measured energy performance from the n1 tests as follows:
[GRAPHIC] [TIFF OMITTED] TP28AP06.002

(4) Compute the standard error (sx1) of the measured energy performance from the n1 tests as follows:
[GRAPHIC] [TIFF OMITTED] TP28AP06.003

(5)(i) For an energy efficiency standard, compute the lower control limit (LCL1) according to:
[GRAPHIC] [TIFF OMITTED] TP28AP06.004

(ii) For an energy use standard, compute the upper control limit (UCL1) according to:
[GRAPHIC] [TIFF OMITTED] TP28AP06.005

where EPS is the energy performance standard and t is a statistic based on a 97.5-percent, one-sided confidence limit and a sample size of n1.

(6)(i) Compare the sample mean to the control limit. The basic model is in compliance, and testing is at an end, if, for an energy efficiency standard, the sample mean is equal to or greater than the lower control limit or, for an energy consumption standard, the sample mean is equal to or less than the upper control limit. If, for an energy efficiency standard, the sample mean is less than the lower control limit or, for an energy consumption standard, the sample mean

is greater than the upper control limit, compliance has not been demonstrated. Unless the manufacturer requests manufacturer-option testing, and provides the additional units for such testing, the basic model is in noncompliance and the testing is at an end.

(ii) If the manufacturer does request additional testing, and provides the necessary additional units, DOE will test each of these additional units the same number of times as it tested each unit when it determined compliance had not been demonstrated. The DOE will then compute a combined sample mean, standard deviation and standard error as described above in this section. (The ``combined sample'' refers to the units DOE initially tested plus the additional units DOE has tested at the manufacturer's request.) The DOE will determine compliance or noncompliance from the mean and the new lower or upper control limit of the combined sample. If, for an energy efficiency standard, the combined sample mean is equal to or greater than the new lower control limit or, for an energy consumption standard, the sample mean is equal to or less than the upper control limit, the basic model is in compliance, and testing is at an end. If the combined sample mean does not satisfy whichever of these two conditions is applicable, the basic model is in noncompliance and the testing is at an end.

(b) In the case of a design standard for a commercial HVAC&WH product, the Department can determine that a model is noncompliant after the Department has examined the underlying design information from the manufacturer and after the manufacturer has had the opportunity to verify compliance with the applicable design standard.

[FR Doc. 06-3319 Filed 4-27-06; 8:45 am]

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