



Public Service of Colorado Ponnequin Wind Farm

**Energy Conservation Program**  
NOPR Public Meeting for Alternative Efficiency  
Determination Methods (AEDMs)

**June 5, 2012**

Building Technology Program  
Energy Efficiency and Renewable Energy  
Department of Energy

- Introductions
- Role of the Facilitator
- Ground Rules (norms)
  - Listen as an ally
  - Use short, succinct statements (keep to the point)
  - Hold sidebar conversations outside the room
  - Focus on issues, not personalities
  - One person speak at a time (raise hand to be recognized, state name for the record)
  - Set cell phones to silent/vibrate
- Housekeeping Items

<b>9:00 – 9:30 am</b>	Welcome, Introductions, Agenda Review, and Opening Statements
<b>9:30 – 9:45 am</b>	Rulemaking Overview
<b>9:45 – 10:45 am</b>	Definitions and Scope of Coverage
<b>10:45 – 11:00 am</b>	Break
<b>11:00 – 12:30 pm</b>	Substantiation Requirements
<b>12:30 – 1:30 pm</b>	Lunch
<b>1:30 – 2:45 pm</b>	DOE Validation
<b>2:45 – 3:00 pm</b>	Break
<b>3:00 – 4:00 pm</b>	Next Steps and Closing Remarks

- Present DOE's proposal for applying Alternative Efficiency Determination Methods (AEDMs) to certain equipment covered under its regulatory program.
- Provide a forum for public discussion of rulemaking issues.
- Encourage interested parties to submit data, information, and written comments.
- Inform interested parties and facilitate the rulemaking process.

At this time, DOE welcomes opening remarks on the NOPR for Alternative Efficiency Determination Methods.

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DOE Validation

- AEDMs are:
  - Computer modeling or mathematical tools that predict the performance of non-tested basic models.
- Use of AEDMs:
  - Allows manufacturers to rate and certify basic models by using the simulated energy use or efficiency results derived from an AEDM.
  - May reduce manufacturer testing burden by reducing the amount of testing required for developing certified ratings.

- DOE's current regulations permit the use of AEDMs for:
  - Commercial heating, ventilation and air-conditioning (HVAC) equipment
  - Commercial water heating (WH) equipment
  - Distribution transformers
  - Electric motors
- Manufacturers of residential central air conditioners (CACs) and central heat pumps (CHPs) may use an Alternate Rating Method (ARM) to rate their non-tested combinations.

- DOE believes other similar products could be rated through the use of AEDMs or ARMs.
- DOE also seeks to implement procedural changes to its requirements for AEDMs and ARMs.
- DOE sought comment on these topics and other issues in a Request for Information (RFI), which was published in the **Federal Register** on April 18, 2011.
- The NOPR being discussed today proposes specific revisions to DOE's regulations for AEDMs and ARMs as a result of comments received in response to the RFI.

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DOE proposes to combine its AEDM and ARM requirements under the term “AEDM.”

- The provisions DOE proposes to adopt are more similar to the current provisions for AEDMs.
- AEDMs are used by a wider range of industries.
- AEDMs and ARMs are conceptually identical.
- DOE proposed product-specific requirements, where necessary.

- DOE is not proposing to add a pre-approval process for AEDMs and is proposing to drop the current pre-approval requirement for CACs and CHPs.
  - Pre-approval would place additional burden on manufacturers and DOE.
  - The proposed substantiation process requires a manufacturer to test several basic models to validate accuracy of the AEDM.
- While DOE does not plan to review AEDMs prior to their use, DOE may request the records underlying an AEDM at any time.

**Issue 1:** DOE requests comment on its proposal not to add a pre-approval process for AEDMs and its proposal to no longer require pre-approval for use of an alternative rating method for CACs and CHPs.

- DOE proposes to expand the use of AEDMs to other types of commercial equipment:
  - Commercial refrigeration equipment (CRE)
  - Automatic commercial ice makers (ACIMs)
  - Small electric motors
  - Refrigerated beverage vending machines (BVMs)
  - Walk-in cooler and freezer (WICF) refrigeration systems
- DOE proposes to continue the use of AEDMs for:
  - Commercial HVAC and WH equipment, distribution transformers, and electric motors
  - CACs and CHPs

**Issue 2:** DOE requests comment on the proposed scope of applicability of AEDMs.

- DOE believes that:
  - AEDMs may be developed that can accurately simulate the performance of basic models across various product classes.
  - Substantiation requirements should demonstrate that the AEDM can accurately simulate performance for applicable product classes.
- DOE proposes to require, as part of the substantiation process, testing of at least one basic model from each DOE product class to which the AEDM is to be applied.

**Issue 3:** DOE requests comment on its proposal to require at least one basic model from each product class be tested to substantiate the AEDM.

DOE is particularly interested in whether additional clarification is needed for manufacturers of certain covered products to determine all the applicable product classes that would need to be tested to substantiate the AEDM.

DOE requests feedback on how manufacturers currently develop simulation tools to ensure they are applicable across a wide range of product classes.

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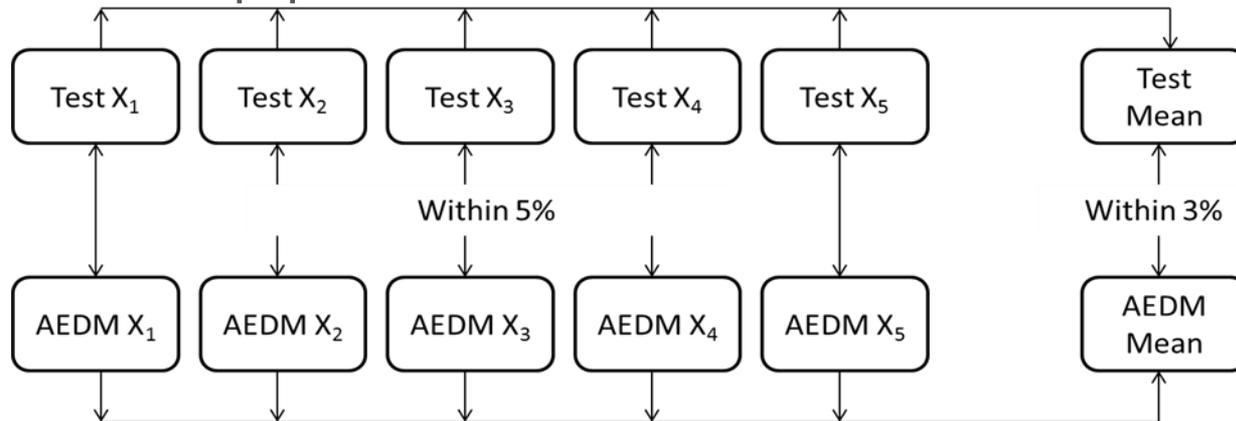
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- Proposed individual tolerances between the test results of a basic model and AEDM output for that basic model:
  - 5%: CRE, WICF refrigeration systems, BVMs, ACIMs, distribution transformers, commercial HVAC and WH equipment, and CACs and CHPs.
  - 10%: Electric motors and small electric motors
- Proposed overall tolerance for the average of all tests:
  - 3% for all equipment



**Issue 4:** DOE seeks product specific comments and supporting data on these proposed overall and individual tolerance levels by product type.

Specifically, DOE seeks data showing that the variability seen in the manufacturing processes, test instrumentation, and testing procedures are such that a different tolerance should be considered.

# Selecting Units for Substantiation

Proposed Requirement	Applicable Products
Test a minimum of five basic models including at least one basic model from each product class to which the AEDM will be applied.	All
Test 25 units (five units of five different basic models)	Distribution Transformers
Test the smallest and largest capacity basic models from the product class with the highest sales volume.	CAC and CHP, Commercial HVAC and WH, ACIM, WICF refrigeration systems, CRE and BVMs
Test the basic model with the highest sales volume the previous year, or the basic model which is expected to have the highest sales volume for newly introduced basic models.	All
Test data used for substantiation must meet applicable Federal energy conservation standards and applicable DOE testing procedures in place at the time the basic model is distributed in commerce.	All

**Issue 5:** DOE seeks comment on the proposed criteria for selecting basic models and the number of basic models that a manufacturer should be required to test for substantiation as well as the necessity of differences in testing requirements for distribution transformers.

- Current DOE regulations:
  - Manufacturers of commercial HVAC and water heaters must undergo two rounds of testing to substantiate the AEDM.
- NOPR:
  - DOE is proposing new provisions that will require manufacturers to perform additional testing and re-substantiation if changes occur that may impact the validity of the AEDM.
  - Manufacturers have the discretion to choose the extent to which they want to conduct additional testing beyond the requirements of this proposal.
  - DOE is therefore proposing to eliminate the second round of testing for commercial HVAC and water heaters.

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- AEDM validation:
  - Ensures the accuracy of product ratings based on AEDMs
  - Could be unnecessary and burdensome if too frequent
- NOPR proposals:
  - DOE does not to specify a particular validation frequency requirement
  - DOE reserves the right to request the documentation supporting the AEDM and to test a basic model at any point.
  - Manufacturers must retain documentation containing:
    - description of the AEDM
    - supporting substantiation test data
    - AEDM itself

- DOE may conduct assessment testing to evaluate compliance with conservation standards pursuant to 10 CFR 429.104
- The test results obtained from the testing of one unit will be compared to:
  - Federal conservation standard
    - Verify the unit complies with applicable conservation standard
  - Manufacturer's certified rating developed by AEDM
    - Ensure that tolerances required by 10 CFR 429.70(c) are met

- If DOE determines that the model fails to meet its certified rating:
  - Manufacturers must re-substantiate their AEDM within 30 days using the test data obtained through DOE testing and re-rate and re-certify as necessary.
  - If DOE test data include new results for basic models that do not meet the substantiation criteria, the manufacturer must make additional modifications to the AEDM.
- DOE has tentatively decided not to require new testing for basic models outside of the affected product class as part of the re-substantiation process, in order to alleviate manufacturer burden.

**Issue 6:** DOE requests comment on the appropriate course of action and necessary time to complete re-substantiation and re-rating steps when a basic model tested by DOE fails to meet its certified rating generated using an AEDM.

## Possible noncompliance with conservation standard:

- Initiate an investigation pursuant to 10 CFR 429.106; and/or
- Undertake enforcement testing pursuant to 10 CFR 429.110

## Enforcement testing results in a noncompliance determination:

- All other models within that basic model are deemed non-compliant.
- If the basic model used for AEDM substantiation is found non-compliant, manufacturer must:
  - Re-substantiate AEDM within 30 days of notification
  - Re-rate and re-certify all basic models as necessary.
- DOE will withhold a finding of noncompliance for all other basic models rated with the AEDM pending additional investigation.
- DOE will not require re-testing of basic models not found to be noncompliant.

DOE proposes to disallow the use of an AEDM following:

- multiple instances of non-compliance

**and/or**

- if there is evidence that the mis-rating was willful

**Issue 7:** DOE requests comment on the proposal that DOE disallow the use of an AEDM if there is evidence that the mis-rating is willful and/or there are multiple instances of non-compliance.

- DOE is proposing that manufacturers must re-substantiate their AEDMs when:
  - There is a change either to the applicable standards or DOE test procedure.
  - A model used to substantiate the AEDM is discontinued or becomes obsolete.
- When a manufacturer re-substantiates an AEDM, data must be obtained from physical tests of current models.

**Issue 8:** DOE requests comment on the necessity of requiring re-substantiation when there is a change in standards or test procedure and requiring that AEDMs be substantiated with active models.

At this time, DOE welcomes closing remarks on the NOPR for Alternative Efficiency Determination Methods.

In all correspondence, include all of the following:

- Alternative Efficiency Determination Method Notice of Proposed Rulemaking
- Docket Number EERE-2011-BT-TP-0024
- Regulatory Identification Number (RIN) 1904-AC46

Email: AED/ARM-2011-TP-0024@ee.doe.gov

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Comment period closes July 2, 2012

- **DOE Appliance Standards**
  - [http://www1.eere.energy.gov/buildings/appliance\\_standards/](http://www1.eere.energy.gov/buildings/appliance_standards/)
- **Certification, Compliance, and Enforcement Webpage**
  - [http://www1.eere.energy.gov/buildings/appliance\\_standards/certification\\_enforcement.html](http://www1.eere.energy.gov/buildings/appliance_standards/certification_enforcement.html)
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