DEPARTMENT OF ENERGY

10 CFR Part 430

[EERE-2023-BT-TP-0006]

Energy Conservation Program: Notification of Petition for Rulemaking

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

ACTION: Notification of petition for rulemaking; request for comment.

SUMMARY: On January 12, 2023, the Department of Energy ("DOE") received a petition from the Association of Home Appliance Manufacturers ("AHAM") to consider amendments to the conventional cooking products test procedure to allow a calculation in place of certain testing provisions for conventional cooking tops, clarify the definition of the term specialty cooking zone, clarify the equipment used to measure electric coil heating element diameter, and stay the effectiveness of any mandatory use of the test procedure. Through this notification, DOE seeks comment on the petition, as well as any data or information that could be used in DOE's determination whether to grant the petition.

DATES: Written comments and information are requested and will be accepted on or before **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

ADDRESSES: Interested persons are encouraged to submit comments using the Federal eRulemaking Portal at *www.regulations.gov* under docket number EERE–2023–BT–TP-0006. Follow the instructions for submitting comments. Alternatively, interested persons may submit comments, identified by docket number EERE–2023–BT–TP–0006, by any of the following methods:

Email: *CookingProductsPetition2023TP0006@ee.doe.gov*. Include the docket number and/or RIN in the subject line of the message.

Postal Mail: Appliance and Equipment Standards Program, U.S. Department of Energy, Building Technologies Office, Mailstop EE-5B, 1000 Independence Avenue, SW., Washington, DC, 20585-0121. If possible, please submit all items on a compact disc ("CD"), in which case it is not necessary to include printed copies.

Hand Delivery/Courier: Appliance and Equipment Standards Program, U.S. Department of Energy, Building Technologies Office, 950 L'Enfant Plaza, SW., 6th Floor, Washington, DC, 20024. Telephone: (202) 287-1445. If possible, please submit all items on a CD, in which case it is not necessary to include printed copies.

No telefacsimiles ("faxes") will be accepted. For detailed instructions on submitting comments and additional information on this process, see the "**SUPPLEMENTARY INFORMATION**" section of this document.

Docket: The docket for this activity, which includes *Federal Register* notices, public meeting attendee lists and transcripts (if a public meeting is held), comments, and other supporting documents/materials, is available for review at *www.regulations.gov*. All documents in the docket are listed in the *www.regulations.gov* index. However, not all documents listed in the index may be publicly available, such as information that is exempt from public disclosure.

The docket webpage can be found at *www.regulations.gov/docket/EERE-2023-BT-TP-0006*. The docket webpage contains instructions on how to access all documents, including public comments, in the docket.

FOR FURTHER INFORMATION CONTACT:

Dr. Carl Shapiro, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Office, Mailstop EE-5B, 1000 Independence Avenue, SW., Washington, DC 20585-0121. Telephone: (202) 287-5649. E-mail: *ApplianceStandardsQuestions@ee.doe.gov*.

Ms. Celia Sher, U.S. Department of Energy, Office of the General Counsel, Mail Stop GC-33, Forrestal Building, 1000 Independence Avenue, SW., Washington, DC 20585-0103. Telephone: (202) 287-6122. E-mail: *Celia.Sher@hq.doe.gov*.

SUPPLEMENTARY INFORMATION:

The Administrative Procedure Act ("APA"), 5 U.S.C. 551 *et seq.*, provides among other things, that "[e]ach agency shall give an interested person the right to petition for the issuance, amendment, or repeal of a rule." (5 U.S.C. 553(e)) DOE received a petition from AHAM, as described in this document and set forth verbatim below,[1] requesting that DOE amend the testing provisions for conventional cooking tops in it test procedure for conventional cooking products at 10 CFR part 430, subpart B, appendix I1 ("appendix I1"). In announcing this petition for public comment, DOE is seeking views on whether it should grant the petition and undertake a rulemaking to consider the proposal contained in the petition. By seeking comment on whether to grant this petition, DOE takes no position at this time regarding the merits of the suggested rulemaking or the assertions in AHAM's petition.

In its petition, AHAM also requests that DOE stay the effectiveness of any mandatory use of the test procedure. Regarding the mandatory use of the test procedure for representations, under the Energy Policy and Conservation Act ("EPCA"), effective 180 days after a test procedure is published in the Federal Register, representations regarding the energy use or efficiency of the covered product are required to be made in accordance with the new or amended test procedure. (42 U.S.C. 6293(c)(2)) The final rule establishing appendix I1 was published on August 22, 2022, which resulted in the February 20, 2023, representations compliance date. 87 FR 51492. While DOE may grant individual manufacturers an extension of up to 180 days based on a showing of undue hardship (42 U.S.C. 6293(c)(3)), DOE cannot grant a blanket, indefinite extension of this requirement.

[1] AHAM's petition for rulemaking is available in the docket at *www.regulations.gov/document/EERE-2023-BT-TP-0006-0001*.

Additionally, as specified in the Note to appendix I1, use of the test procedure is not required until the compliance date of any energy conservation standards for cooking tops. DOE is currently conducting a rulemaking to consider establishing energy conservation standards for conventional cooking products, including conventional cooking tops. 88 FR 6818.

In its petition, AHAM also requests that DOE consider amendments to the appendix I1 test procedure to: (1) allow a calculation to be used as an alternative to the simmer portion of the test to determine the energy consumption of each cooking zone, (2) clarify the definition of "specialty cooking zone" to more explicitly specify categories of cooking zones and cooking products that are considered to be specialty cooking zones and therefore would be excluded from the scope of the DOE test procedure, and (3) clarify the equipment used to measure the diameter of electric coil heating elements. AHAM also requests that DOE update its enforcement regulations to require DOE to use both the simmer test and AHAM's suggested alternative calculation method in assessment and enforcement testing to determine compliance with energy conservation standards, should DOE establish such standards.

In the docket for this petition, DOE has provided a data summary for the purposes of evaluating the merits of establishing a calculation method as an alternative to the simmer portion of the test. In particular, the report provides graphical representations of the difference between measured results—representing the appendix I1 test conducted in its entirety—and results calculated using the alternative method suggested by AHAM, for each cooking zone for which data was available in both AHAM's and DOE's test samples.

Although DOE welcomes comments on any aspect of the petition, DOE is particularly interested in receiving comments and views of interested parties concerning the following issues:

(1) The test burden associated with the simmer portion of the test procedure for conventional cooking tops, including third-party testing costs;

(2) Any additional test data of conventional cooking tops tested to appendix I1 that can be used to verify the accuracy of the recommended equations for determining the energy use of individual cooking zones;

(3) The accuracy of the energy consumption of each cooking zone that would be determined using the recommended calculation approach in place of the simmer portion of the cooking top test for the different cooking top technologies (*e.g.,* electric coil, electric radiant, induction, and gas);

(4) In evaluating whether the calculation approach maintains the accuracy (*i.e.* representativeness) of the full testing approach, the maximum difference (in kilowatt-hours per year or British thermal units per year, as applicable, or as a percentage) between the measured and calculated values for a cooking zone's energy consumption that should be considered by DOE as being indicative of the calculation approach providing results that are equally as representative as the full testing approach;

(5) The extent to which portable cooking tops can or should be tested under appendix I1; and

(6) The extent to which cooking tops with a downdraft fan that cannot be de-energized can or should be tested under appendix I1.

Submission of Comments

DOE invites all interested parties to submit in writing by [**INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER***], comments and information regarding this petition.

Submitting comments via www.regulations.gov. The *www.regulations.gov* web page will require you to provide your name and contact information. Your contact information will be viewable to DOE Building Technologies staff only. Your contact information will not be publicly viewable except for your first and last names, organization name (if any), and

submitter representative name (if any). If your comment is not processed properly because of technical difficulties, DOE will use this information to contact you. If DOE cannot read your comment due to technical difficulties and cannot contact you for clarification, DOE may not be able to consider your comment.

However, your contact information will be publicly viewable if you include it in the comment or in any documents attached to your comment. Any information that you do not want to be publicly viewable should not be included in your comment, nor in any document attached to your comment. If this instruction is followed, persons viewing comments will see only first and last names, organization names, correspondence containing comments, and any documents submitted with the comments.

Do not submit to *www.regulations.gov* information for which disclosure is restricted by statute, such as trade secrets and commercial or financial information (hereinafter referred to as Confidential Business Information ("CBI")). Comments submitted through *www.regulations.gov* cannot be claimed as CBI. Comments received through the website will waive any CBI claims for the information submitted. For information on submitting CBI, see the Confidential Business Information section.

DOE processes submissions made through *www.regulations.gov* before posting. Normally, comments will be posted within a few days of being submitted. However, if large volumes of comments are being processed simultaneously, your comment may not be viewable for up to several weeks. Please keep the comment tracking number that *www.regulations.gov* provides after you have successfully uploaded your comment.

Submitting comments via email, hand delivery/courier, or postal mail. Comments and documents submitted via email, hand delivery/courier, or postal mail also will be posted to *www.regulations.gov.* If you do not want your personal contact information to be publicly viewable, do not include it in your comment or any accompanying documents. Instead,

provide your contact information on a cover letter. Include your first and last names, email address, telephone number, and optional mailing address. The cover letter will not be publicly viewable as long as it does not include any comments.

Include contact information each time you submit comments, data, documents, and other information to DOE. If you submit via postal mail or hand delivery/courier, please provide all items on a CD, if feasible, in which case it is not necessary to submit printed copies. Faxes will not be accepted.

Comments, data, and other information submitted to DOE electronically should be provided in PDF (preferred), Microsoft Word or Excel, WordPerfect, or text (ASCII) file format. Provide documents that are not secured, written in English and free of any defects or viruses. Documents should not contain special characters or any form of encryption and, if possible, they should carry the electronic signature of the author.

Campaign form letters. Please submit campaign form letters by the originating organization in batches of between 50 to 500 form letters per PDF or as one form letter with a list of supporters' names compiled into one or more PDFs. This reduces comment processing and posting time.

Confidential Business Information. 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 via email two well-marked copies: one copy of the document marked confidential including all the information believed to be confidential, and one copy of the document marked "non-confidential" with the information believed to be confidential deleted. Submit these documents via email. DOE will make its own determination about the confidential status of the information and treat it according to its determination.

It is DOE's policy that all comments may be included in the public docket, without change and as received, including any personal information provided in the comments (except information deemed to be exempt from public disclosure).

DOE considers public participation to be a very important part of its process for considering rulemaking petitions. DOE actively encourages the participation and interaction of the public during the comment period. Interactions with and between members of the public provide a balanced discussion of the issues and assist DOE in determining how to proceed with a petition. Anyone who wishes to be added to DOE mailing list to receive future notifications and information about this petition should contact Appliance and Equipment Standards Program staff at (202) 586–6636 or via email at *CookingProductsPetition2023TP0006@ee.doe.gov*.

Signing Authority

This document of the Department of Energy was signed on April 7, 2023, by Francisco Alejandro Moreno, Acting Assistant Secretary for Energy Efficiency and Renewable Energy, pursuant to delegated authority from the Secretary of Energy. That document with the original signature and date is maintained by DOE. For administrative purposes only, and in compliance with requirements of the Office of the Federal Register, the undersigned DOE Federal Register Liaison Officer has been authorized to sign and submit the document in electronic format for publication, as an official document of the Department of Energy. This administrative process in no way alters the legal effect of this document upon publication in the *Federal Register*.

Signed in Washington, DC, on April 7, 2023

_____

Treena V. Garrett
Federal Register Liaison Officer,
U.S. Department of Energy

PETITION FOR AMENDMENT

The Association of Home Appliance Manufacturers (AHAM), on behalf of its member companies, respectfully petitions the Department of Energy (DOE or Department) to amend the Test Procedure for Conventional Cooking Products, Appendix I1 to Subpart B of Part 430 (Appendix I).[2]

AHAM has long supported DOE in its efforts to save energy and ensure a national marketplace through the Appliance Standards Program. Repeatable and reproducible test procedures that are representative of actual consumer use, but not unduly burdensome to conduct, are an integral part of the standards program. It is essential that mandatory test procedures be repeatable, reproducible, representative, and not unduly burdensome not just because these qualities are statutory requirements under the Energy Policy and Conservation Act of 1975, as amended (EPCA), but also because of their importance to the integrity and effectiveness of the Appliance Standards Program. That is why AHAM is engaging in several standards development efforts focused on improving the energy test procedures, including our task force—in which DOE participates—on cooktop energy test development.

AHAM has long been concerned that the cooktop test procedure is too burdensome and is not sufficiently reproducible, thus not meeting the EPCA test procedure criteria in 42 U.S.C. 6293(b)(3). With this petition, AHAM makes minor proposals to address primarily test burden. Specifically, AHAM respectfully requests that DOE amend the test procedure to allow for a calculation as an alternative to the simmer portion of the test.[3] AHAM also has identified a

---

[2] We note that this test procedure was finalized via publication in the Federal Register on August 22, 2022. Department of Energy, Energy Conservation Program: Test Procedure for Cooking Products, Final Rule; Technical Correction; Docket No. EERE-2021-BT-TP-0023; RIN 1904-AF18 (Aug. 22, 2022) (Cooking Product Test Procedure Final Rule) and we incorporate this Petition into the record on that docket. If the Department prefers to respond to this Petition as a Petition to Reconsider the final rule, AHAM does not object. We trust the Department will determine the best regulatory vehicle for this request.

[3] Additionally, we ask that DOE update its enforcement regulations to require DOE to use both the physical simmer test and the alternative calculation method in assessment and enforcement testing before making a determination of non-compliance.

couple of minor clarifications needed related to specialty cooking zones and, accordingly, requests that DOE amend Appendix I1 to: 1) exclude models where the cooktop cannot be measured in a representative manner; and 2) require that a caliper be used for the measurement of open-coil cooking zone diameter.

We believe that these changes, though minor for DOE to make, will make a significant difference in reducing test burden and improving the clarity of the test. We note that mandatory use of Appendix I1 for representations of energy use or energy efficiency of a conventional cooking top is not required until on or after February 20, 2023. Additionally, to date, there are no applicable energy conservation standards for cooktops, which means that this test procedure is not used to demonstrate compliance with applicable standards. DOE should, however, quickly make the amendments AHAM proposes in light of the Environmental Protection Agency's proposed ENERGY STAR criteria and to allow the alternative method and additional clarity on other provisions to be used to assess DOE's recently proposed standards.

I. Background

On August 18, 2020, in response to a petition AHAM submitted, DOE published a final rule withdrawing the test procedure for conventional cooktops.[4] AHAM's petition argued that the gas test procedure was not representative and that, for both gas and electric cooktops, had such a high degree of variation that it did not produce accurate results. AHAM also argued that the test procedure was unduly burdensome to conduct. DOE withdrew the test procedure because test data on the record demonstrated that the test procedure for cooktops yielded inconsistent results. DOE determined that the inconsistency in results showed the results to be unreliable that

[4] Department of Energy, Energy Conservation Program: Test Procedures for Cooking Products; Final Rule; 85 Fed. Reg. 50757 (Aug. 18, 2020).

it was unduly burdensome to leave that test procedure in place without further study to resolve inconsistencies.[5]

To address issues raised in our petition, AHAM convened a Task Force to author updated industry standards AHAM ECT-1 and GCT-1. The Task Force began monthly meetings in April of 2021 and DOE and its contractor, Guidehouse, along with efficiency advocate representatives are participants in that effort. The Task Force's goal was (and remains) to develop cooktop test procedures for gas and electric cooktops that are repeatable, reproducible, representative, and accurate. AHAM's desire was to work quickly to complete this work together with other stakeholders and present it to DOE for incorporation by reference as the new DOE test procedure.

On November 4, 2021, DOE published a notice of proposed rulemaking (November 2021 NOPR) in which DOE proposed to re-establish a conventional cooking top test procedure. *See* 86 Fed. Reg. 60974. DOE proposed to adopt, with significant modifications, the latest version of the relevant consensus standard published by the International Electrotechnical Commission (IEC), Standard 60350–2 (Edition 2.0 2017– 08), "Household electric cooking appliances—Part 2: Hobs—Methods for measuring performance" (IEC 60350– 2:2017). The modifications included adapting the test method to gas cooking tops, offering an optional method for burden reduction, normalizing the energy use of each test cycle, adding measurement of standby mode and off mode energy use, altering certain test conditions such as starting water temperature, and adding specificity to certain provisions. *Id*.

The November 2021 NOPR also presented the results of an initial round robin test program initiated in January 2020 (2020 Round Robin). The purpose of the 2020 Round Robin

[5] *Id.* at 50760.

was to investigate further the IEC water heating approach and the concerns AHAM raised in its petition that led to the withdrawal of the prior test procedure. *Id.* at 60979-80. The comment period for the November 2021 NOPR was initially set to close on January 3, 2022. DOE, however, published a notice of data availability on December 16, 2021 (December 2021 NODA), in which DOE announced that it had published the results of a second round robin test program initiated in May 2021 (2021 Round Robin) and extended the comment period for the November 2021 NOPR until January 18, 2022. *See* 86 FR 71406.

AHAM submitted comments in response to the November 2021 NOPR and December 2021 NODA stating DOE had not yet provided sufficient support for its proposed test procedure to demonstrate that it meets the statutory requirements for a mandatory test procedure. AHAM argued that the burden, repeatability, and reproducibility issues were still so significant that the proposed test procedure threatened the integrity of the Appliance Standards Program. And AHAM's research continued to show that the test procedure DOE proposed, though DOE attempted to improve it, may not be representative for some cooktops (especially gas). Moreover, AHAM pointed out that DOE's process to develop the proposed test procedure was fraught with the same problems that plagued the last version of the test, which DOE ended up withdrawing. AHAM also highlighted its continued concerns with lack of transparency in the process used to develop this test procedure, and argued that DOE's proposed rule was not adequately supported by data (despite the fact that AHAM—with DOE's knowledge—was actively working on obtaining data that would be highly relevant to the development of a cooktop test procedure).

On March 16, 2022, per a request from AHAM, DOE published full test data that was previously presented only in summary form in the December 2021 NODA. DOE indicated that it published this data in response to AHAM's request to provide its full, raw data on the record for stakeholder review, and indicated it did so only after receiving permission from applicable

stakeholders to publish their data in the docket. On August 22, 2022, DOE adopted its proposed rule as a new final test procedure, 10 CFR part 430, subpart B, appendix I1.

In parallel to this rulemaking activity, AHAM's cooktop test procedure task force was working to address the issues AHAM previously identified with the test procedure. In fact, AHAM's task force continues to work. DOE, its consultant (Guidehouse), and efficiency advocates were, and continue to be, participants in this effort. From August 2021 to November 2022 AHAM completed two sets of testing at 1) third-party test laboratories; and 2) manufacturer test laboratories. The test results support AHAM's arguments that DOE's test procedure is not sufficiently reproducible and is overly burdensome to conduct.

Based on our extensive testing, AHAM continues to believe that—though some portions of the final test procedure are an improvement on the proposed test procedure—the test continues to be unduly burdensome. Our concerns about reproducibility have also not been fully addressed and, thus, we continue to have concerns about the test's accuracy as well. We recognize, however, that the Department is under significant political pressure and is unlikely to take the time needed to fully investigate and resolve those issues. As a result, AHAM is submitting this Petition targeting key areas in which we believe the test procedure can be improved to significantly decrease test burden without negatively impacting the test's accuracy or representativeness. These changes are not time-consuming to introduce and, especially because there is not yet an applicable standard, we request that the Department expeditiously consider and grant this Petition. It is critical that changes be made before mandatory use of the test procedure is required and before a second draft (and final version of) an ENERGY STAR specification. Thus, while DOE is reviewing these changes, we ask that DOE stay the effectiveness of any mandatory use of the test procedure with regard to representations and/or standards/ENERGY STAR compliance.

II. The Cooktop Test Procedure Is Unduly Burdensome To Conduct.

DOE's final rule estimated a third-party test laboratory cost of $4,100 to conduct the test procedure for a single cooking top, and an estimated 23.6 hours of technician time if the test were conducted in-house. AHAM data, however, demonstrates that this is a significant underestimate.

DOE must acknowledge that cooking tops are an attended product (i.e., for safety reasons and due to the nature of the test, they cannot be left unattended by the test technician) and, thus, are inherently more burdensome to test than many other presently regulated appliances. Even were the test time to be equivalent in the number of hours to other test procedures, qualitatively, the test is more burdensome because those hours require active technician time. According to aggregated manufacturer estimates, 70 to 75 percent of the current test requires technician interaction. This cannot be automated or monitored electronically as can be done for unattended appliances, like a refrigerator for example.

To get a detailed look at the test burden, AHAM collected member data on active hours (i.e., those that require the test technician to actively conduct the test and/or attend the appliance during the test) and total hours to conduct the test (i.e., the active hours plus the test hours during which the appliance need not be attended). Table 1 below identifies the activities included in "active" hours versus non-active hours.

Table 1

Included in active hours	Excluded in active hours
Monitoring temperatures	Cool down period of unit
Adjusting controls	Waiting for starting water temperature or ambient temperature to fall within specifications
Selecting and placing cookware	Instances where getting to the turndown temperature takes a long time and the technician steps away or multi-tasks
Determination of turndown temperature/simmer setting	
Unit setup and teardown	
Review of water temperature data to determine the type of test: Energy Test Cycle (ETC), Minimum Above Threshold (MAT), or Maximum Below Threshold (MBT)	

AHAM data shows the average active hours for testing a 4-zone electric cooking top to be 37.4 hours, and the average active hours for testing a 5-zone gas cooking top to be 43.6 hours. Members estimated a total test time of 49.9 hours for a 4-zone electric cooking top and 57.8 hours for a 5-zone gas cooking top. This far exceeds DOE estimates with active hours alone being 58 percent and 85 percent more time, respectively. While the manufacturer estimates may include a small learning curve, AHAM data should not be discounted for this reason. Learning and training on this more involved test is part of the burden and will happen every time a new technician executes this test method. And the consideration of active test hours is an important one because it means that the technician is not as available to do other things during the test as s/he would be for an unattended appliance and a test that requires less technician interaction and monitoring.

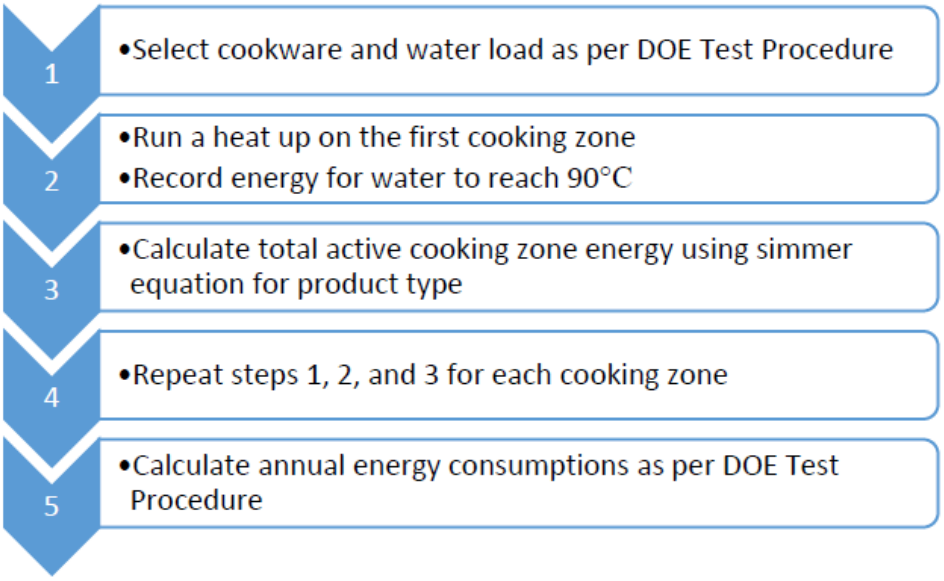
In regards to (third-party) testing costs per single cooking top, AHAM data shows a cost 1.9 to 2.6 times more than DOE's estimate (approximately $7,900 to $10,800).

III. To Reduce Test Burden, DOE Should Permit A Simmer Calculation Option In The Test Procedure.

Because of the challenges associated with conducting the simmer portion of Appendix I1 such as finding the correct simmer settings for each cooking zone, the simmer portion of the test adds unnecessary procedural steps resulting in significant test burden without adding meaningfully to differentiating the energy efficiency of individual units.

To determine if a less burdensome approach is possible, AHAM conducted investigative testing on 18 cooking tops from ten different manufacturers using third party testing laboratories and testing per Appendix I1 as written. In addition, AHAM collected internal test data from three different manufacturers who conducted their own in-house testing, also using Appendix I1 as written. Using this data, AHAM developed a simmer calculation for each type of cooking top (electric coil, electric radiant, induction and gas) that is accurate and reliable and with this Petition we are asking DOE tom include it as an alternative in Appendix I1.

The calculation would require that each cooking zone be tested at the maximum setting until water reaches 90°C. The energy consumption to reach 90°C is then entered into the relevant simmer calculation for a final result that includes the simulated energy consumed during a physical simmer test. Major steps of a test using the simmer calculation are summarized in the graphic below:



This allows the test result for each model to maintain the same consumer representativeness of the full physical test. Given the limited technology options available for increasing efficiency for any of these product types, it is unlikely that these calculations will change significantly in the coming years. And even if changes are needed, manufacturers could seek guidance or waivers as needed.

Table 2

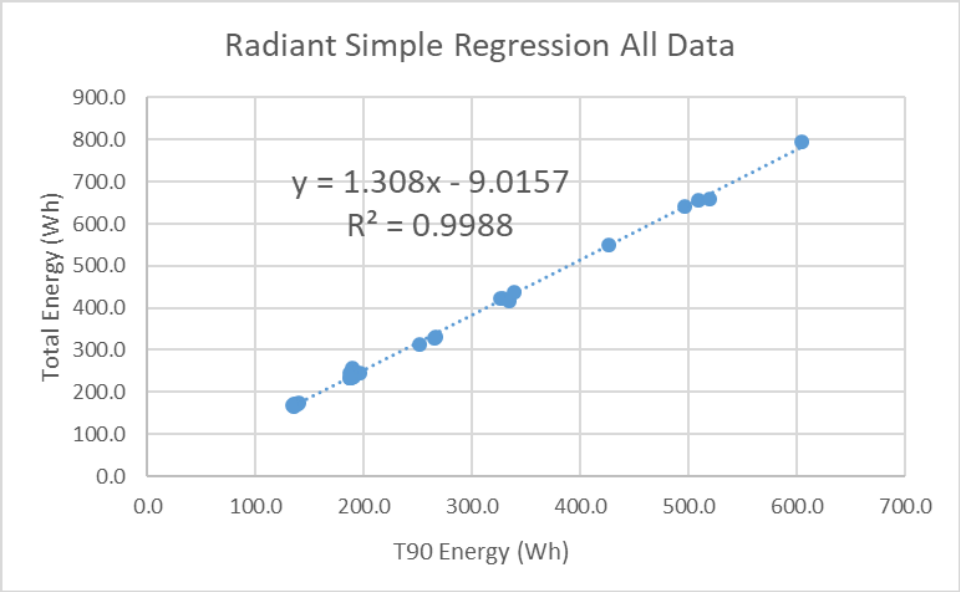
Cooking Top Product Type	Proposed Simmer Equation
Electric Coil	$E = 1.43E_{90} - 0.02P_{rated} - 4.74$
Electric Radiant	$E = 1.31E_{90} - 9.02$
Induction	$E = 1.47E_{90} - 4.63$
Gas	$E = 1.16E_{90} + 488.12$

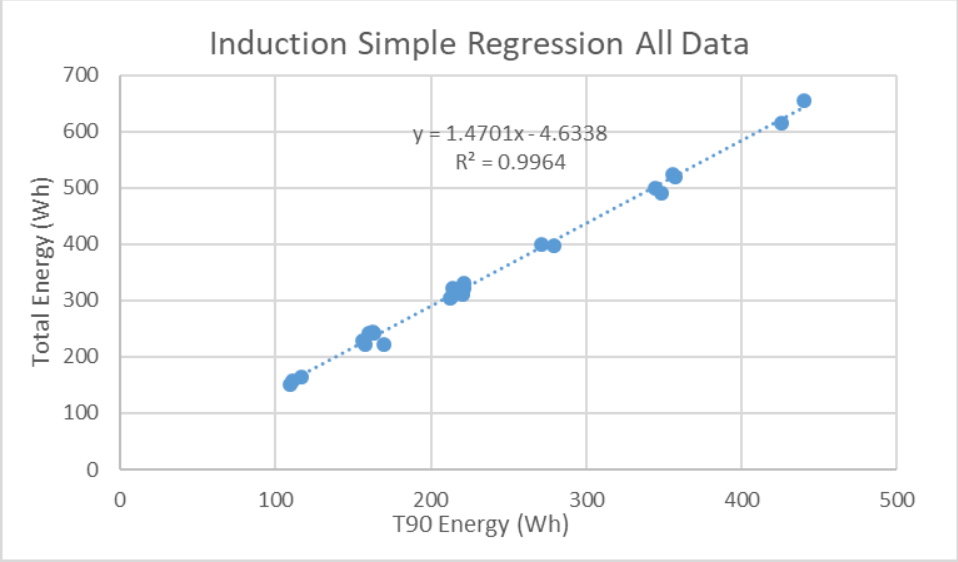
The below chart shows the r-squared value by product type for each simmer calculation equation. As these values indicate, the alternative calculations AHAM proposes are highly correlated to the tested values and are, thus excellent approximations of conducting the physical test. Thus, DOE should include these equations as options in the test procedure.

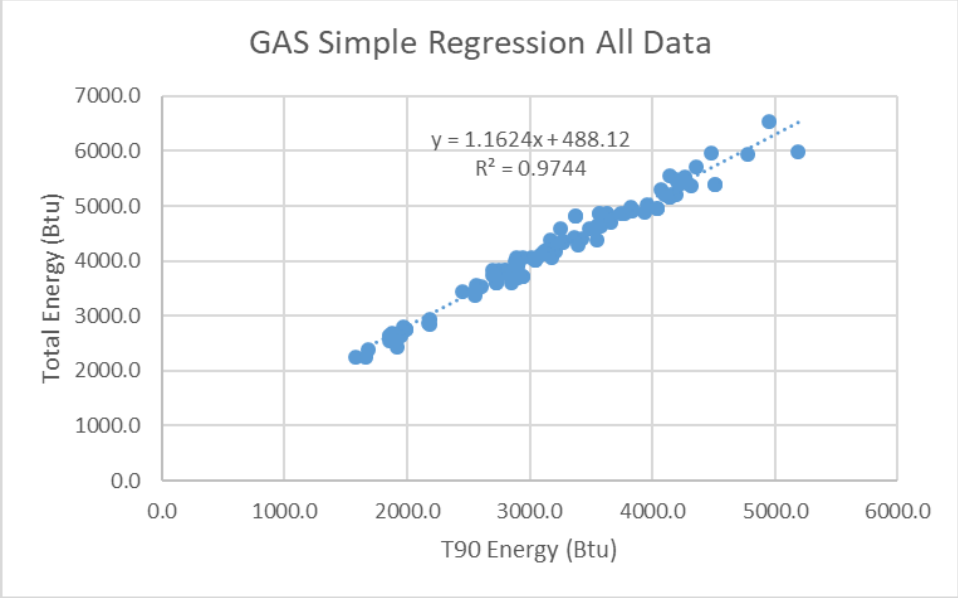
Table 3

Cooking Top Product Type	Simmer Calculation Equation R-Squared Value
Electric Coil	0.9893 (98.9%)
Electric Radiant	0.9988 (99.9%)
Induction	0.9964 (99.6%)
Gas	0.9744 (97.4%)

Graphic representations of simmer calculations, and the data points that are used to create the calculations, are shown below to visually show the high degree of correlation between tested values and calculated values. (A coil plot is not shown because it is a multi-variable equation).







AHAM believes each product-type's simmer calculation equation will get stronger with the inclusion of DOE's round robin dataset (improving the R-squared values further). To make these calculations stronger (based on more data points), DOE should release the raw, second-by-second, data of its own testing. AHAM has repeatedly requested that data both as part of its task force work with DOE and on the record,[6] but DOE has yet to provide it. Including that data will

[6] *See* AHAM Supplemental Comments on DOE's Energy Conservation Program: Test Procedures for Cooking Products; Notice of Proposed Rulemaking and Notification of Data Availability; Docket No. EERE-2021-BT-TP-0023; RIN 1904-AF18 (July 19, 2022), *available at www.regulations.gov/comment/EERE-2021-BT-TP-0023-0023*.

serve to improve the alternative calculations making them even more accurate. In the interest of improving accuracy even further, AHAM will provide our raw data confidentially to Guidehouse instead. All data used in developing the simmer calculations will be included. We hope this will allow Guidehouse to update the equations we propose based on a larger data set given that we have not been able to do so without DOE's data.

Due to the high correlation between the simmer calculation and the simmer test, AHAM requests that DOE amend the cooking top test procedure to allow manufacturers to use the simmer calculation as a replacement for the simmer portion of the test procedure. This would allow manufacturers to conduct a simmer calculation or a physical simmer test.

AHAM strongly urges DOE to amend the test procedure to include this alternate calculation method because it will significantly reduce test burden for manufacturers. If DOE believes that the proposed alternative calculation method's variation is too high, AHAM submits that the calculation is well correlated to the test results and thus, if the calculation variation is too significant, so too is the tested variation. The calculation method allows equivalence in variation, but with lower test burden. Table 4 identifies each part of the DOE test procedure that was conducted during active mode AHAM Location 2 investigative testing.

Table 4

Unit	Part of test	# of times conducted – full DOE test	# of times conducted – simmer calculation
B	Pre-selection	16	0
	Overshoot	4	0
	Energy test	8	4
C	Pre-selection	30	0
	Overshoot	4	0
	Energy test	6	4
D	Pre-selection	19	0
	Overshoot	4	0
	Energy test	8	4
G	Pre-selection	21	0
	Overshoot	5	0
	Energy test	9	5
K	Pre-selection	13	0
	Overshoot	4	0
	Energy test	8	4
M	Burner rating	4	4
	Pre-selection	14	0
	Overshoot	4	0
	Energy test	8	4
N	Burner rating	5	5
	Pre-selection	28	0
	Overshoot	5	0
	Energy test	10	5
O	Burner rating	4	4
	Pre-selection	15	0
	Overshoot	4	0
	Energy test	8	4
P	Burner rating	4	4
	Pre-selection	13	0
	Overshoot	4	0
	Energy test	8	4
R	Burner rating	4	4
	Pre-selection	12	0
	Overshoot	8	0
	Energy test	8	4
Total		329	63

The total number of test parts would be reduced by 81 percent if a simmer calculation is used.

Importantly, the simmer calculation meets DOE's criteria as described in the final rule. DOE stated that in order to ensure that the test method is representative of consumer usage, any alternative method would need to provide an estimated energy consumption specific to the conventional cooking top model under test, rather than yielding an approximate value by means of a generic approach that applies equally for all models. Any such alternative method would need to produce equivalent estimated energy consumption results and associated product rankings as the physical test procedure established in Appendix I1.[7] DOE's criteria for a simmer calculation and the manner in which AHAM's proposal meet them are as follows.

1. Produce equivalent product rankings.

We note that, in order to evaluate equivalent product rankings between the proposed alternative calculation method and the full physical test, there must be consistent product rankings for the full physical tests. The full physical test procedure does not produce consistent product rankings. For example, the same gas units rank differently when tested at different labs.

Table 5: Integrated Annual Energy Consumption (EIAEC) Reproducibility - Measured

	Type	Location 1	Rank (electric, gas)	Location 2	Rank (electric, gas)
Unit M	Gas	1473.7	4	1443.3	3
Unit N (avg)	Gas	1397.2	2	1385.4	2
Unit O	Gas	1471.4	3	1465.6	4
Unit P	Gas	1603.8	6	1531.5	5
Unit Q (avg)	Gas	1345.3	1	1330.3	1
Unit R	Gas	1522.5	5	1535.8	6

[7] Cooking Product Test Procedure Final Rule at 51530.

Since the full test, including simmer, produces inconsistent product rankings, it is not reasonable to expect consistency, nor does it make sense to require the alternative calculation to be equally inconsistent.

2. Be based on test data from multiple labs.

The simmer equations AHAM proposes in this Petition are based on testing a two third-party laboratories and three manufacturer laboratories.

3. Be representative of tested simmering period on multiple types of products.

The simmer equations AHAM proposes in this Petition are based on a number of models using different technologies including coil, radiant, induction, and gas heating elements.

AHAM proposes that a unique equation be established for each surface cooking type based on the underlying physics—i.e., stored energy within the elements, speed of heating the water resulting in heat lost to the environment, and thermal coupling between the pot and surface cooking type.

Table 6

Type	Models used in developing calculation
Coil	5
Radiant	6
Induction	5
Gas	19

4. Include data from products that cover a wide range of available surface cooking types.

It is unclear what technology options DOE is looking to capture, but due to the high number of manufacturers that submitted units or data, we are confident that a range of designs are considered within the calculation.

Table 7

Type	Manufacturers represented in developing calculation	Range of rated cooking zone power for units in AHAM investigative testing
Coil	3	675 – 2600 W
Radiant	5	1200 – 3300 W
Induction	5	1400 – 3600 W
Gas	7	5000 – 19500 Btu

5. Produce equivalent energy consumption results when compared to the results produced by the full test.

The difference between physical test results and calculated results using the equations AHAM proposes in this Petition is small. As an example, the below table evaluates fully tested versus calculated results at one of the third-party testing locations in AHAM's testing. The average difference was only about one percent, which is insignificant, particularly when compared to the variation in the full test. Table 8 below demonstrates this point.

Table 8: Percent difference EIAEC – Measured vs. Predicted

	Type	Location 1
Unit B (avg)	Coil	3.3%
Unit C	Coil	0.3%
Unit D	Radiant	0.0%
Unit G	Radiant	-1.3%
Unit K	Induction	1.7%
Unit M	Gas	0.0%
Unit N	Gas	-4.7%
Unit O	Gas	-1.3%
Unit P	Gas	-3.7%
Unit Q	Gas	-2.5%
Unit R	Gas	-3.9%
	Average	**-1.1%**

6. Capture differences between simmer strategies.

Based on discussions with Guidehouse during our task force efforts, AHAM understands "simmer strategies" to mean some combination of control type, power levels, power steps, and safety features that a model uses to set, control and maintain power levels. Twelve electric samples were tested at third-party labs; this data was used in developing the simmer equations. Of those samples, AHAM has confirmed that five use an infinite switch control and four use a software-based control. For gas units, see points three and four above showing the large number of models and manufacturers considered. (Note that information on controls was not provided for all units in AHAM's sample).

As a supplement to this petition, we are confidentially submitting to Guidehouse raw test data that supports our arguments in this Petition and supports DOE amending Appendix I1 to include an alternative simmer calculation.

Additionally, AHAM requests that DOE add enforcement provisions that require DOE to use both simmer methods (the calculation and physical test) before making a finding of non-compliance with energy conservation standards (and ideally, before proceeding beyond assessment testing). A similar enforcement strategy is already in place for refrigerators.[8] DOE identifies compliance by using a calculation, but can also audit by testing the unit using the test procedure.

IV. AHAM Proposes Two Minor Clarifications.

Separate from our proposal to permit a calculation alternative to the simmer portion of the test procedure, AHAM also proposes additional minor changes to improve the clarity of the

[8] *See* 10 C.F.R. 429.134(b)(2) ("The test described in section 5.2(b) of the applicable test procedure for refrigerators or refrigerator-freezers in appendix A to subpart B of 10 CFR part 430 shall be used for all units of a basic model before DOE makes a determination of noncompliance with respect to the basic model.").

test procedure and we ask that DOE make these changes before the test procedure becomes mandatory to demonstrate compliance with standards/ENERGY STAR specifications, prior to required use of the test procedure to support energy related representations. It would also be helpful to have these improvements made in time to allow use of them in assessing amended standards.

A. Definition of Specialty Cooking Zones

The test procedure excludes specialty cooking zones. In the final rule, DOE noted that "…a cooking zone designed for use only with non-circular cookware would not be expected to be used with any regularity, such that measuring its energy use would not be representative of the energy use of a cooking top during a representative average consumer use cycle…"[9] The final rule also states, "…a heating element on an electric cooking top with a diameter smaller than 100 mm (3.9 inches) would likely not be able to heat water to 90 °C. As such, it would likely be excluded from testing because it would be a specialty cooking zone (e.g., a warming plate or zone)."[10]

The test procedure excludes non-cooking top portions of combined products. Appendix I1 covers conventional cooking tops and conventional cooking top components of combined products, where a combined product is defined as a conventional range, a microwave/conventional cooking top, a microwave/conventional oven, and a microwave/conventional range. DOE does not require that the microwave and cooking top be tested together. However, DOE does not provide the same distinction for products which are a combination of a range hood and a conventional cooking top. AHAM requests that DOE be

[9] Cooktop Test Procedure Final Rule at 51522.
[10] *Id.* at 51505.

consistent and exclude models where it is not possible to take a representative measurement of the cooking top only.

Additionally, AHAM believes that more detail is needed to achieve DOE's goal of excluding cooking zones which are not regularly used and do not match the scope of the test procedure—i.e., boiling water. Table 9 shows the difference between AHAM's proposal and current Appendix I1.

Table 9: Specialty Cooking Zone

Appendix I1	AHAM Proposal
Warming Plate	Gas cooking zones, rated 5,600 Btu/h or less, intended to hold food warm Electric cooking zones, rated 350W or less, intended to hold food warm Note 1: Excluding 5,600 Btu/h or less may change the gas simmer equation proposed in this petition. If DOE decides to exclude these smaller cooking zones, AHAM can assist in providing an updated simmer calculation. Note 2: The 350W is taken from the safety standard UL 858
Grill, griddle, or any cooking zone that is designed for use only with non-circular cookware, such as a bridge zone	Cooking zones designed for use with non-circular cookware, such as bridge burners, oval burners, grills, and griddles as designated in manufacturer instructions Cooking zones designed for use with non-flat-bottom cookware such as wok burners as designated in manufacturer instructions
	Portable appliances for cooking, grilling and similar functions
	Cooking tops or ranges with a downdraft fan that cannot be de-energized by the appliance control according to manufacturer instructions

B. Measurement of Diameter of Open Coil Heating Elements

For electric units, DOE requires measurement of the cooking zone diameter to determine cookware size and water load. Furthermore, "…DOE clarifies that open coil heating elements are to be treated as circular, and that the largest diameter is used…"

DOE does not adequately consider the method of measurement for open coil heating elements. These types of elements have rounded edges. If measured with a ruler, the rounded edges are unaccounted for, a smaller diameter is measured, and smaller cookware/water load may be required. But if a caliper were used, that would account for rounded edges, measuring a larger diameter, and thus larger cookware/water load may be needed. Currently, the test procedure appears to permit either measurement tool. AHAM proposes that DOE specify which measurement tool should be used either in the test procedure itself or through test procedure guidance.

This is a small change for DOE to make in the procedure, but it is an important and significant one in terms of accuracy. A small difference in cooking zone diameter can make a large difference in the final energy consumption as demonstrated by test results from UUT_B in AHAM's investigative testing. This unit has two cooking zones where the measurement method changes the water load.

Table 10

Measurement Method	**Ruler**	**Caliper**
Measured Diameter (mm)	188	190
Required Cookware Diameter (mm)	180	210
Required Water Load (g)	1500	2050
Energy, E_{CTE} (Wh)	466.01	440.27

As shown in the table above, a one percent difference in diameter measurement produces a 5.85 percent difference in measured energy consumption due to the change in required test water load.

DOE also had this issue for the coil units in its second round robin.[11] Lab A measured elements 2 and 4 at 188mm resulting in a 180mm pot. Labs C and E measured them to be 190-191 resulting in a 210mm pot. This resulted in a shift in annual energy from 179.2 to 191.3, or 6.75 percent. Burner energy was 20-30 percent different due to a one to two percent change in diameter measurement.

To remedy this, AHAM requests that DOE clarify 3.1.1.1.1 of the test procedure to require use of calipers, which provide a more accurate measurement than a ruler. We propose the following text: "Open-coil cooking zones shall be measured with calipers at the largest outside diameter." Alternatively, DOE could issue guidance to clarify that calipers should be used.

V. The DOE Test Procedure Continues To Be Highly Variable.

In AHAM's view, data from DOE's second round robin still shows unacceptable levels of variation.[12] Taking a closer at DOE's gas cooking top units test results, Lab A consistently measures lower than Labs B and C. On average, Lab A measures 7.9 percent lower than Labs B and C. This is shown in Table 11 and the shift in mean values between labs is shown in Table 12.

Table 11: Average Annual Energy Use

Unit #	Type	Certified Lab A	Certified Lab B	Certified Lab C	Lab E	Overall Average
6	Gas	982 kBtu	1096 kBtu	1106 kBtu	n/a	1061 kBtu
7	Gas	1313 kBtu	1428 kBtu	1339 kBtu	n/a	1360 kBtu
8	Gas	1438 kBtu	1554 kBtu	1556 kBtu	n/a	1516 kBtu
9	Gas	1494 kBtu	1593 kBtu	1614 kBtu	n/a	1567 kBtu

[11] See *www.regulations.gov/document/EERE-2021-BT-TP-0023-0019*.
[12] Summary of Second Round Robin Testing, testing according to the updated procedure proposed in the November 4, 2021 NOPR, at *www.regulations.gov/document/EERE-2021-BT-TP-0023-0004*.

Table 12: Shift in Mean Values

Unit #	Type	Lab A vs. Lab B	Lab A vs. Lab C	Lab B vs. Lab C
6	Gas	11.9%	12.5%	0.6%
7	Gas	7.5%	1.9%	5.5%
8	Gas	6.4%	7.0%	0.5%
9	Gas	7.0%	8.7%	1.6%
Average		8.2%	7.5%	2.1%

Variation of this nature will have serious consequences when it comes to future DOE compliance and enforcement efforts. Because of the differences in potential test results depending on the laboratory conducting the test, manufacturers will need to build in a buffer or "safety factor" of over ten percent on average (unit 6, Lab C vs. Lab A shows a 12.5 percent variation) to help ensure compliance with applicable standards.

Table 13: Percentage of (tested) Unit Meeting Compliance During Audit Testing

Margin to Limit	Typical Allowable Shift Used by Third Party Labs (3%)	Average Shift in DOE Testing (8%)
3 Percent	97.5%	11.5%
5 Percent	100%	52%
8 Percent	100%	97.5%
10 Percent	100%	100%

The variation could also mean that, for example, if a manufacturer uses Lab B or C for certification and DOE uses Lab A for compliance and enforcement testing, DOE's results could be an overstated efficiency as the test unit(s) will have drifted away from their certified values due to variation in mass production. This could result in false findings of non-compliance. The analysis below uses DOE's round robin testing results and statistical simulation (as presently required under 10 CFR 429 Subpart C) to show that this variation is so significant, units with as much as five percent higher energy consumption could still meet a future minimum energy conservation standard level *and* remain compliant when tested by DOE.

Table 14: Percentage of (tested) Unit Meeting Compliance During Audit Testing

Energy Value Above DOE Threshold	Typical Allowable Shift Used by Third Party Labs (3%)	Average Shift in DOE Testing (8%)
3 Percent	95%	100%
5 Percent	76%	100%
8 Percent	18%	99%
10 Percent	1%	86%

We continue to believe that this variation threatens the credibility of the Appliance Standards Program and means that the cooktop test procedure DOE finalized does not produce sufficiently accurate results. Thus, we continue to question whether the test procedure truly meets EPCA's criteria.

Although AHAM does not have a proposal at this time for improving further the test's variation, we do believe DOE can reduce the test's burden so it is not overly burdensome to conduct. Specifically, AHAM asks that DOE simplify the test by removing the requirement to perform a physical simmer test and providing, as an option, a calculation alternative to the simmer portion of the test.

VI. Conclusion

Based on the above reasoning and justification, combined with the data AHAM will submit with this petition, AHAM respectfully requests that DOE amend the test procedure to:

1. Allow for a calculation as an alternative to the simmer portion of the test;[13]
2. Exclude models where the cooktop cannot be measured in a representative manner; and
3. Require measurement of open-coil cooking zone diameter using a caliper.

[13] Additionally, we ask that DOE update its enforcement regulations to require DOE to use both the physical simmer test and the alternative calculation method in assessment and enforcement testing before making a determination of non-compliance.

Although we understand that DOE is working to consider energy conservation standards for cooktops, we do not expect that making these relatively minor changes to the test procedure will impact DOE's ability to proceed with its other rulemaking plans. Mandatory use of appendix I1 for representations of energy use or energy efficiency of a conventional cooking top is not required until on or after February 20, 2023. We also note that, to date, there are no applicable energy conservation standards for cooktops, which means that this test procedure is not used to demonstrate compliance with applicable standards. Nevertheless, we ask DOE to move quickly to make these changes because the date for using the test procedure for representations is quickly approaching and EPA is moving quickly to develop an ENERGY STAR specification that uses DOE's test procedure. Moreover, these changes will be helpful in assessing DOE's proposed amended energy conservation standards.

AHAM appreciates the opportunity to submit this Petition to Amend the Cooktop Test Procedure and would be glad to discuss these matters in more detail should you so request. We respectfully request that DOE urgently review and act upon this petition as it is critical that changes be made before mandatory use of the test procedure is required. Thus, while DOE is reviewing these changes, we ask that DOE stay the effectiveness of that requirement.

Respectfully Submitted,
Jennifer Cleary
/s
Vice President, Regulatory Affairs

About AHAM: AHAM represents more than 150 member companies that manufacture 90% of the major, portable and floor care appliances shipped for sale in the U.S. Home appliances are the heart of the home, and AHAM members provide safe, innovative, sustainable and efficient products that enhance consumers' lives. The home appliance industry is a

significant segment of the economy, measured by the contributions of home appliance manufacturers, wholesalers, and retailers to the U.S. economy. In all, the industry drives nearly $200 billion in economic output throughout the U.S. and manufactures products with a factory shipment value of more than $50 billion.

[FR Doc. 2023-07673 Filed: 4/18/2023 8:45 am; Publication Date: 4/19/2023]