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This section of the FEDERAL REGISTER contains notices to the public of the proposed issuance of rules and regulations. The purpose of these notices is to give interested persons an opportunity to participate in the rule making prior to the adoption of the final rules.

DEPARTMENT OF ENERGY

10 CFR Part 431

[EERE–2021–BT–TP–0007]

RIN 1904–AE67

Energy Conservation Program: Test Procedures for Certain Commercial and Industrial Equipment; Early Assessment Review: Refrigerated Bottled or Canned Beverage Vending Machines

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

ACTION: Request for information.

SUMMARY: The U.S. Department of Energy (''DOE'' or ''the Department'') is undertaking an early assessment review to determine whether amendments are warranted for the test procedure for refrigerated bottled or canned beverage vending machines (''BVMs''). DOE has identified certain issues associated with the currently applicable test procedure on which DOE is interested in receiving comment. The issues outlined in this document mainly concern updates to industry standards, test setup and conditions, product rating temperature, energy consumption calculations, operating modes, alternate refrigerants, and connected functions. DOE welcomes written comments from the public on any subject within the scope of this document, including topics not raised in this request for information (''RFI'').

DATES: Written comments and information are requested and will be accepted on or before June 18, 2021.

ADDRESSES: Interested persons are encouraged to submit comments using the Federal eRulemaking Portal at *http://www.regulations.gov.* Follow the instructions for submitting comments. Alternatively, interested persons may submit comments, identified by docket number EERE–2021–BT–TP–0007 and/or RIN 1904–AE67, by any of the following methods:

1. *Federal eRulemaking Portal: http://www.regulations.gov.* Follow the instructions for submitting comments.

2. *Email:* to *BVM2021TP0007@ee.doe.gov.* Include docket number EERE–2021–BT–TP–0007 and/or RIN 1904–AE67 in the subject line of the message.

No telefacsimilies (''faxes'') will be accepted. For detailed instructions on submitting comments and additional information on this process, see section III of this document (Submission of Comments).

Although DOE has routinely accepted public comment submissions through a variety of mechanisms, including postal mail and hand delivery/courier, the Department has found it necessary to make temporary modifications to the comment submission process in light of the ongoing Covid–19 pandemic. DOE is currently suspending receipt of public comments via postal mail and hand delivery/courier. If a commenter finds that this change poses an undue hardship, please contact Appliance Standards Program staff at (202) 586–1445 to discuss the need for alternative arrangements. Once the Covid–19 pandemic health emergency is resolved, DOE anticipates resuming all of its regular options for public comment submission, including postal mail and hand delivery/courier.

Docket: The docket for this activity, which includes **Federal Register** notices, comments, and other supporting documents/materials, is available for review at *http://www.regulations.gov.* All documents in the docket are listed in the *http://www.regulations.gov* index. However, some documents listed in the index, such as those containing information that is exempt from public disclosure, may not be publicly available.

The docket web page can be found at *http://www.regulations.gov/docket/EERE-2021-BT-TP-0007.* The docket web page contains instructions on how to access all documents, including public comments, in the docket. See section III of this document for information on how to submit comments through *http://www.regulations.gov.*

FOR FURTHER INFORMATION CONTACT: Dr. Stephanie Johnson, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Office, EE–5B, 1000 Independence Avenue SW, Washington, DC 20585–0121. Telephone: (202) 287–1943. Email: *ApplianceStandardsQuestions@ee.doe.gov.*

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For further information on how to submit a comment or review other public comments and the docket, contact the Appliance and Equipment Standards Program staff at (202) 287–1445 or by email: *ApplianceStandardsQuestions@ee.doe.gov.*

SUPPLEMENTARY INFORMATION:

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I. Introduction

DOE established an early assessment review process to conduct a more focused analysis that would allow DOE to determine, based on statutory criteria, whether an amended test procedure is warranted. Title 10 of the Code of Federal Regulations (''CFR'') part 430 subpart C appendix A section 8(a). This RFI requests information and data regarding whether an amended test procedure would more accurately and fully comply with the requirement that the test procedure produce results that measure energy use during a representative average use cycle for the product, and not be unduly burdensome to conduct. To inform interested parties and to facilitate this process, DOE has identified several issues associated with the currently applicable test procedures on which DOE is interested in receiving

comment. Based on the information received in response to the early assessment RFI and DOE's own analysis, DOE will determine whether to proceed with a rulemaking for an amended test procedure.

If DOE makes an initial determination that an amended test procedure would more accurately or fully comply with statutory requirements, or DOE's analysis is inconclusive, DOE would undertake a rulemaking to issue an amended test procedure. If DOE makes an initial determination based upon available evidence that an amended test procedure would not meet the applicable statutory criteria, DOE would engage in notice and comment rulemaking before issuing a final determination that an amended test procedure is not warranted.

A. Authority

The Energy Policy and Conservation Act, as amended (''EPCA''),[1] among other things, authorizes DOE to regulate the energy efficiency of a number of consumer products and certain industrial equipment. (42 U.S.C. 6291–6317) Title III, Part B [2] of EPCA established the Energy Conservation Program for Consumer Products Other Than Automobiles. These products include BVMs, the subject of this document. (42 U.S.C. 6295(v)) [3]

Under EPCA, DOE's energy conservation program consists essentially of four parts: (1) Testing, (2) labeling, (3) Federal energy conservation standards, and (4) certification and enforcement procedures. Relevant provisions of EPCA include definitions (42 U.S.C. 6291), test procedures (42 U.S.C. 6293), labeling provisions (42 U.S.C. 6294), energy conservation standards (42 U.S.C. 6295), and the authority to require information and reports from manufacturers (42 U.S.C. 6296).

Federal energy efficiency requirements for covered products established under EPCA generally supersede State laws and regulations concerning energy conservation testing, labeling, and standards. (42 U.S.C. 6297(a)–(c)) DOE may, however, grant waivers of Federal preemption in limited instances for particular State laws or regulations, in accordance with the procedures and other provisions set forth under 42 U.S.C. 6297(d).

Federal testing requirements consist of test procedures that manufacturers of covered products must use as the basis for: (1) Certifying to DOE that their equipment complies with the applicable energy conservation standards adopted pursuant to EPCA (42 U.S.C. 6295(s)), and (2) making representations about the efficiency of that equipment (42 U.S.C. 6293(c)). Similarly, DOE must use these test procedures to determine whether the product complies with relevant standards promulgated under EPCA. (42 U.S.C. 6295(s))

Under 42 U.S.C. 6293, EPCA sets forth the criteria and procedures DOE must follow when prescribing or amending test procedures for covered products. EPCA requires that any test procedures prescribed or amended under this section be reasonably designed to produce test results which measure energy efficiency, energy use or estimated annual operating cost of a covered product during a representative average use cycle or period of use and not be unduly burdensome to conduct. (42 U.S.C. 6293(b)(3))

If DOE determines that a test procedure amendment is warranted, it must publish proposed test procedures and offer the public an opportunity to present oral and written comments on them. (42 U.S.C. 6293(b)(2))

In addition, EPCA requires that DOE amend its test procedures for all covered products to integrate measures of standby mode and off mode energy consumption into the overall energy efficiency, energy consumption, or other energy descriptor, taking into consideration the most current versions of Standards 62301 and 62087 of the International Electrotechnical Commission (''IEC''), unless the current test procedure already incorporates the standby mode and off mode energy consumption, or if such integration is technically infeasible. (42 U.S.C. 6295(gg)(2)(A)) If an integrated test procedure is technically infeasible, DOE must prescribe separate standby mode and off mode energy use test procedures for the covered product, if a separate test is technically feasible. (*Id.*)

EPCA also requires that, at least once every 7 years, DOE evaluate test procedures for each type of covered product, including BVMs, to determine whether amended test procedures would more accurately or fully comply with the requirements for the test procedures to not be unduly burdensome to conduct and be reasonably designed to produce test results that reflect energy efficiency, energy use, and estimated operating costs during a representative average use cycle. (42 U.S.C. 6293(b)(1)(A)) If DOE determines, on its own behalf or in response to a petition by any interested person, that a test procedure should be prescribed or amended, DOE shall promptly publish in the **Federal Register** proposed test procedures and afford interested persons an opportunity to present oral and written data, views, and arguments with respect to such procedures. The comment period on a proposed rule to amend a test procedure shall be at least 60 days and may not exceed 270 days. In prescribing or amending a test procedure, DOE shall take into account such information as DOE determines relevant to such procedure, including technological developments relating to energy use or energy efficiency of the type (or class) of covered product involved. (42 U.S.C. 6293(b)(2)) If DOE determines that test procedure revisions are not appropriate, DOE must publish its determination not to amend the test procedures. DOE is publishing this RFI to collect data and information to inform its decision to satisfy the 7-year-lookback review requirement.

B. Rulemaking History

On July 31, 2015, DOE published a test procedure final rule (the ''July 2015 Final Rule'') that referenced updated industry test methods, improved clarity of the procedure, accounted for new equipment features, and reorganized the test procedure in 10 CFR part 431, subpart Q, appendix A (''Appendix A'') and 10 CFR part 431, subpart Q, Appendix B (''Appendix B''). The test procedure at Appendix B accounts for additional BVM operating modes and is mandatory for demonstrating compliance with the energy conservation standards in 10 CFR 431.296(b), which are required for BVMs manufactured on or after January 8, 2019. 80 FR 45758; *See also* 81 FR 1028 (January 8, 2016). The specific amendments in the July 2015 Final Rule included, for both Appendix A and

[1] All references to EPCA in this document refer to the statute as amended through the Energy Act of 2020, Public Law 116–260 (Dec. 27, 2020).

[2] For editorial reasons, upon codification in the U.S. Code, Part B was redesignated Part A.

[3] Because Congress included BVMs in Part A of Title III of EPCA, the consumer product provisions of Part A (rather than the industrial equipment provisions of Part A–1) apply to BVMs. DOE placed the regulatory requirements specific to BVMs in 10 CFR part 431, ''Energy Efficiency Program for Certain Commercial and Industrial Equipment'' as a matter of administrative convenience based on their type and will refer to BVMs as ''equipment'' throughout this document because of their placement in 10 CFR part 431. Despite the placement of BVMs in 10 CFR part 431, the relevant provisions of Title A of EPCA and 10 CFR part 430, which are applicable to all product types specified in Title A of EPCA, are applicable to BVMs. See 74 FR 44914, 44917 (Aug. 31, 2009) and 80 FR 45758, 45759 (Jul. 31, 2015). The regulatory provisions of 10 CFR 430.33 and 430.34 and subparts D and E of 10 CFR part 430 are applicable to BVMs. Because the procedures in Parts 430 and 431 for petitioning DOE for obtaining a test procedure waiver are substantively the same (79 FR 26591, 26601 (May 9, 2014)), the regulations for applying for a test procedure waiver for BVMs are those found at 10 CFR 431.401 rather than those found at 430.27.

Appendix B: (1) Updating the referenced test method to ANSI/ASHRAE Standard 32.1–2010,''Methods of Testing for Rating Vending Machines for Sealed Beverages,'' (''ANSI/ASHRAE Standard 32.1–2010''), (2) incorporating amendments to clarify several ambiguities in ANSI/ASHRAE Standard 32.1–2010, (3) eliminating the requirement to test at the 90-degree Fahrenheit (''°F'') ambient test condition, (4) clarifying the test procedure for combination vending machines, (5) clarifying the requirements for loading of BVMs under the DOE test procedure, (6) specifying the characteristics of a standard test package, (7) clarifying the average next-to-vend beverage temperature test condition, (8) specifying placement of thermocouples during the DOE test procedure, (9) establishing provisions for testing at the lowest application product temperature, (10) clarifying the treatment of certain accessories during the DOE test procedure, and (11) clarifying the certification and reporting requirements for covered BVMs. 80 FR 45758, 45760. The July 2015 Final Rule also incorporated amendments in Appendix B to account for the impact of low-power modes on the measured daily energy consumption (''DEC'') of BVMs. *Id.*

II. Request for Information

DOE is publishing this RFI to collect data and information during the early assessment review to inform its decision, consistent with its obligations under EPCA, as to whether the Department should proceed with an amended test procedure rulemaking, and if so, to assist in the development of proposed amendments. Accordingly, in the following sections, DOE has identified specific issues on which it seeks input to aid in its analysis of whether an amended test procedure for BVMs would more accurately or fully comply with the requirement that the test procedure produces results that measure energy use during a representative average use cycle for the product, and not be unduly burdensome to conduct. (42 U.S.C. 6293(b)(3)) DOE also welcomes comments on other issues relevant to its early assessment that may not specifically be identified in this document.

A. Scope and Definitions

BVMs are commercial refrigerators (as defined at 10 CFR 431.62) that cool bottled or canned beverages and dispense the bottled or canned beverages on payment. 10 CFR 431.292. The defined equipment classes for BVMs include Class A, Class B, Combination A, and Combination B.

Class A means a BVM that is not a combination vending machine and in which 25 percent or more of the surface area on the front side of the beverage vending machine is transparent.

Class B means a BVM that is not considered to be Class A and is not a combination vending machine.

Combination A means a combination vending machine where 25 percent or more of the surface area on the front side of the beverage vending machine is transparent.[4]

Combination B means a combination vending machine that is not considered to be Combination A.

Combination vending machine means a BVM containing two or more compartments separated by a solid partition, that may or may not share a product delivery chute, in which at least one compartment is designed to be refrigerated, as demonstrated by the presence of temperature controls, and at least one compartment is not. 10 CFR 431.292.

Issue 1: DOE requests comment on whether the existing BVM and equipment class definitions require any further clarification. For example, DOE does not include a definition for the term ''dispense'' within the BVM definition. DOE requests information on whether it should define ''dispense'' to better differentiate between BVMs and other commercial refrigerators as defined in 10 CFR 431.62, and if so, DOE requests comment on what definition would be appropriate.

Issue 2: DOE requests comment on whether the current definition for combination vending machine adequately differentiates between fully refrigerated BVMs and BVMs designed to have both refrigerated and non-refrigerated compartments. For example, DOE seeks feedback on whether the presence of additional features (*e.g.,* refrigerated airflow as indicated by the presence of air ducts or air deflectors) should be included in the definition of combination vending machine to determine whether a compartment is refrigerated. DOE also requests comment on whether the term ''solid partition'' in the definition of combination vending machine needs further specificity, and if so, what should be stated to further specify the term.

Issue 3: DOE requests comment on whether any additional changes or clarifications are needed to the existing BVM equipment class definitions.

Issue 4: DOE requests information on whether any additional BVM categories exist within the current equipment classes that would require separate or additional test provisions. If such equipment is identified, DOE requests comment on how the scope of the existing test procedure should be expanded to include these machines and whether additional test procedures would be needed to provide representative test results of such equipment.

B. Test Procedure

DOE's current test procedure in Appendix B incorporates by reference ANSI/ASHRAE Standard 32.1–2010 and provides additional instructions and methods to address test setup, conduct, and calculations. The test procedure generally requires measuring BVM performance under stable conditions over a 24-hour test period, allowing the BVM to be in accessory low power mode for the final 6 hours of the test period,[5] if applicable. Section 2.2.3 and 2.2.4 of Appendix B. A default payment mechanism energy consumption value is added to the primary rated energy consumption per day.[6] Section 2.2.5.1 of Appendix B. If the BVM has refrigeration low power mode,[7] the measured energy consumption is reduced by a fixed percentage.[8] Section 2.3.2 of Appendix B. The test procedure also includes provisions for determining

[4] As provided in 10 CFR 429.134(j)(2), the determination of percent transparent surface does not include the surface area surrounding any compartments that are not designed to be refrigerated (as demonstrated by the presence of temperature controls), whether or not it is transparent.

[5] ''Accessory low power mode'' means a state in which a beverage vending machine's lighting and/or other energy-using systems are in low power mode, but that is not a refrigeration low power mode. Functions that may constitute an accessory low power mode may include, for example, dimming or turning off lights, but does not include adjustment of the refrigeration system to elevate the temperature of the refrigerated compartment(s). Section 1.2, Appendix B.

[6] Section 2.2.5.1 of Appendix B defines a default payment mechanism energy consumption of 0.20 kWh/day.

[7] ''Refrigeration low power mode'' means a state in which a beverage vending machine's refrigeration system is in low power mode because of elevation of the temperature of the refrigerated compartment(s). To qualify as low power mode, the unit must satisfy the requirements described in section 2.3.2.1 of Appendix B. Section 1.2, Appendix B.

[8] Section 2.3.2 of Appendix B specifies that for BVMs with a refrigeration low power mode, multiply the value determined in section 2.3.1 of Appendix B (which represents the sum of the default payment mechanism energy consumption value and the primary rated energy consumption per day) by 0.97 to determine the daily energy consumption of the unit tested. Section 2.3.2.1 of Appendix B provides a validation test method to verify the existence of a refrigeration low power mode.

refrigerated volume and vendible capacity. Section 3 of Appendix B.

1. Updates to Industry Standards

As discussed, DOE's BVM test procedure in Appendix B incorporates by reference ANSI/ASHRAE Standard 32.1–2010, which was the most current version of the industry standard available at the time of the July 2015 Final Rule. DOE specifically references section 3, ''Definitions''; section 4, ''Instruments''; section 5, ''Vendible Capacity''; section 6, ''Test Conditions''; section 7.1, ''Test Procedures—General Requirements''; and section 7.2, ''Energy Consumption Test'' of ANSI/ASHRAE Standard 32.1–2010. Appendix B includes some exceptions to these references, and in cases of conflict between Appendix B language and the requirements of ANSI/ASHRAE Standard 32.1–2010, the language in Appendix B takes precedence. See section 1 of Appendix B.

At the time of the July 2015 Final Rule analysis, DOE was aware of ongoing industry meetings to consider updates to ASHRAE Standard 32.1. DOE participated in those industry meetings and, to the extent possible, sought to align its test procedure with the expected updates to ASHRAE Standard 32.1. 80 FR 45758, 45762.

On February 2, 2017, ANSI and ASHRAE approved the latest version of Standard 32.1, ANSI/ASHRAE Standard 32.1–2017, ''Methods of Testing for Rating Vending Machines for Sealed Beverages,'' (''ANSI/ASHRAE Standard 32.1–2017'').

Many of the revisions included in ANSI/ASHRAE Standard 32.1–2017 harmonize the industry standard with the existing DOE test procedure. However, some substantive differences between DOE's test procedure at Appendix B and ANSI/ASHRAE Standard 32.1–2017 remain, notably the following:

(1) Section 2.2.4 of Appendix B contains provisions for testing accessory low power mode, and section 2.3.2 of Appendix B accounts for refrigeration low power mode; whereas ANSI/ASHRAE Standard 32.1–2017 contains no such provisions (and specifically prohibits operation in low-power mode during testing, per section 7.2.2.6.2).

(2) Section 2.1.3 of Appendix B provides instructions for testing BVMs that are not capable of maintaining an integrated average temperature of 36 °F ± 1 °F during the 24-hour test period; whereas ANSI/ASHRAE Standard 32.1–2017 contains no such provisions. See section II.B.5 for additional discussion of lowest application product temperatures.

(3) Section 2.2.1.4 of Appendix B specifies a ''standard product'' consisting of standard 12-ounce aluminum beverage cans filled with a liquid with a density of 1.0 grams per milliliter (''g/mL'') ± 0.1 g/mL at 36 °F; whereas ANSI/ASHRAE Standard 32.1–2017 specifies using a 33 percent propylene glycol/67 percent water solution. See section II.B.4 for additional discussion of standard product characteristics.

(4) Section 2.2.5.1 of Appendix B provides instructions for payment mechanisms that cannot be disconnected during testing (if the payment mechanism is not removed, Appendix B requires it to be in place but de-energized, or set to the lowest energy consuming state if it cannot be de-energized) and specifies a default payment mechanism energy consumption of 0.20 kWh/day; whereas ANSI/ASHRAE Standard 32.1–2017 contains no such provisions. See section II.B.6 for additional discussion of payment mechanisms.

(5) Section 2.2.3 of Appendix B requires energy management systems to be disabled and energy-saving features that cannot be disabled to be set to their most energy-consuming settings; whereas ANSI/ASHRAE Standard 32.1–2017 also requires that energy management systems be disabled, but does not address other energy-saving features that cannot be disabled.

(6) Sections 2.2.5.2 through 2.2.5.10 of Appendix B provide additional setup instructions regarding certain equipment accessories (*i.e.,* internal lighting; external customer display signs, lights, and digital screens; anti-sweat or other electric resistance heaters; condensate pan heaters and pumps; illuminated temperature displays; condensate filters; security covers; general purpose outlets; and crankcase heaters and other electric resistance heaters for cold weather); whereas ANSI/ASHRAE Standard 32.1–2017 provides instructions for only a subset of these accessories (*i.e.,* video screens and lighting).

(7) Section 2.2.2 of Appendix B prohibits routing thermocouple wires and other measuring equipment through the dispensing door; whereas ANSI/ASHRAE Standard 32.1–2017 contains no such prohibition (only that they be installed in a manner that does not affect energy performance).

(8) Section 2.3.3 of Appendix B provides rounding instructions on energy consumption results; whereas ANSI/ASHRAE Standard 32.1–2017 contains no such rounding instructions.

(9) ANSI/ASHRAE Standard 32.1–2017 provides an additional recovery test (to determine the product temperature recovery time of the BVM when loaded with product at a certain temperature) and a vend test (to determine how much cold product a BVM will deliver when bottles, cans, or other sealed packages are vended at a rate of two per minute, 3 hours after a half-full machine is refilled with product at a specified beverage temperature); whereas Appendix B contains no such tests. These tests assess product temperature recovery and vending performance but do not factor into the energy use measurement.

Issue 5: DOE requests comment on whether it should update its test procedure to incorporate by reference ANSI/ASHRAE Standard 32.1–2017.

Issue 6: DOE requests comment on whether any of the updates included in ANSI/ASHRAE Standard 32.1–2017 would affect measured energy consumption of BVMs, and if so, how. Specifically, DOE requests comment on the impact of any such changes to the representativeness of the measurements and the associated impact to test burden.

Issue 7: DOE also requests comment on the identified differences between the current DOE test procedure and ANSI/ASHRAE Standard 32.1–2017, including comment on which approach is more appropriate for testing BVMs, and why.

Issue 8: DOE requests comment on any known deficiencies in ANSI/ASHRAE Standard 32.1–2017 that DOE may consider addressing in any future amendments to the BVM test procedure.

2. Ambient Test Conditions

Section 2.1.2 of Appendix B requires testing and rating BVM performance in a 75 °F ambient temperature with a 45 percent relative humidity. Prior to the July 2015 Final Rule, the DOE test procedure incorporated by reference ANSI/ASHRAE Standard 32.1–2004, which included two ambient test conditions: 75 °F with a 45 percent relative humidity and 90 °F with a 65 percent relative humidity. However, compliance with DOE's energy conservation standard was determined based on performance at only the 75 °F with a 45 percent relative humidity test condition. In the July 2015 Final Rule, DOE removed the requirement to conduct testing at the 90 °F with a 65 percent relative humidity test condition. 80 FR 45758, 45764–45765.

During the rulemaking leading to the July 2015 Final Rule, DOE estimated that 18 percent of Class B and Combination B BVMs are installed outdoors. 80 FR 45758, 45765. DOE determined that, although these BVMs

would experience different ambient conditions than in the test procedure, it would not be feasible to test at all the conditions BVMs may experience in the field. *Id.* DOE determined that the 75 °F with a 45 percent relative humidity test condition provides a reasonable and comparable representation of energy performance for all BVMs. *Id.* In ANSI/ASHRAE Standard 32.1–2017, the 90 °F with a 65 percent relative humidity test condition for the energy consumption test was removed, and the standard designated the 75 °F with a 45 percent relative humidity test condition as the singular test condition.

If certain BVMs are specifically designed to operate in unique ambient conditions (*i.e.,* are intended for use only in the unique condition and are not optionally installed indoors, as are most BVMs), testing at a different ambient condition may better represent actual average energy use in the field.

Issue 9: DOE requests comment regarding specification of a single test condition of 75 °F with a 45 percent relative humidity. Specifically, DOE requests data on the number of BVMs that operate outdoors or in other unique environments, and the associated ambient conditions for those environments.

Issue 10: Additionally, DOE seeks information on how to identify and define outdoor BVMs that could be considered for additional or different test conditions. For example, DOE requests comment on whether BVMs that operate outdoors or in other unique environments have design characteristics that impact the measured energy consumption at a test condition of 75 °F with a 45 percent relative humidity. DOE requests comment on and data for the appropriate test methods to represent their energy consumption during average use (or if the existing test at 75 °F with a 45 percent relative humidity is representative), as well as the costs associated with those methods.

3. Test Procedure for Combination BVMs

As described in section II.A, DOE defines ''combination vending machine'' as a BVM containing two or more compartments separated by a solid partition, that may or may not share a product delivery chute, in which at least one compartment is designed to be refrigerated, as demonstrated by the presence of temperature controls, and at least one compartment is not. 10 CFR 431.292. Section 2.2.1.3 of Appendix B specifies that the non-refrigerated compartments of combination BVMs must not be loaded with any standard products or other vendible merchandise during testing. Sections 7.2.2.2 and 7.2.2.7 of ANSI/ASHRAE Standard 32.1–2017 require combination BVMs not to be loaded with any standard products, test packages, or other vendible merchandise in the non-refrigerated compartments, but that the non-refrigerated compartments be lighted as in normal operation.

The thermal mass of any items loaded into the non-refrigerated compartments (or lack of thermal mass for an unloaded compartment) of combination BVMs may affect the measured DEC. Additionally, the thermal mass of any merchandise stored in the non-refrigerated compartments can vary significantly depending on the type of merchandise loaded into the combination BVM. The current approach of requiring no load in the non-refrigerated compartments addresses the potential variability associated with this thermal load; however, DOE seeks feedback on whether requiring some load in the non-refrigerated compartments may better represent the average energy use of combination BVMs.

Issue 11: DOE requests comment on the typical thermal mass of merchandise loaded into the non-refrigerated compartments of combination BVMs and the potential impact of such a load on tested energy consumption.

4. Characteristics of the Standard Product

Section 2.2.1.4 of Appendix B specifies the standard products to be used for testing, which include the following: 12-ounce aluminum beverage cans filled with a liquid with a density of 1.0 grams per milliliter (''g/mL'') ±0.1 g/mL at 36 °F; or, for product storage racks that are not capable of vending 12-ounce cans, but are capable of vending 20-ounce bottles, 20-ounce plastic bottles filled with a liquid with a density of 1.0 g/mL ±0.1 g/mL at 36 °F; or, for product storage racks that are not capable of vending 12-ounce cans or 20-ounce bottles, the packaging and contents specified by the manufacturer in product literature as the standard product (*i.e.,* the specific merchandise the refrigerated bottled or canned beverage vending machine is designed to vend). In the July 2015 Final Rule, DOE discussed the possibility of considering other standard products, including slimline cans, milk cartons, aseptic packs, pouches, and energy drinks. 80 FR 45758, 45768. However, DOE determined that the standard product for BVMs not capable of vending 12-ounce cans or 20-ounce bottles is the product specified by the manufacturer in product literature. *Id.*

Vendible product types other than 12-ounce cans or 20-ounce bottles may now be used more frequently than at the time of the analysis leading to the July 2015 Final Rule. DOE may consider adding descriptions of such refrigerated beverage containers and contents if they are commonly used and have characteristics that can be defined for use across BVM manufacturers (*i.e.,* the standard product as described would not be applicable to only one BVM manufacturer).

Additionally, DOE is aware of certain BVMs that are marketed to vend both beverages and food, but do not contain a solid partition that separates the shelves or compartments intended for refrigerated bottled or canned beverages from those intended for other merchandise. Without a solid partition, these BVM models would not meet the definition of combination vending machine and would instead be classified as either Class A or Class B BVMs. If the non-beverage shelves of these BVMs are not capable of vending 12-ounce cans or 20-ounce bottles, the standard product for testing must be the packaging and contents specified by the manufacturer in product literature as the standard product per section 2.2.1.4 or Appendix B. DOE seeks information on whether to specify additional instructions for loading and measuring temperatures of such non-beverage packages to reduce test variability.

Issue 12: DOE requests comment on whether the currently defined standard products (*i.e.,* the products comprising the BVM test load) are representative of average BVM use.

Issue 13: DOE seeks feedback on whether any additional products should be defined as standard products for BVMs that are not capable of vending 12-ounce cans or 20-ounce bottles to limit variability in testing. If so, DOE requests data and information on the extent to which BVMs currently vend such products and the extent to which BVMs are stocked exclusively with such products (and no other non-standard products).

Issue 14: DOE also requests detailed descriptions of such products, including typical dimensions, materials, and contents, and any data showing whether different standard products affect measured energy use.

Issue 15: DOE requests feedback on the appropriate loading requirements for refrigerated shelves of BVMs that are designed to dispense merchandise other than bottled or canned beverages, including non-beverage merchandise. If these shelves should be loaded, DOE

requests feedback on the applicability of the standard product instructions specified in section 2.2.1.4 of Appendix B for these shelves and on the sensor placement instructions specified in section 2.2.2 of Appendix B.

As discussed in section II.B.1, section 7.1.5.1 of ANSI/ASHRAE Standard 32.1–2017 requires the beverage temperature test packages to be filled with a 33 percent propylene glycol/67 percent water solution. ANSI/ASHRAE Standard 32.1–2017 does not specify whether these glycol/water percentages are based on weight or volume. Section 5.1 of ANSI/ASHRAE Standard 32.1–2017 also specifies that standard sealed beverages are 12-ounce cans, 20-ounce bottles, or the sealed beverage specified by the manufacturer. Section 5.1 does not provide any other reference to the liquid in the containers.

Issue 16: DOE requests comment on whether the standard products or standard test packages as defined in Appendix B sections 2.2.1.4 and 2.2.1.5, respectively, require any further specifications. For example, in lieu of the existing density specifications, DOE seeks feedback on whether it should specify the contents of the test containers (*e.g.,* the 33 percent propylene glycol/67 percent water solution (and whether these percentages are based on weight or volume) as specified in section 7.1.5.1 of ANSI/ASHRAE Standard 32.1–2017).

5. Lowest Application Product Temperature

Section 2.1.1 of Appendix B requires that the integrated average temperature (''IAT'') of the BVM be 36 °F ± 1 °F over the test period. For BVMs that are designed to operate at temperatures higher than 36 °F and are not capable of maintaining an IAT at 36 °F ± 1 °F for testing, section 2.1.3 of Appendix B requires testing such equipment at its lowest application product temperature, defined as the lowest IAT the BVM is capable of maintaining at stable conditions.

In the July 2015 Final Rule, DOE stated that it would monitor its certification data and would take any necessary corrective actions if a significant portion of models are certified under the lowest application product temperature provisions. 80 FR 45758, 45773–45774. For any BVM tested and rated using the lowest application product temperature provisions in Appendix B, DOE requires that manufacturers include the temperature in their certification reports. 10 CFR 429.52(b)(2)(ii). DOE's compliance certification database [9] lists all BVM models certified to DOE, including the lowest application product temperature used for rating each model, if applicable. Of the 137 individual models included in the compliance certification database, 12 individual models (4 basic models) from one manufacturer are rated at lowest application product temperatures between 37.9 °F and 41.3 °F.[10] Models had previously been certified to DOE (and are not included in the current DOE compliance certification database) as being rated at a lowest application product temperature below the 36 ± 1 °F IAT range required in the DOE test procedure. For example, models from one manufacturer were previously rated at an IAT of 32 °F (indicating that those BVMs could not operate as warm as 36 ± 1 °F).

Issue 17: DOE requests comment on whether the lowest application product temperature provisions are appropriate for testing BVMs not capable of maintaining IAT of 36 °F ± 1 °F. If not, DOE requests comment on what test procedures would better represent energy consumption during average use for such equipment, including, for example, whether Appendix B should include additional IATs for rating BVMs.

Issue 18: DOE further requests comment on whether Appendix B should include additional instructions for testing those BVMs capable of maintaining temperatures only below the 36 °F ± 1 °F range (*e.g.,* testing such BVMs at the highest thermostat setting).

6. Payment Mechanisms

Section 2.2.5.1 of Appendix B requires testing BVMs with no payment mechanism in place, the payment mechanism in-place but de-energized, or the payment mechanism in place but set to the lowest energy consuming state, if it cannot be de-energized. A default payment mechanism energy consumption value of 0.20 kilowatt-hours per day (''kWh/day'') is added to the primary rated energy consumption per day, according to section 2.3 of Appendix B. In section 7.1.2.2. of ANSI/ASHRAE Standard 32.1–2017, payment mechanisms are required to be disconnected during testing.

DOE established the 0.20 kWh/day value based on a weighted average energy consumption of 25 different payment mechanisms available at the time of the July 2015 Final Rule. These included 11 coin mechanisms, 11 bill validators, and 3 credit card readers. 80 FR 45758, 45777.

Since the publication of the July 2015 Final Rule, the prevalence of different payment mechanisms for BVMs may have shifted. For example, credit card readers may be more common in the field compared to coin mechanisms or bill validators, or BVMs may incorporate all types of payment mechanisms. Based on the July 2015 Final Rule data, credit card readers had the highest daily energy consumption. If such a shift has occurred in the market, an amended payment mechanism energy adder may provide results that are more representative of average energy use. Additionally, if BVMs as sold or shipped now typically include payment mechanisms, a direct test of energy consumption rather than a fixed energy use adder may be more representative of average energy use.

Issue 19: DOE requests comment on whether BVMs are typically sold and shipped with payment mechanisms in place. If not, DOE requests information on the types of payment mechanisms typically installed on BVMs and their associated energy use.

Issue 20: DOE seeks feedback on whether the current 0.20 kWh/day energy use assigned to payment mechanisms is representative of the current BVM market.

7. Low Power Modes

Appendix B incorporates definitions and test requirements for two types of low power modes [11] (*i.e.,* accessory low power mode and refrigeration low power mode). Section 7.2.2.6.2 of ANSI/ASHRAE Standard 32.1–2017 requires that low power modes not be allowed to operate during testing.

In the July 2015 Final Rule, DOE acknowledged that the two types of low power modes incorporated into the test procedure (accessory low power mode and refrigeration low power mode) may not address all forms of low power modes available in the BVM market. DOE identified ''learning-based'' energy management controls that use historic sales and traffic data to predict times of high and low traffic; however, DOE did not propose a test procedure for such controls, as it would be difficult to develop a repeatable test procedure to evaluate the energy savings of such

[9] Available at *https://www.regulations.doe.gov/certification-data/CCMS-4-Refrigerated_Bottled_or_Canned_Beverage_Vending_Machines.html.*

[10] Compliance certification database data as accessed on February 6, 2021.

[11] ''Low power mode'' means a state in which a beverage vending machine's lighting, refrigeration, and/or other energy-using systems are automatically adjusted (without user intervention) such that they consume less energy than they consume in an active vending environment. Section 1.2, Appendix B.

controls during a 24-hour test in a laboratory. 80 FR 45758, 45786.

Issue 21: DOE requests comment on the availability of additional low power modes for BVMs, including any ''learning-based'' energy management controls. If such modes are available, DOE seeks data and information on the typical operating times and associated energy consumptions of BVMs in these modes.

Issue 22: DOE also seeks feedback on whether a test procedure to account for operation in these low power modes would better reflect the representative average energy use of BVMs, and if so, what would be the appropriate test methods as well as the associated test burden and costs.

a. Accessory Low Power Mode

Section 1.2 of Appendix B defines accessory low power mode as a state in which a BVM's lighting and/or other energy-using systems are in low power mode, but that is not a refrigeration low power mode. Functions that may constitute an accessory low power mode may include, for example, dimming or turning off lights, but does not include adjustment of the refrigeration system to elevate the temperature of the refrigerated compartment(s). Section 2.2.4 of Appendix B states that accessory low power mode may be engaged for the final 6 hours of the 24-hour test period and requires that the BVM be operated in the lowest energy-consuming lighting and control settings for testing this mode. Section 2.2.4 also requires that any automatic activation of refrigeration low power modes be prevented during the accessory low power mode test period.

The 24-hour test procedure starts after a BVM achieves stabilization as determined in vending mode. Because the test period ends with 6 hours of operation in accessory low power mode, when the mode is engaged for testing, the BVM would end the test in a different operating state than at the start of the test. Although the refrigeration system and cabinet temperatures would likely not change with operation in an accessory low power mode (because accessory low power mode does not include adjustment of the refrigeration system to elevate the temperature of the refrigerated compartment), some transient recovery period may be required for a BVM to return to stable operation in vending mode after operating in accessory low power mode for 6 hours. If such a recovery period exists, testing the accessory low power mode during the middle of the 24-hour test period may be more representative by capturing any transition periods between operating modes.

Issue 23: DOE requests comment on whether BVMs require any recovery period following operation in accessory low power mode to return to stable operation in vending mode. If so, DOE requests test data indicating the effect of such operating periods and seeks feedback on whether the accessory low power mode test period should occur at some other point during the 24-hour test period.

Issue 24: Additionally, DOE requests information regarding testing the accessory low power mode during a period other than at the end of the 24-hour test period, specifically on any potential drawbacks or test burdens that may result.

In the July 2015 Final Rule, DOE stated that BVMs may employ a variety of control strategies and control a variety of different components in accessory low power mode. 80 FR 45758, 45785. DOE established testing under the settings representing the maximum energy savings to avoid potential repeatability issues associated with identifying appropriate test control settings for BVMs with various types of accessory low power modes. *Id.*

Issue 25: DOE requests comment on the typical average duration a BVM operates in accessory low power mode per day, if applicable.

Issue 26: DOE also seeks information on the control settings users apply for accessory low power mode in the field (*i.e.,* whether the lowest energy consumption settings for lighting and controls are representative of average use in accessory low power mode).

Issue 27: DOE also requests comment on whether multiple accessory low power mode test settings may be appropriate for BVMs offering various control settings.

b. Refrigeration Low Power Mode

Section 1.2 of Appendix B defines refrigeration low power mode as a state in which a BVM's refrigeration system is in low power mode because of elevation of the temperature of the refrigerated compartment(s). Section 2.3.2.1 of Appendix B includes provisions for confirming the presence of a refrigeration low power mode, either through an increase in average next-to-vend beverage temperature or lack of compressor operation. Unlike accessory low power mode, Appendix B does not include a direct test of refrigeration low power mode. Instead, BVMs with refrigeration low power mode receive a 3-percent reduction in DEC as measured. Section 2.3.2 of Appendix B.

In the July 2015 Final Rule, DOE determined that a 3-percent energy reduction was more appropriate than a physical test of refrigeration low power mode because refrigeration low power modes are extremely variable in their control strategies and operation and may require instructions from the manufacturer to accommodate specific provisions of a physical test. DOE stated that a physical test would reduce consistency and repeatability and would make the method impractical to implement. 80 FR 45758, 45785.

DOE established the 3-percent credit for refrigeration low power mode by testing several BVMs with this mode.[12] DOE noted in the July 2015 Final Rule that this value is an average that is representative of the common types of refrigeration low power modes available in the marketplace. 80 FR 45758, 45786.

Issue 28: DOE requests comment on whether any amendments are needed to either the definition of refrigeration low power mode or the corresponding refrigeration low power mode validation test method.

Issue 29: DOE seeks feedback on whether any BVM operating modes exist that should be considered a refrigeration low power mode but cannot meet the current definition or validation test method (*e.g.,* operating modes with little or no increase in refrigerated compartment temperature with some amount of compressor operation).

Issue 30: DOE requests comment on the current approach of applying a 3-percent energy reduction for any BVMs determined to have a refrigeration low power mode. Specifically, DOE requests comment on whether a physical test to account for actual unit energy reduction associated with refrigeration low power mode is feasible, or whether any test method for such an approach currently exists, and on the burden associated with running such a test.

Issue 31: DOE requests comment on whether the 3-percent energy reduction is appropriate for BVMs with refrigeration low power mode. DOE seeks data on BVM operation in refrigeration low power mode, including the amount of time spent in such a mode and the associated energy consumption.

8. Reloading and Recovery Period

As stated in Section II.B.1, ANSI/ASHRAE Standard 32.1–2017 provides an additional recovery test (to determine the product temperature recovery time

[12] DOE described the method for determining the 3-percent credit in detail in the notice of proposed rulemaking that preceded the July 2015 Final Rule. 79 FR 46908, 46925–46926 (Aug. 11, 2014).

of the BVM when loaded with product at a certain temperature), whereas Appendix B contains no such test. This recovery test assesses product temperature recovery performance of the BVM but does not include a measurement of the corresponding energy consumption. Table 2 in ANSI/ASHRAE Standard 32.1–2017 lists the reloaded sealed-beverage temperature, 90 °F, and the final instantaneous average next-to-vend beverage temperature, 40 °F, for the recovery test. Additionally, Table 4 in ANSI/ASHRAE Standard 32.1–2017 lists the door open durations, between 10 and 20 minutes, required during the recovery test while reloading the BVM.

The existing DOE test procedure considers BVM performance only during stable operation (including any operation in accessory low power mode). During typical use, BVMs are regularly opened and restocked with warmer beverages. Accounting for BVM energy use during restocking periods and the subsequent product temperature recovery periods may better represent the actual energy use of BVMs during normal operation.

Issue 32: DOE requests comment and supporting data on whether BVM restocking and the subsequent product temperature recovery represent a significant energy consumption for BVMs relative to the existing test procedure.

Issue 33: DOE requests comment and supporting data regarding the applicability of the recovery test described in ANSI/ASHRAE Standard 32.1–2017 for measuring the energy consumption associated with restocking and product temperature recovery.

Issue 34: DOE requests comment and supporting data on the frequency and duration of door openings required to reload BVMs.

9. Alternate Refrigerants

In an April 10, 2015 final rule, the Environmental Protection Agency listed propane (R–290), isobutane (R–600a), and the hydrocarbon blend R–441A as acceptable refrigerants for use in BVMs, subject to a 150-gram charge limit per refrigeration circuit and other safety measures to address flammability. 80 FR 19454, 19491. Due to the flammability of these refrigerants, BVMs using hydrocarbon refrigerants may need to implement additional controls and components to mitigate the risk of ignition from any potential refrigerant leaks. The need for such controls also may vary depending on the intended installation location for BVMs.

DOE is interested in understanding what additional components and controls manufacturers may need to add to their equipment to transition to alternative refrigerants, including propane, and whether the test procedure requires any updates to account for any corresponding energy use. DOE's expectation is that such controls would always be active and would not require specific test procedure instructions; however, DOE requests information on whether multiple control settings are available for these components, and if so, what would be the representative test settings.

Issue 35: DOE requests comment on what additional components and controls manufacturers may need to add to their equipment when designing BVMs with alternative refrigerants and on the typical settings used for such components and controls, if multiple settings are available. DOE requests comment on whether any test procedure modifications are necessary to account for the energy consumption associated with these components and controls and any corresponding impact on testing burden.

10. Connected Functions

The current DOE test procedure for BVMs does not include test requirements specifically for connected or smart features. Section 2.2.5 of Appendix B generally requires all components necessary to provide sufficient functionality for cooling and vending products in field installations (*i.e.,* product inventory, temperature management, product merchandising (including, *e.g.,* lighting or signage), product selection, and product transport and delivery) to be in place during testing and set to the maximum energy-consuming setting if manually adjustable. Other components not necessary for such functionality are de-energized or set to their lowest energy consuming state.

Issue 36: DOE requests comment on the prevalence of connected functions in BVMs. DOE seeks information on what BVM functions are associated with these connected modes, how often they are used, and their corresponding impacts on energy use.

Issue 37: DOE also requests comment on whether the existing DOE test procedure instructions for accessories in section 2.2.5 of Appendix B adequately address test settings for connected functions in BVMs.

III. Submission of Comments

DOE invites all interested parties to submit in writing by the date specified in the **DATES** heading, comments and information on matters addressed in this RFI and on other matters relevant to DOE's early assessment of whether an amended test procedure for BVMs is warranted and if so, what such amendments should be considered.

Submitting comments via http://www.regulations.gov. The *http://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. 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 *http://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 *http://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 *http://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 *http://www.regulations.gov* provides after you have successfully uploaded your comment.

Submitting comments via email. Comments and documents submitted via email will be posted to *http://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. No facsimiles (faxes) will 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. Pursuant 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 the process for developing test procedures and energy conservation standards. DOE actively encourages the participation and interaction of the public during the comment period in each stage of this process. Interactions with and between members of the public provide a balanced discussion of the issues and assist DOE in the process. Anyone who wishes to be added to the DOE mailing list to receive future notices and information about this process should contact Appliance and Equipment Standards Program staff at (202) 287–1445 or via email at *ApplianceStandardsQuestions@ee.doe.gov.*

Signing Authority

This document of the Department of Energy was signed on May 12, 2021, by Kelly Speakes-Backman, Principal Deputy Assistant Secretary and 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 May 13, 2021.

Treena V. Garrett,

Federal Register Liaison Officer, U.S. Department of Energy.

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