

In the
United States Court of Appeals
For the Seventh Circuit

Nos. 14-2147, 14-2159, & 14-2334

ZERO ZONE, INC., et al.,

Petitioners,

v.

UNITED STATES DEPARTMENT OF ENERGY, et al.,

Respondents.

On Petitions for Review of Final Regulations of the
United States Department of Energy.
Agency No. EERE-2010-BT-STD-0003 &
Agency No. EERE-2013-BT-TP-0025

ARGUED SEPTEMBER 30, 2015 — DECIDED AUGUST 8, 2016

Before BAUER, RIPPLE, and ROVNER, *Circuit Judges.*

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RIPPLE, Circuit Judge. The United States Department of Energy (“DOE”) published two final rules aimed at improving the energy efficiency of commercial refrigeration equipment (“CRE”).¹ The first rule adopted new energy efficiency standards for CRE. 79 Fed. Reg. 17,726 (Mar. 28, 2014) (the “New

¹ “Commercial refrigeration equipment” includes refrigerators and freezers sold to restaurants and other industries. The term specifically is defined as refrigeration equipment which:

- (i) is not a consumer product ... ;
- (ii) is not designed and marketed exclusively for medical, scientific, or research purposes;
- (iii) operates at a chilled, frozen, combination chilled and frozen, or variable temperature;
- (iv) displays or stores merchandise and other perishable materials horizontally, semivertically, or vertically;
- (v) has transparent or solid doors, sliding or hinged doors, a combination of hinged, sliding, transparent, or solid doors, or no doors;

Standards Rule”). The second rule, issued a month later, clarified the test procedures that DOE uses to implement those standards. 79 Fed. Reg. 22,278 (Apr. 21, 2014) (the “2014 Test Procedure Rule”).

Petitioners Zero Zone, Inc. (“Zero Zone”), a small business specializing in CRE, and Air-Conditioning, Heating and Refrigeration Institute (“AHRI”), a trade association of CRE manufacturers, petitioned for review of both rules. Petitioner North American Association of Food Equipment Manufacturers (“NAFEM”), another trade association of CRE manufacturers, petitioned for review of the first rule. AHRI and Zero Zone moved to consolidate the cases, and we granted the motion.²

(vi) is designed for pull-down temperature applications or holding temperature applications; and

(vii) is connected to a self-contained condensing unit or to a remote condensing unit.

42 U.S.C. § 6311(9)(A).

² The Energy Policy and Conservation Act (“EPCA”) grants us jurisdiction to hear these cases:

Any person who will be adversely affected by a rule prescribed under section 6293, 6294, or 6295 of this title may, at any time within 60 days after the date on which such rule is prescribed, file a petition with the United States court of appeals for the circuit in which such person resides or has his principal place of business, for judicial review of such rule.

42 U.S.C. § 6306(b)(1). The New Standards Rule was prescribed under § 6295. The 2014 Test Procedure Rule was prescribed under § 6314, which is covered by § 6306(b). *See id.* § 6316(a)(1) (explaining that “references to

Petitioners challenge both the decisionmaking process and the substance of the final rules. Upon review of those challenges, we conclude that DOE acted in a manner worthy of our deference. The New Standards Rule is premised on an analytical model that is supported by substantial evidence and is neither arbitrary nor capricious. DOE conducted a cost-benefit analysis that is within its statutory authority and is supported by substantial evidence. Its methodology and conclusions were not arbitrary or capricious. It also gave appropriate consideration to the rule's effect on small businesses and the role of other agency regulations. DOE similarly acted within its authority, and within reason, when it promulgated the 2014 Test Procedure Rule. For these reasons, we deny the petitions in their entirety.

I

BACKGROUND

A. Statutory and Regulatory Context

1. Energy Policy and Conservation Act

The Energy Policy and Conservation Act ("EPCA"), Pub. L. No. 94-163, §§ 321–339, 89 Stat. 871, 917–32 (1975) (codified as amended at 42 U.S.C. §§ 6201–6422) was enacted in part to improve the energy efficiency of specific types of equipment and appliances. § 2(5), 89 Stat. at 874. Congress enacted the EPCA in the wake of the 1973–1974 embargo of petroleum exports to the United States by the Organization of Arab Petroleum Exporting Countries. S. Rep. No. 94-26, at 26 (1975). It

sections 6293, 6294, and 6295 of this title shall be considered as references to sections 6314, 6315, and 6313 of this title").

viewed the embargo as presenting a need for “legislation which would facilitate the reduction of the nation’s petroleum consumption through energy conservation.” *Id.* at 27; *see also* H.R. Rep. No. 94-340, at 1 (1975) (“This legislation is directed to the attainment of the collective goals of increasing domestic supply, *conserving and managing energy demand*, and establishing standby programs for minimizing this nation’s vulnerability to major interruptions in the supply of petroleum imports.” (emphasis added)).

As originally enacted, the EPCA authorized the Federal Energy Administration (“FEA”)—the predecessor to DOE³—to implement voluntary “energy efficiency improvement target[s]” that would encourage manufacturers to decrease the energy consumption of their equipment. Pub. L. No. 94-163, § 325, 89 Stat. 923–26. However, Congress determined shortly thereafter that, “[u]nder the target approach, there would be little incentive by a manufacturer to exceed a target, and to do so might place a given manufacturer at a competitive disadvantage.” H.R. Rep. No. 95-496, at 45 (1977). It therefore amended the EPCA to impose *mandatory* energy conservation standards. National Energy Conservation Policy Act, Pub. L. No. 95-619, § 422, 92 Stat. 3206, 3259 (1978). As amended, the EPCA directs DOE to review these standards and implement new ones when appropriate. 42 U.S.C. §§ 6313(c), 6316(e), 6295(m).

³ The Department of Energy Organization Act of 1977 established the Department of Energy and transferred the responsibilities of the Federal Energy Administration into DOE. *Id.* § 7151(a).

When establishing new energy conservation standards, DOE must follow certain statutory requirements. First, standards may not “increase[] the maximum allowable energy use” of any individual unit. *Id.* § 6295(o)(1). Second, standards must be “designed to achieve the maximum improvement in energy efficiency” and be “technologically feasible and economically justified.” *Id.* § 6295(o)(2)(A). The EPCA explains that:

In determining whether a standard is economically justified, the Secretary shall, after receiving views and comments furnished with respect to the proposed standard, determine whether the benefits of the standard exceed its burdens by, to the greatest extent practicable, considering—

- (I) the economic impact of the standard on the manufacturers and on the consumers of the products subject to such standard;
- (II) the savings in operating costs throughout the estimated average life of the covered product in the type (or class) compared to any increase in the price of, or in the initial charges for, or maintenance expenses of, the covered products which are likely to result from the imposition of the standard;
- (III) the total projected amount of energy, or as applicable, water, savings likely to result directly from the imposition of the standard;
- (IV) any lessening of the utility or the performance of the covered products likely to result from the imposition of the standard;

(V) the impact of any lessening of competition, as determined in writing by the Attorney General, that is likely to result from the imposition of the standard;

(VI) the need for national energy and water conservation; and

(VII) other factors the Secretary considers relevant.

Id. § 6295(o)(2)(B)(i). The EPCA further explains that, for the purposes of determining anticompetitive effects, the Attorney General must submit his or her opinion in writing “not later than 60 days after the publication of a proposed rule” and that “[a]ny such determination and analysis shall be published by the Secretary in the Federal Register.” *Id.* § 6295(o)(2)(B)(ii).

The EPCA also charges DOE with establishing test procedures for measuring the energy use of covered equipment. *Id.* § 6314. Manufacturers must use these test procedures when determining whether their equipment complies with the applicable energy conservation standards. *Id.* §§ 6295(s), 6316(e)(1). According to the EPCA:

(1) The Secretary shall, not later than 3 years after the date of prescribing a test procedure under this section (and from time to time thereafter), conduct a reevaluation of such procedure and, on the basis of such reevaluation, shall determine if such test procedure should be amended. In conducting such reevaluation, the Secretary shall take into account such information as he deems relevant, including techno-

logical developments relating to the energy efficiency of the type (or class) of covered equipment involved.

(2) If the Secretary determines under paragraph (1) that a test procedure should be amended, he shall promptly publish in the Federal Register proposed test procedures incorporating such amendments and afford interested persons an opportunity to present oral and written data, views, and arguments. Such comment period shall not be less than 45 days' duration.

Id. § 6314(c).

2. Energy Policy Act of 2005

Congress amended the EPCA in 2005, and in doing so added CRE to the industrial equipment category. Energy Policy Act of 2005, Pub. L. No. 109-58, § 136, 119 Stat. 594, 638–39 (codified at 42 U.S.C. § 6313(c)(2)–(3)) (“EPACT”). The EPACT prescribed standards for six different classes of CRE. § 136, 119 Stat. at 639.⁴ It also required DOE to set standards for additional classes of CRE that were not yet covered by the EPCA. *Id.*

⁴ Specifically, the EPACT prescribed standards for refrigerators with solid doors, refrigerators with transparent doors, freezers with solid doors, freezers with transparent doors, refrigerator-freezers with solid doors, and self-contained condensing units with transparent doors designed for pull-down temperature applications. *Id.* § 6313(c)(2)–(3).

3. 2009 Final Rule

Accordingly, DOE published a final rule on January 9, 2009, that prescribed energy conservation standards for thirty-eight additional equipment classes. 74 Fed. Reg. 1092. These classes were defined by a combination of the equipment's geometry (vertical, semivertical, or horizontal), door type (solid, transparent, or open), condensing-unit configuration (self-contained or remote-condensing), and operating temperature (medium, low, or ice-cream).⁵

4. American Energy Manufacturing Technical Corrections Act

Congress made an additional amendment to the statute in January 2012, which prescribed a specific standard for self-contained commercial refrigerators with transparent doors. American Energy Manufacturing Technical Corrections Act, Pub. L. No. 112-210, § 4, 126 Stat. 1514, 1516 (codified as amended at 42 U.S.C. § 6313(c)(4)) ("AEMTCA"). As a result, the existing energy conservation standards for CRE at the time of this rulemaking had been established by three separate sources: the EPACT, the AEMTCA, and DOE's 2009 Final Rule.

B. The New Standards Rule

DOE published a sixty-page framework document in 2010, which discussed the relevant issues and processes in de-

⁵ For example, a unit could be in the "vertical open, remote condensing, medium temperature equipment class." See 79 Fed. Reg. 17,726, 17,732 (Mar. 28, 2014). This class is identified by DOE as "VOP.RC.M." *Id.*

termining whether to amend the CRE energy efficiency standards. 75 Fed. Reg. 24,824, 24,824–25 (May 6, 2010); App. R.6, Admin. R.2. DOE then published a notice of proposed rule-making for new CRE energy efficiency standards on September 11, 2013. 78 Fed. Reg. 55,890. The notice of proposed rule-making listed new standards for forty-nine classes of CRE. *See id.* at 55,890–92. DOE also made available a technical support document for the proposed rule. App. R.6, Admin. R.51. On October 3, 2013, DOE held a public meeting in Washington, D.C. to solicit comments and provide some preliminary responses. App. R.6, Admin. R.62. DOE also permitted the public to submit further comments until a November 12, 2013 deadline, although a few comments were submitted after that date. On March 28, 2014, DOE published the New Standards Rule, the rule before us in this proceeding.

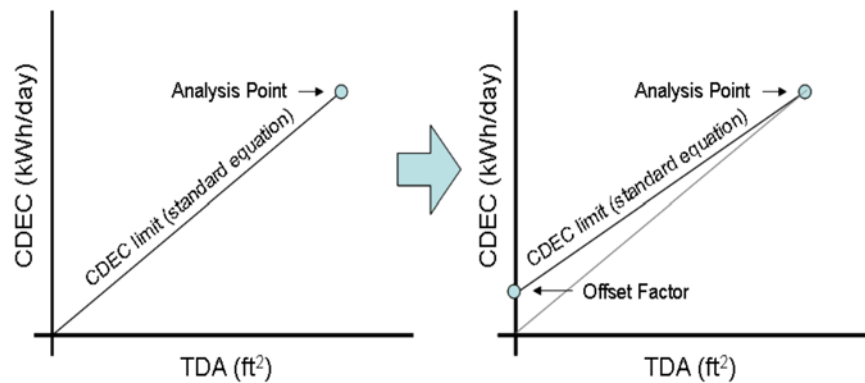
The New Standards Rule establishes energy conservation standards for forty-nine classes of CRE. 79 Fed. Reg. at 17,727. Just as in DOE’s earlier 2009 Final Rule, the classes were defined by a combination of the equipment’s geometry, door type, condensing-unit configuration, and operating temperature. *Id.* at 17,743. For each class, the maximum daily energy consumption is determined by a function of either the unit’s refrigerated volume (“V”) or the unit’s total display area (“TDA”). *Id.* at 17,727.⁶ For eight equipment classes, DOE made no changes from the 2009 Final Rule. *Id.* at 17,728. For the remaining forty-one equipment classes, DOE set forth a

⁶ For example, a CRE in the vertical, open, remote-condensing, medium temperature class has a maximum daily energy consumption of $(0.64 \times \text{TDA} + 4.07)$ kilowatt-hours. 79 Fed. Reg. at 17,727. Therefore, if a CRE in this equipment class had a total display area of ten square feet, its maximum allowable energy consumption would be 6.47 kilowatt-hours/day.

higher standard that it determined was both technologically feasible and economically justified. *Id.* at 17,727–30. DOE estimated that the revised standards were likely to result in a savings of 2.89 quadrillion British thermal units of energy in 2014—an “annualized energy savings equivalent to 0.5 percent of total U.S. commercial primary energy consumption in 2014.” *Id.* at 17,728, 17,736–37.

To determine the appropriate standard for each class of equipment, DOE used a design-option engineering analysis. *Id.* at 17,745; Final Technical Support Document, App. R.6, Admin. R.102 at 5-41 to 5-68. In that analysis, DOE chose a representative unit from each class of CRE. App. R.6, Admin. R.102 at 5-1 to 5-2. DOE intentionally chose a unit that “was toward the larger end of the equipment available within that class.” *Id.* at 5-68. DOE then, using an analytical model, estimated the cost to manufacturers of implementing more efficient components into that unit, as well as the “calculated daily energy consumption” (“CDEC”) that would result from implementing those components. *Id.* at 5-1 to 5-3, 5-13 to 5-41. This analysis included modeling the effect of more efficient lighting, compressors, and insulation. *Id.* at 5-13 to 5-41. DOE then ranked the components in order of cost, and drew a cost-efficiency curve that illustrated a feasible maximum energy consumption level for a unit of that size. *Id.* at 5-2 to 5-3.

This maximum energy consumption level served as an “analysis point” for DOE, which it used to establish an equation for determining a CRE unit’s maximum energy consumption level. *Id.* at 5-68. DOE’s method for establishing this equation is illustrated in the graphs below:



Id. As the graph to the left shows, DOE first plotted the analysis point on a graph measuring the relationship between a CRE unit’s CDEC and its TDA (or, in some cases, CDEC and refrigerated volume). *Id.* DOE then drew a line from the analysis point to the origin. Under the scheme contemplated by the left graph, a CRE unit would need to have a CDEC at or below that line. *Id.*

DOE originally had intended to employ this scheme in its 2009 Final Rule, but it had received comments about the effects of such an equation on smaller equipment. *Id.* As the comments pointed out, drawing a line from the origin assumed that a small CRE unit with a TDA approaching zero could consume energy at a level close to zero. *Id.* DOE therefore chose to include an “offset” factor for each class, which allowed smaller equipment to consume more energy under

the standards. *Id.* The offset “represent[s] energy consumption end effects inherent in equipment operation regardless of the size of the equipment.” *Id.* at 5-3. As shown in the graph above on the right, the offset serves as the y-intercept for the CDEC equation. *Id.* at 5-68.⁷

The resulting energy conservation standards do not compel manufacturers to use any particular components to achieve improved efficiency. Instead, as DOE explained, “should manufacturers value some features over others, they are free to use different design paths in order to attain the performance levels required.” 79 Fed. Reg. at 17,750.

DOE then considered whether its new standards were economically justified. *Id.* at 17,737. It developed five potential “trial standard levels” of energy efficiency requirements for each class and considered the costs and benefits at each level. *Id.* at 17,738, 17,803–11. DOE initially proposed that the standards be set at the second-highest level. 78 Fed. Reg. at 55,948.

⁷ NAFEM commented before the agency and submits in its brief that DOE offset factors are ill conceived because they are based on only forty-nine classes of equipment and are illogical in their structure. We have considered this submission on the basis of the briefs and have studied the record, including the engineering report compiled by DOE during its study of these standards. It is clear to us that DOE undertook a study of industry patterns, compared those patterns to the ones that it had encountered in earlier rulemaking, and concluded that the categories that it implemented were an accurate reflection of the current industry situation. NAFEM has countered with no data or other information demonstrating that DOE’s conclusion is not supported by substantial evidence or that its approach to the problem is arbitrary or capricious. Since this argument is underdeveloped by NAFEM, we see no reason for further discussion in our later analysis.

However, after the notice and comment period, DOE determined that the third-highest level “will offer the maximum improvement in efficiency that is technologically feasible and economically justified and will result in the significant conservation of energy.” 79 Fed. Reg. at 17,810.

As part of this economic analysis, DOE requested a letter on September 24, 2013 from the United States Department of Justice (“DOJ”) that would assess the rule’s anticompetitive effect. DOJ did not respond until November 25, 2013, when the Assistant Attorney General for Antitrust sent a letter to DOE. App. R.6, Admin. R.106. According to DOJ, the new rule would not have anticompetitive effects. *Id.* DOE added this letter to the record on June 17, 2014—several months after the public hearing on the rule. *See id.* DOE also published this letter in the Federal Register on July 28, 2015—over a year after the Final Rule had been published and one day before it filed its appellate brief in this case. 80 Fed. Reg. 44,892.

After receiving the DOJ letter and other sources, DOE concluded in the Final Rule, published on March 28, 2014, that the new standards would result in lower energy use and thus produce a net benefit to consumers between \$4.93 and \$11.74 billion. 79 Fed. Reg. at 17,728, 17,810. In addition, DOE noted the monetary benefits of the reductions in greenhouse gas emissions. *Id.* at 17,811. DOE then determined that the development of new CRE would cost manufacturers between \$93.9 and \$165 million. *Id.* at 17,810. DOE concluded that the benefits outweighed the costs and that the standards therefore would be economically justified. *Id.* at 17,810–11.

C. The 2014 Test Procedure Rule

The New Standards Rule noted that “[t]he test procedure amendments established in the 2012 test procedure final rule are required to be used in conjunction with the amended standards promulgated in this ... final rule.” 79 Fed. Reg. at 17,735. In that 2012 Test Procedure Rule, DOE incorporated the method for calculating the TDA of CRE required by statute. 77 Fed. Reg. 10,292, 10,318 (Feb. 21, 2012). As shown above, the maximum allowable daily energy consumption for some units is dependent on their TDA.

To measure the TDA of a CRE unit, one must take certain measurements of the unit and enter those measurements into a general equation.⁸ One of those measurements is the “Length of Commercial Refrigerated Display Merchandiser” (“L”). 79 Fed. Reg. at 22,299. Under DOE’s energy efficiency standards, “L” is directly proportional to a CRE unit’s maximum energy consumption level: the longer the display on a CRE unit, the more energy a CRE unit is allowed to consume on a daily basis. Therefore, the precise definition of “L” will impact the energy efficiency standards. However, the 2012 Test Procedure “contain[ed] no figures or illustrations instructing a user how to perform this measurement.” *Id.*

DOE issued a notice of proposed rulemaking on October 28, 2013, which proposed a clarification on the meaning of “L” in the 2012 Test Procedure Rule. 78 Fed. Reg. 64,296, 64,309–

⁸ According to DOE, $TDA = D_h \times L + A_e$. “D_h” stands for “Dimension of projected visible product.” “L” stands for “Length of Commercial Refrigerated Display Merchandiser.” “A_e” stands for “Projected area from visible product through end walls.” 79 Fed. Reg. 22,278, 22,299 (Apr. 21, 2014).

12.⁹ That definition would have corresponded to the total length of the transparent area on CRE but would have not included any opaque or non-transparent areas. *Id.* at 64,309–10. Several companies, however, submitted comments, contending that the “industry has always treated the length ‘L’ as the ‘length of the commercial refrigerated display merchandiser’ from inside wall to inside wall, disregarding the presence of non-transparent mullions¹⁰ and door frames.” 79 Fed. Reg. at 22,300.

A little less than a month after the CRE standards were published, on April 21, 2014, DOE published a CRE test procedure that clarified how energy efficiency was to be measured. *Id.* at 22,278. In light of the comments it received, DOE departed from its proposed rule and published a CRE test procedure that was “consistent with and clarifie[d] current industry practice and the existing provisions of the DOE test procedure.” *Id.* at 22,301. According to this final rule, “L” was defined “as the interior length of the CRE model, provided no more than 10 percent of that length consists of non-transparent material.” *Id.* The rule provided further clarification on measuring “L” for units where more than ten percent of the surface was not transparent. *Id.*

⁹ DOE issued this notice of proposed rulemaking *after* it issued the notice of proposed rulemaking for the New Standards Rule on September 11, 2013.

¹⁰ A mullion is the vertical bar between the panes in a window, door, or screen.

D. Petitions for Review

NAFEM timely filed a petition for review on May 23, 2014, challenging the New Standards Rule. Four days later, on May 27, 2014, AHRI and Zero Zone filed a petition similarly challenging the New Standards Rule. AHRI and Zero Zone then filed a petition challenging the 2014 Test Procedure Rule on June 19, 2014. Upon AHRI's and Zero Zone's motion, we consolidated the petitions.

II

DISCUSSION

The petitioners raise a series of procedural and substantive challenges to DOE's final rules pertaining to energy efficiency standards. We will consider, in turn, the challenges to: (1) DOE's engineering analysis; (2) DOE's economic analysis; (3) DOE's regulatory flexibility analysis, which considered the effect of the new standards on small businesses; (4) DOE's assessment of the cumulative regulatory burden; and (5) the 2014 Test Procedure Rule.

Pursuant to the Administrative Procedure Act ("APA"), we will "hold unlawful and set aside agency action, findings, and conclusions" that are:

- (A) arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law;
- (B) contrary to constitutional right, power, privilege, or immunity;
- (C) in excess of statutory jurisdiction, authority, or limitations, or short of statutory right;

(D) without observance of procedure required by law; [or]

(E) unsupported by substantial evidence in a case subject to sections 556 and 557 of this title^[11]

5 U.S.C. § 706(2). When determining whether an agency’s decision is arbitrary or capricious, we ask whether the agency

has relied on factors which Congress had not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.

Nat’l Ass’n of Home Builders v. Defs. of Wildlife, 551 U.S. 644, 658 (2007) (quoting *Motor Vehicle Mfrs. Ass’n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983)) (internal quotation marks omitted). “Substantial evidence,” we have explained, “means ‘such relevant evidence as a reasonable mind might accept as adequate to support the conclusion’” reached by the agency. *Local 65-B, Graphic Commc’ns Conference of Int’l Bhd. of Teamsters v. NLRB*, 572 F.3d 342, 347 (7th Cir. 2009) (quoting *Huck Store Fixture Co. v. NLRB*, 327 F.3d 528, 533 (7th Cir. 2003)); see also *Consol. Edison Co. v. NLRB*, 305 U.S. 197, 229 (1938) (explaining that the agency must produce “more than a mere scintilla” of evidence).

¹¹ The EPCA states that “no rule under” the statutory provisions applicable to this case “may be affirmed except by substantial evidence.” 42 U.S.C. § 6306(b)(2).

In our review, “[w]e give great deference to an agency’s predictive judgments about areas that are within the agency’s field of discretion and expertise.” *W. Fuels-Ill., Inc. v. ICC*, 878 F.2d 1025, 1030 (7th Cir. 1989) (internal quotation marks omitted); see also *Pub. Citizen, Inc. v. NHTSA*, 374 F.3d 1251, 1260–61 (D.C. Cir. 2004). “[W]hen reviewing an agency’s scientific and technical determinations, ‘a reviewing court must generally be at its most deferential.’” *Indiana v. EPA*, 796 F.3d 803, 811 (7th Cir. 2015) (quoting *Balt. Gas & Elec. Co. v. NRDC*, 462 U.S. 87, 103 (1983)). However, we also note that the Supreme Court “has stressed the importance of not simply rubber-stamping agency factfinding.” *Dickinson v. Zurko*, 527 U.S. 150, 162 (1999). Further, “[t]he reviewing court should not attempt itself to make up for ... deficiencies” in the agency’s reasoning; “we may not supply a reasoned basis for the agency’s action that the agency itself has not given.” *Motor Vehicle Mfrs. Ass’n*, 463 U.S. at 43 (quoting *SEC v. Chenery Corp.*, 332 U.S. 194, 196 (1947)).

For those of petitioners’ challenges based on the statutory language of the EPCA, our review is structured by *Chevron, U.S.A., Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837 (1984). At the first step of *Chevron* review, we ask whether Congress has spoken directly on the precise question of interpretation. *Chevron*, 467 U.S. at 842 (“If the intent of Congress is clear, that is the end of the matter ...”). When there is a statutory ambiguity, we then move to the second step of *Chevron* review and ask whether the agency’s interpretation is “arbitrary or capricious in substance.” *Mayo Found. for Med. Educ. & Research v. United States*, 562 U.S. 44, 53 (2011) (internal quotation marks omitted). As the Supreme Court has noted, this second step of *Chevron* is functionally equivalent to tradi-

tional arbitrary and capricious review under the APA. *Judulang v. Holder*, 132 S. Ct. 476, 483 n. 7 (2011). For those of petitioners' challenges based on the language of DOE regulations, we will uphold DOE's interpretations of its own regulation "unless plainly erroneous or inconsistent with the regulation." *Auer v. Robbins*, 519 U.S. 452, 461 (1997) (internal quotation marks omitted); see also *Joseph v. Holder*, 579 F.3d 827, 833 (7th Cir. 2009).¹²

¹² The Supreme Court has explained that:

Although *Auer* ordinarily calls for deference to an agency's interpretation of its own ambiguous regulation, even when that interpretation is advanced in a legal brief, see *Chase Bank USA, N.A. v. McCoy*, 562 U.S. —, —, 131 S.Ct. 871, 880, 178 L.Ed.2d 716 (2011); *Auer*, 519 U.S., at 461–462, 117 S.Ct. 905, this general rule does not apply in all cases. Deference is undoubtedly inappropriate, for example, when the agency's interpretation is "plainly erroneous or inconsistent with the regulation." *Id.*, at 461, 117 S.Ct. 905 (quoting *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 359, 109 S.Ct. 1835, 104 L.Ed.2d 351 (1989)). And deference is likewise unwarranted when there is reason to suspect that the agency's interpretation "does not reflect the agency's fair and considered judgment on the matter in question." *Auer*, *supra*, at 462, 117 S.Ct. 905; see also, e.g., *Chase Bank*, *supra*, at —, 131 S.Ct. at 881. This might occur when the agency's interpretation conflicts with a prior interpretation, see, e.g., *Thomas Jefferson Univ. v. Shalala*, 512 U.S. 504, 515, 114 S.Ct. 2381, 129 L.Ed.2d 405 (1994), or when it appears that the interpretation is nothing more than a "convenient litigating position," *Bowen v. Georgetown Univ. Hospital*, 488 U.S. 204, 213, 109 S.Ct. 468, 102 L.Ed.2d 493 (1988), or a "'post hoc rationalizatio[n]' advanced by an agency seeking to defend past agency action against attack," *Auer*, *supra*, at

A. Engineering Analysis

The New Standards Rule was based in part on a “design option” engineering analysis. 79 Fed. Reg. at 17,763. To conduct this analysis, DOE defined a hypothetical “representative unit” from each class of CRE. App. R.6, Admin. R.102 at 5-1 to 5-2. The unit displayed the characteristics of that class of CRE, *id.*, but was “toward the larger end of equipment available for that class,” *id.* at 5-68. DOE then, using an analytical model, estimated the cost to manufacturers of implementing more efficient components into that unit, as well as the “calculated daily energy consumption” that would result from implementing those components. *Id.* at 5-1 to 5-3, 5-13 to 5-41. This analysis included, for example, modeling the effect of more efficient lighting, compressors, and insulation. *Id.* at 5-13 to 5-41. From this model, DOE determined an appropriate energy consumption level for a unit of that size, *id.* at 5-2 to 5-3, and then extrapolated from those results to create an equation for determining the energy consumption level for the rest of the class, *id.* at 5-68.¹³

The petitioners raise several procedural and substantive challenges to DOE’s engineering analysis. We will discuss each in turn.

462, 117 S.Ct. 905 (quoting *Bowen, supra*, at 212, 109 S.Ct. 468; alteration in original).

Christopher v. SmithKline Beecham Corp., 132 S. Ct. 2156, 2166–67 (2012).

¹³ A more detailed explanation of the engineering analysis can be found *supra* Part I.B.

1. Notice and Comment

NAFEM contends that DOE failed to provide a meaningful opportunity for notice and comment of an “engineering spreadsheet” that compiled all the data that was used in DOE’s analysis. *See* App. R.6, Admin. R.98. Early in the promulgation of the standards rule, DOE provided two technical support documents that explained its planned analysis. App. R.6, Admin. R.2; App. R.6, Admin. R.30. On August 29, 2013—two weeks before the publication of the notice of proposed rulemaking—DOE published a more complete technical support document that further spelled out its engineering analysis and included all the relevant raw data. *See* App. R.6, Admin. R.51 at 5-1 to 5A-17. However, at that time, DOE did *not* provide the engineering spreadsheet that it used. After receiving questions about the spreadsheet at a public hearing on October 3, 2013, a DOE representative stated that DOE would make the spreadsheet publicly available. App. R.6, Admin. R.62 at 337. DOE subsequently published the spreadsheet on October 8, 2013. App. R.6, Admin. R.59. Several members of the public provided assessments of that spreadsheet in their submissions before the November 12, 2013 deadline for public comments.¹⁴ Nevertheless, NAFEM now contends that the engineering spreadsheet was not provided early enough in the process and that the spreadsheet lacks certain information.

We previously expressed “reluctan[ce] to approve a regulation where ... much of the information in support of the proposed rule was kept secret until after the hearing,” *Granite*

¹⁴ *See* App. R.6, Admin. R.65-A1 at 6; App. R.6, Admin. R.75-A1 at 4; App. R.6, Admin. R.85-A1 at 3.

City Steel Co. v. EPA, 501 F.2d 925, 927–28 (7th Cir. 1974), but we have never held that petitioners have a right to full notice and comment of the scientific data relied upon by the agency. Several of our sister circuits have held that “[a]mong the information that must be revealed for public evaluation are the technical studies and data upon which the agency relie[d].” *Chamber of Commerce v. SEC*, 443 F.3d 890, 899 (D.C. Cir. 2006) (internal quotation marks omitted); *Lloyd Noland Hosp. & Clinic v. Heckler*, 762 F.2d 1561, 1565 (11th Cir. 1985); *Wash. Trollers Ass’n v. Kreps*, 645 F.2d 684, 686 (9th Cir. 1981); *United States v. Nova Scotia Food Prods. Corp.*, 568 F.2d 240, 251–52 (2d Cir. 1977).¹⁵

This case presents no occasion for us to determine whether we ought to join these circuits. Here, an examination of the proceedings before the agency makes clear that the petitioners received adequate notice of the engineering spreadsheet. NAFEM first criticizes DOE for only providing the spreadsheet a month before final comments were due. However, NAFEM and the rest of the public had access to all of the spreadsheet’s underlying data almost three months earlier when the technical support document was published. See App. R.6, Admin. R.51 at 5-1 to 5A-17. The spreadsheet simply organized this information in a different manner. We note as well that several members of the public provided meaningful

¹⁵ Cf. *Am. Radio Relay League, Inc. v. FCC*, 524 F.3d 227, 246 (D.C. Cir. 2008) (Kavanaugh, J., concurring) (asking whether this requirement can “be squared with the text of § 553 of the APA” and *Vermont Yankee Nuclear Power Corp. v. Natural Resource Defense Council, Inc.*, 435 U.S. 519, 524 (1978)).

commentary in direct response to the spreadsheet by the November deadline.¹⁶ NAFEM received sufficient notice of the applicable data and, consequently, had adequate opportunity to comment on that spreadsheet. *See* App. R.6, Admin. R.98.

NAFEM also submits that DOE was obliged to provide a spreadsheet that could be “manipulated” to permit manufacturers to ascertain how DOE’s analysis would apply to specific products in their present or future inventories. In NAFEM’s view, DOE should have been required to provide manufacturers with the capacity to insert data about their own units into the spreadsheet, so that they could “predict how [their] individual products would perform under the same analysis.”¹⁷ According to NAFEM, it should have been possible for manufacturers to manipulate the spreadsheet to account for volumes and total display areas different from the hypothetical model actually studied by DOE.

At the most fundamental level, this contention fails because it asks the DOE spreadsheet to perform a function different from the one for which it was designed. As we have noted earlier, DOE designed the spreadsheet to calculate the efficiency level of one specific hypothetical “representative unit,” of a specific size, for each class of refrigeration equipment. App. R.6, Admin R.102 at 5-1 to 5-2. Relying on the data from its testing of the hypothetical unit, it then created a formula for determining the efficiency level of units of other sizes in the same class. *Id.* at 5-2 to 5-3. In creating that formula, DOE did *not* apply the calculations on the spreadsheet

¹⁶ *See supra* note 14.

¹⁷ NAFEM Br. at 36.

to units of differing sizes. *See id.*

In any event, if a manufacturer wanted to determine the accuracy of the calculations in the engineering spreadsheet, it could have compared the spreadsheet's results for a given type of refrigeration product to units of the same type and size in its own product line. *See* App. R.6, Admin. R.98. Moreover, if a manufacturer wished to go further and test the accuracy of DOE's overall analysis, including the results that the analysis would produce for units of varying sizes, it could have looked to the actual energy efficiency standards provided by DOE in the notice of proposed rulemaking. *See* 78 Fed. Reg. at 55,892. If the manufacturer's product, when altered to conform to the energy standards proposed by DOE, could not reach those standards, the manufacturer would have cause to believe that DOE's underlying computations on the hypothetical model could not be replicated in the real world or were otherwise faulty. Petitioners were provided with a sufficient opportunity to see and comment upon technical data. There is no basis here for our disturbing the agency's decision.

2. Compressors

We now turn to the substance of DOE's engineering analysis. As we have discussed earlier, DOE modeled the effect of different component designs on energy efficiency in order to determine a technologically feasible energy consumption level for each class of CRE. NAFEM challenges DOE's modeling of one of those components: compressors.

DOE concluded "that two levels of technology were applicable for the compressor design option:" "standard single-speed hermetic compressors" and "high-efficiency single-speed hermetic compressors." App. R.6, Admin. R.102 at 5-33.

DOE could obtain “publicly-available performance data for standard single-speed hermetic compressors.” *Id.* However, DOE pointed out, “[a]lthough several compressor manufacturers produce high-efficiency compressors, little data are currently available on their performance.” *Id.* at 5-34.

Despite this absence of data, DOE initially estimated that high-efficiency compressors could achieve an efficiency level that was ten percent above the standard level. 79 Fed. Reg. at 17,760. According to the technical support document that was provided alongside the notice of proposed rulemaking, “DOE developed this multiplier through its own research, consultation with outside experts, and verification through discussion with commercial refrigeration equipment manufacturers.” App. R.6, Admin. R.51 at 5-30; *see also* App. R.6, Admin. R.62 at 71 (“A general market-vetted, industry-vetted assumption of a ten percent improvement in compressor EER being feasible across the board at a five percent cost premium was used based on the input that we got from the industry.”). However, subsequent comments from several manufacturers persuaded DOE to abandon its optimism and to expect lower performance during the compliance period. Several manufacturers suggested there could only be meager product improvement on the basis of present technology, and one manufacturer, the Danfoss group, suggested that only a two percent improvement in efficiency was realistic. 79 Fed. Reg. at 17,760. Accordingly, DOE estimated that a switch to high-efficiency compressors would yield energy savings only two percent above the standard model. *Id.*

This revision was not an “eyeball guesstimate.” In altering its decision, DOE had the benefit of its earlier research as well

as the commentary of the manufacturers. It therefore was confronted with significant warning that the state of the technology made its earlier estimation unrealistic. In short, the primary purpose of the notice and comment period functioned as it should have, and the agency was apprised of responsible opinions contrary to its own. “[A]n agency’s change of course, so long as generally consistent with the tenor of its original proposals, indicates that the agency treats the notice-and-comment process seriously, and is willing to modify its position where the public’s reaction persuades the agency that its initial regulatory suggestions were flawed.” *Am. Med. Ass’n v. United States*, 887 F.2d 760, 767 (7th Cir. 1989).¹⁸

We also cannot fault DOE for placing significant weight on the view of the Danfoss group that “it would be reasonable to assume either continued use of efficient compressors available today, or alternatively a 1% to 2% efficiency improvement.” App. R.6, Admin. R.61-A1 at 2; 79 Fed. Reg. at 17,760. The agency had a basis for considering this manufacturer to be a major supplier of CRE and one with significant institutional experience.¹⁹ Moreover, in its letter, Danfoss stated its

¹⁸ See also *Kern Cty. Farm Bureau v. Allen*, 450 F.3d 1072, 1076 (9th Cir. 2006).

¹⁹ NAFEM relatedly claims that DOE should have provided the public with an opportunity to respond to the Danfoss comment. We cannot accept this argument. “[T]he public gets to comment on the proposed rules, not on the agency’s response to earlier public comments.” *Nat. Res. Def. Council v. Jackson*, 650 F.3d 662, 666 (7th Cir. 2011). We would only entertain such an argument if “the revisions materially change the text, adding features that the commentators could not have anticipated.” *Id.* Here, DOE initially proposed that some compressors could achieve an efficiency level that was *ten percent higher* than the standard compressor. The public clearly was on notice that DOE might issue a rule which assumed that

belief that the compressor technology available was “mature.” App. R.6, Admin. R.61-A1 at 2. DOE therefore could conclude that product development on the basis of “existing technologies,” 79 Fed. Reg. at 17,767, could be expected to be very slow during the compliance period. Relying on present technology would yield marginal improvement in compressor performance.

NAFEM nevertheless submits that the two percent increase is inconsistent with DOE’s statement in the final rule “that existing technologies should be the basis of its engineering analysis.” *Id.* We believe that is an uncharitable and unrealistic reading of the administrative record in its entirety. DOE simply concluded that the current state of the technology, including the increased use of high-efficiency compressors, would yield at least an incremental improvement. Such an incremental improvement “reflect[s] the options available to manufacturers of commercial refrigeration equipment.” *Id.* at 17,760. DOE’s decision may be questionable in the minds of some, but its decision is supported by substantial evidence and was reached through a reasoned decisionmaking process. “[O]ur role is limited; we require only that the agency acknowledge factual uncertainties and identify the considerations it found persuasive.” *Rural Cellular Ass’n v. FCC*, 588 F.3d 1095, 1105 (D.C. Cir. 2009).

3. Insulation Foam Thickness

The petitioners also submit that DOE acted arbitrarily and capriciously when it modeled another component: insulation. DOE explained that increasing insulation foam thickness by a

compressors could achieve an efficiency level that was *two percent higher* than the standard model.

half-inch was a viable design option for eight primary equipment classes of CRE. 79 Fed. Reg. at 17,749; App. R.6, Admin. R.102 at 5-43 to 5-67. However, the petitioners contend that increasing insulation is not an available design option because the “footprint” of a refrigerator or freezer is sometimes fixed due to limited floor space. In their view, increasing insulation either will decrease a unit’s internal volume (which could prevent the storage of industry-standard sheets and pans at restaurants) or will increase its external dimensions (which could lead to narrower walkways and restrict the ability to move CRE units through doorways).

In promulgating the final rule, however, DOE explained that it had conducted manufacturer interviews during the rulemaking period and that the manufacturers had agreed that an extra half-inch of insulation was feasible. 79 Fed. Reg. at 17,749–50. DOE also noted that a number of models currently on the market were already using this thickness of insulation, which suggested that a product with this thickness of insulation was useful and marketable to consumers. *Id.* at 17,750. “DOE believe[d] that this serves as a proof of concept and that the resulting changes ... would be of minimal impact to end users.” *Id.* We must conclude that DOE’s investigation of the situation clearly justifies its conclusion. The determination is supported by substantial evidence and certainly cannot be characterized as arbitrary and capricious.

Moreover, in promulgating the rule, DOE stated explicitly that manufacturers were “free to use different design paths in order to attain the performance levels required by today’s rule,” should they decide that increasing the thickness of insulation would not be a viable option for some of their consumers. *Id.* DOE noted, for example, that if a manufacturer

determines that adding insulation is not a possible or desirable way to enhance energy performance, the manufacturers can instead implement enhanced evaporator coils, high-efficiency reciprocating compressors, and more effective vacuum insulated panels. *See* App. R.6, Admin. R.102 at 5-27, 5-32 to 5-34.

The petitioners point out that these recommended alternatives are not viable options for at least one class of CRE. *See id.* at 5-51, 10B-3 (describing the available design options for horizontal self-contained freezers without doors). They also contend that, for other classes, alternatives such as evaporator coils can result in frost buildup; that high-efficiency reciprocating compressors are noisy, expensive, and unreliable; and that vacuum insulated panels are prohibitively expensive. Even if these design options have their faults, however, they are still alternative solutions that manufacturers can choose in order to increase energy efficiency for the vast majority of CRE units. That one energy-saving solution is not feasible in one class of CRE does not prevent DOE from including it among the energy-saving devices that might be employed by the industry as a whole. Similarly, drawbacks in the other energy-saving devices do not prevent DOE from concluding that, for units in other classes, the industry may have to settle for a less-than-optimum situation to achieve the necessary conservation goals. In short, DOE was on solid ground in concluding that increasing the thickness of insulation was a feasible design option. That conclusion is worthy of deference.

AHRI and Zero Zone also contend that DOE acted capriciously by failing to address directly a comment submitted by AHRI during the rulemaking process. *See* App. R.6, Admin. R.75 at 5. The comment noted that the estimated costs related

to improving the insulation of CRE were dramatically different from DOE's estimated costs of insulation in 2009. *Id.* We believe that DOE's response was entirely reasonable. It explained in the final rule that it "estimated the conversion costs associated with increases in foam thickness based on direct input from the industry in interviews, as well as through analysis of production equipment that is part of the engineering cost model." 79 Fed. Reg. at 17,775. The analysis, DOE noted, "included capital conversion costs, including ... tooling costs and production line upgrades, and product conversion costs, including redesign efforts, testing costs, industry certifications, and marketing changes." *Id.* DOE's conclusions were based on *new* data; there was no reason to provide further justification for departing from the estimates it had made in 2009. There was a solid basis for DOE's determination. It was based on substantial evidence and can hardly be characterized as arbitrary or capricious.

4. Validation

Finally, the petitioners contend broadly that DOE's engineering analysis is not based on real-world application and therefore must be verified by testing actual equipment. This submission is governed by some basic principles. "That a model is limited or imperfect is not, in itself, a reason to remand agency decisions based upon it." *Appalachian Power Co. v. EPA*, 249 F.3d 1032, 1052 (D.C. Cir. 2001); *see also In re Polar Bear Endangered Species Act Listing & Section 4(d) Rule Litig.—MDL No. 1993*, 709 F.3d 1, 13 (D.C. Cir. 2013). Rather, we will remand only if the model "bears no rational relationship to the reality it purports to represent" or if the agency fails to

“provide a full analytical defense” when the model is challenged. *Columbia Falls Aluminum Co. v. EPA*, 139 F.3d 914, 923 (D.C. Cir. 1998) (internal quotation marks omitted).

Our previous discussions go a long way toward answering this broad-brush assault on DOE’s general manner of proceeding. As we have demonstrated throughout our earlier discussion, DOE provided a complete analytical defense to each of the challenges that were raised during the notice and comment period. Our review of the record gives us a high level of confidence that DOE was fully aware of the inherent difficulties of formulating regulations for real-world situations on the basis of a model. DOE correctly noted that “[i]nputs to the model included data from tangible sources such as manufacturer literature, manufacturer interviews, production facility tours, reverse engineering and teardown of existing products on the market, and tests of commercial refrigeration equipment and components.” 79 Fed. Reg. at 17,763. DOE explained that its present analytical model was consistent with models used in at least three other final rules—including the 2009 CRE Standards Rule. *Id.* Indeed, in many respects, this process can be characterized as a continuing dialogue with the industry before the backdrop of DOE’s earlier regulations.

The petitioners nevertheless contend that DOE acted arbitrarily and capriciously by failing to test its conclusions against a full range of actual CRE equipment. As an initial matter, we note that an agency need not “justify [its] model on an *ad hoc* basis for every [unit] to which the model is applied.” *Columbia Falls Aluminum Co.*, 139 F.3d at 923 (quoting *Chemical Mfrs. Ass’n v. EPA*, 28 F.3d 1259, 1265 (D.C. Cir.

1994)). In any event, DOE performed validation testing on a representative sample of units:

In response to the comments ... that DOE perform validation testing to confirm the veracity of its model, at the final rule stage DOE procured a number of commercial refrigeration units currently on the market, including high-performance units featuring advanced designs. It gathered physical test data on each unit from certification directories and, in some cases, from independent laboratory tests conducted by DOE on the units. DOE then performed physical teardowns and inspection of the units to quantify the features and design attributes included in each model. Then, DOE used this empirically-determined data as inputs into its engineering model, allowing the model to simulate these specific manufacturer models as closely as possible. The results showed good alignment between the model outputs and the physical test results across a range of equipment classes and efficiencies, validating the abilities of the model.

79 Fed. Reg. at 17,763; *see also* App. R.6, Admin. R.102 at 5-40 to 5-41 (“The results of the energy consumption model were compared against the performance data gathered through testing or certification, and the two showed sound agreement, with the energy consumption model generally being slightly conservative (modeling the units as using slightly more energy than they consumed as tested).”). Further, “DOE utilized information from the ENERGY STAR and California Energy

Commission appliance databases as a point of comparison to its engineering analysis results.” 79 Fed. Reg. at 17,763 (footnotes omitted). Although DOE did not provide data or further details of its validation testing, DOE did publish the web addresses for the appliance databases, which included the “certified data” that “DOE compared its results against ... as a check.” *Id.*

This is not a close call. We are convinced that DOE’s engineering analysis, including its use of an analytical model, was neither arbitrary nor capricious.

B. Economic Analysis

The EPCA requires that efficiency standards be “economically justified.” 42 U.S.C. § 6295(o)(2)(A). In addressing this statutory mandate, DOE established five different “trial standard levels,” and determined which “level” would be economically and technologically feasible. *See* 79 Fed. Reg. at 17,738, 17,803. It originally proposed that the benefits of the second-highest level of standards would outweigh the costs. 78 Fed. Reg. at 55,948. After receiving public comment, it determined that the third-highest level would be more appropriate. 79 Fed. Reg. at 17,810. DOE concluded that this level of standards would produce a net benefit to consumers between \$4.93 and \$11.74 billion and reduce greenhouse gas emissions. *Id.* at 17,728–29, 17,780–11. Conversely, the new standards would cost manufacturers between \$93.9 and \$165 million. *Id.* at 17,795–96. DOE determined therefore that the standards were justified. *Id.* at 17,810–11. The petitioners fault DOE’s economic analysis in several ways. We now address each of those arguments.

1. Elasticity

The petitioners first contend that DOE acted arbitrarily and capriciously when it assumed that the new standards would not result in significant changes in purchasing behavior. DOE essentially treated CRE as “price inelastic,” meaning that an increase in the price of CRE would not impact the amount of CRE purchased. *See* 79 Fed. Reg. at 17,770. The petitioners object to that assumption, noting that consumers could refurbish used equipment or switch to cheaper, less-efficient models of CRE.

Our review of the record convinces us that DOE’s consideration of this issue was certainly more balanced and careful than the petitioners suggest. DOE explained in the New Standards Rule that it “did not have enough information on CRE customer behavior to explicitly model” the effects of the new standards on demand, and therefore it had to make a prediction about the market for CRE. *Id.*²⁰ In its technical support document, DOE reasoned:

In general, when the data are available[,] DOE incorporates a purchase price elasticity into the shipments model. This allows for the possibility that total shipments will fall under a standard, due to a rise in the first cost of the equipment. For commercial refrigeration equipment, DOE

²⁰ DOE made clear, during a public hearing, that more information was needed to measure price elasticity, and told industry leaders that “if you can supply that information, then we can incorporate that into our models.” App. R.6, Admin. R.62 at 220–21. That information was never provided. 79 Fed. Reg. at 17,770.

did not have access to any data that would allow the estimation of purchase price elasticities. Therefore the total shipments in the standards case scenarios are the same as the total shipments in the base case scenario. As most users of this equipment are subject to health codes and other regulations, it is not very likely that a business owner would forego the purchase of needed equipment even under a price increase. Price sensitivity is more likely to occur in the form of increased equipment lifetimes. However, equipment lifetimes for food sales and service are driven primarily by the remodeling cycle, and so are unlikely to be affected on the average by a standard.

App. R.6, Admin. R.102 at 9-8 to 9-9.

DOE's analysis hardly is arbitrary and capricious. A business must store food at a proper temperature in order to comply with health code regulations. Consequently, in DOE's view, restaurants and other businesses will purchase CRE regardless of its price. A refrigerator cannot easily be substituted. DOE reasonably concluded that CRE is a "necessity" for restaurants and other businesses, which makes demand relatively inelastic.²¹ That conclusion is worthy of our deference.

²¹ See *Crystal Semiconductor Corp. v. TriTech Microelects. Int'l, Inc.*, 246 F.3d 1336, 1359 (Fed. Cir. 2001) ("[I]f substitution of a product were impossible and the product were a necessity, elasticity of demand would be zero ...").

The petitioners note that businesses could refurbish used equipment and that this ability to “substitute” proves that the market for CRE is elastic. Indeed, in the New Standards Rule, “DOE acknowledge[d] that increases in price due to amended standards *could* lead to more refurbishing of equipment (or purchase of used equipment).” 79 Fed. Reg. at 17,770 (emphasis added). DOE simply decided “that the extent of refurbishing would not be so significant as to change the ranking of the [trial standard levels] considered for today’s rule.” *Id.* DOE has the authority “to make such a prediction about the market it regulates, and a reasonable prediction deserves our deference notwithstanding that there might also be another reasonable view.” *Envtl. Action, Inc. v. FERC*, 939 F.2d 1057, 1064 (D.C. Cir. 1991); see also *White Eagle Coop. Ass’n v. Conner*, 553 F.3d 467, 475 (7th Cir. 2009).

The petitioners also suggest that businesses could switch to more affordable and less efficient CRE. The trend in the CRE market has been towards more efficient “closed” equipment with transparent doors and away from “open” equipment that does not have doors. See 79 Fed. Reg. at 17,770. The petitioners contend that the new standards will reverse that trend, as closed equipment will lose its utility. DOE acknowledged this concern in the New Standards Rule. DOE pointed out that at least one manufacturer “had not observed a reversal of the trend toward closed units in response to previous efficiency standards.” *Id.* DOE also responded to one of the stakeholders’ major concerns that the use of triple-pane coated glass would reduce the visibility of objects in a CRE unit and thus decrease the utility of a closed unit. *Id.* DOE explained that the new standards “do not require triple-pane coated glass.” *Id.* DOE thus concluded that the new standards

would not reverse the consumer trend toward closed equipment. *Id.*

Without evidence that contradicts DOE's assumptions, we cannot conclude that DOE's conclusions were "so implausible that it could not be ascribed to a difference in view or the product of agency expertise." *Nat'l Ass'n of Home Builders*, 551 U.S. at 658 (internal quotation marks omitted); *see also USA Grp. Loan Servs., Inc., v. Riley*, 82 F.3d 708, 714 (7th Cir. 1996); *W. Fuels-III., Inc.*, 878 F.2d at 1030. The petitioners have failed to show that DOE acted arbitrarily or capriciously when it determined that CRE was price inelastic.

2. Environmental Benefits

DOE considered the environmental benefits of the amended standards when determining whether the New Standards Rule was "economically justified." 79 Fed. Reg. at 17,738. In particular, DOE employed "an estimate of the monetized damages associated with an incremental increase in carbon emissions in a given year," known as the Social Cost of Carbon ("SCC"). *Id.* at 17,777.²² The petitioners contend that the EPCA does not allow DOE to consider environmental factors and that DOE abused its discretion when it considered them. In the alternative, the petitioners contend that DOE's analysis of the SCC was itself arbitrary and capricious.

We turn first to DOE's statutory authority under the EPCA. An agency decision is arbitrary and capricious when

²² The estimate "include[s] (but is not limited to) changes in net agricultural productivity, human health, property damages from increased flood risk, and the value of ecosystem services." 79 Fed. Reg. at 17,777.

the agency “has relied on factors which Congress had not intended it to consider.” *Nat’l Ass’n of Home Builders*, 551 U.S. at 658 (internal quotation marks omitted). Here, however, the EPCA specifically *requires* DOE to consider “the need for national energy ... conservation.” 42 U.S.C. § 6295(o)(2)(B)(i)(VI). In the New Standards Rule, DOE explained that the “Need of the Nation to Conserve Energy” includes the “potential environmental benefits” which would result. 79 Fed. Reg. at 17,738 (citing the Rule’s subsection on SCC). To determine whether an energy conservation measure is appropriate under a cost-benefit analysis, the expected reduction in environmental costs needs to be taken into account.²³ We have no doubt that Congress intended that DOE have the authority under the EPCA to consider the reduction in SCC.²⁴

Alternatively, AHRI and Zero Zone contend that DOE’s calculation of SCC was irredeemably flawed. They submit that DOE failed to address three concerns about these calculations raised by the Chamber of Commerce in a letter during

²³ This argument is highlighted by an amicus brief submitted by the Institute for Policy Integrity at New York University School of Law. The petitioners argue that we should strike the amicus brief from the record. That motion is denied.

²⁴ Although we need not reach these questions today, DOE probably also had the authority to consider environmental benefits under 42 U.S.C. § 6295(o)(2)(B)(i)(I), which allows the agency to consider “the economic impact of the standard on the manufacturers and on the consumers of the products subject to such standard.” Environmental benefits have an economic impact. Further, DOE would have the authority to consider environmental benefits under 42 U.S.C. § 6295(o)(2)(B)(i)(VII), which allows DOE to consider “other factors the Secretary considers relevant.”

the notice and comment period. *See* App. R.6, Admin. R.79-A2.²⁵ That letter complained that: (1) who exactly worked on the SCC analysis had not been made public, *id.* at 5–7; (2) the inputs to the models were not peer reviewed, *id.* at 7–9; and (3) the “damages functions,” or variables based on problems like sea level rise, were determined in an arbitrary manner, *id.* at 12. DOE responded to the letter in general, noting that it “acknowledge[d] the limitations in the SCC estimates.” 79 Fed. Reg. at 17,779. DOE then referenced letters from multiple parties that supported the SCC values, a 2010 interagency group report on the discount rates used, and the OMB’s Final Information Quality Bulletin for Peer Review. *Id.* Although DOE did not respond to the specific points laid out in the Chamber of Commerce letter, it did respond to the Chamber of Commerce’s general concerns and made clear that, despite those concerns, the calculation of SCC could be used. *See St. James Hosp. v. Heckler*, 760 F.2d 1460, 1469 (7th Cir. 1985). DOE’s determination of SCC was neither arbitrary nor capricious.

3. Cost-Benefit Analysis

The petitioners raise a series of objections to DOE’s general approach to weighing the costs and benefits of its new standards. In their view, DOE’s analysis overestimated the benefits of the new rule and underestimated its costs.

²⁵ AHRI and Zero Zone frame this issue as a violation of the Information Quality Act. *See* 44 U.S.C. § 3516 note (a). However, “almost every court that has addressed an Information Quality Act challenge has held that the statute ‘creates no legal rights in any third parties.’” *Miss. Comm’n on Envtl. Quality v. EPA*, 790 F.3d 138, 184 (D.C. Cir. 2015) (quoting *Salt Inst. v. Leavitt*, 440 F.3d 156, 159 (4th Cir. 2006)). That being said, the APA still affords the petitioners the right to bring this challenge.

The petitioners first contend that DOE arbitrarily considered indirect *benefits* like carbon reduction over hundreds of years but ignored indirect *costs* like the long-term effects on displaced workers. DOE fully responded to that objection in the New Standards Rule:

AHRI stated that DOE calculates the present value of the costs of standards to consumers and manufacturers over a 30-year period, but the SCC values reflect the present value of future climate related impacts well beyond 2100. AHRI stated that DOE's comparison of 30 years of cost to hundreds of years of presumed future benefits is inconsistent and improper. (AHRI, No. 84 at p.12)

For the analysis of national impacts of the proposed standards, DOE considered the lifetime impacts of equipment shipped in a 30-year period. With respect to energy and energy cost savings, impacts continue past 30 years until all of the equipment shipped in the 30-year period is retired. With respect to the valuation of CO₂ emissions reductions, the SCC estimates developed by the interagency working group are meant to represent the full discounted value (using an appropriate range of discount rates) of emissions reductions occurring in a given year. DOE is thus comparing the costs of achieving the emissions reductions in each year of the analysis, with the carbon reduction value of the emissions reductions in those same years. Nei-

ther the costs nor the benefits of emissions reductions outside the analytic time frame are included in the analysis.

79 Fed. Reg. at 17,779. DOE further explained in the technical support document that these standards “should lead to upward pressure on wages and a shift in employment away from electricity generation towards consumer goods. Note that in long-run equilibrium there is no net effect on total employment since wages adjust to bring the labor market into equilibrium.” App. R.6, Admin. R.102 at 16-3.²⁶ DOE therefore found that the reduction of carbon over thirty years would have long-term effects on the environment but that the increased costs over thirty years would not have long-term effects on employment. The petitioners may disagree with the merits of DOE’s conclusion, but DOE’s analysis is neither arbitrary nor capricious.

AHRI and Zero Zone next contend that DOE arbitrarily considered the *global* benefits to the environment but only considered the *national* costs. They emphasize that the EPCA only concerns “national energy and water conservation.” 42 U.S.C. § 6295(o)(2)(B)(i)(VI). In the New Standards Rule, DOE did not let this submission go unanswered. It explained that climate change “involves a global externality,” meaning that carbon released in the United States affects the climate of the entire world. 79 Fed. Reg. at 17,779. According to DOE, national energy conservation has global effects, and, therefore, those global effects are an appropriate consideration when looking at a national policy. *Id.* Further, AHRI and Zero Zone

²⁶ See also 79 Fed. Reg. at 17,780 (referring to this section of the technical support document).

point to no global costs that should have been considered alongside these benefits. Therefore, DOE acted reasonably when it compared global benefits to national costs.

Finally, AHRI and Zero Zone criticize DOE's determination of discount rates for CRE in its cost estimate. DOE used the "Capital Asset Pricing Model" ("CAPM") to estimate the cost of equity financing. The CAPM assumes that the cost of equity is proportional to the amount of systemic risk of failure associated with a company. The model therefore estimates the overall risks and returns for all of a firm's capital, rather than the risks and returns associated with one specific asset. The petitioners, however, believe that DOE should have used a model specific to the risks and returns of CRE. They contend that DOE did not adequately respond to a comment from the Mercatus Center at George Mason University, which urged DOE to adopt an analysis of capital costs that was particular to CRE.²⁷ However, DOE addressed the Mercatus comment in the New Standards Rule in sufficient detail:

The cost of capital is commonly used to estimate the present value of cash flows to be derived from a typical company project or investment, and the CAPM is among the most widely

²⁷ Specifically, the Mercatus comment urged that a more particularized model was appropriate because (1) CRE has a higher depreciation rate than other products (meaning it will decrease in value quicker), and (2) CRE has a lower salvage value than other products (meaning that it cannot be resold as easily). App. R.6, Admin. R.72-A1 at 2-3. If CRE decreases in value at a faster rate than the average product, and if CRE cannot be resold as easily as the average product, then a company may be less willing to purchase CRE at a higher price than other products at a higher price.

used models to estimate the cost of equity financing. The types of risk mentioned by Mercatus may exist, but the cost of equity financing tends to be high when a company faces a large degree of systemic risk, and it tends to be low when the company faces a small degree of systemic risk. DOE's approach estimates this risk for the set of companies that could purchase [CRE].

Id. at 17,767. DOE considered the point and concluded that the cost of equity financing is commonly determined at the firm-wide level rather than unit-by-unit. *Id.* Therefore, the CAPM provided an appropriate estimate of the cost of equity financing. DOE's choice of economic model was neither arbitrary nor capricious.²⁸

4. Anticompetitive Effects

The petitioners contend that DOE's consideration of anti-competitive effects was both substantively and procedurally arbitrary and capricious. In its cost-benefit analysis, DOE

²⁸ When discussing the Mercatus comment, AHRI and Zero Zone also contend that DOE was required to identify a "market failure" that justified the amended efficiency standards. AHRI Br. 30; AHRI Reply Br. 22. The petitioners rely on *Schurz Commc'ns, Inc. v. FCC*, 982 F.2d 1043 (7th Cir. 1992) for this proposition. In *Schurz*, however, the agency had previously ruled that it could "not intervene in the market except where there is evidence of a market failure." *Id.* at 1053 (internal quotation marks omitted). The agency therefore was bound by its previous ruling. *Id.* Here, the EPCA merely requires DOE to promulgate standards which are "technologically feasible and economically justified." 42 U.S.C. § 6295(o)(2)(A). The petitioners point to no statute or agency rule that requires DOE to identify a market failure. Therefore, their argument is without merit.

must consider the anticompetitive effects of its proposed rule “as determined in writing by the Attorney General.” 42 U.S.C. § 6295(o)(2)(B)(i)(V). Pursuant to this provision, the Assistant Attorney General for the Antitrust Division, acting on behalf of the Attorney General, sent DOE a letter (the “DOJ letter”). The letter stated that “the proposed energy conservation standards for commercial refrigeration equipment [we]re unlikely to have a significant adverse impact on competition.” 80 Fed. Reg. at 44,892. DOE relied on this letter in the New Standards Rule and considered the Attorney General’s determination in its cost-benefit analysis. 79 Fed. Reg. at 17,803. The petitioners contend that the DOJ letter does not articulate adequately the reasoning behind the Attorney General’s determination. They also contend that both the DOJ letter’s submission to DOE and its publication to the Federal Register were untimely.

As originally enacted, the EPCA instructed the rulemaking agency (then the FEA, now DOE) to consider anticompetitive effects in its cost-benefit analysis. Pub. L. No. 94-163, § 325, 89 Stat. at 924–25.²⁹ However, the rulemaking agency

²⁹ The EPCA originally read:

(D) For purposes of subparagraph (B), improvement of energy efficiency is economically justified if it is economically feasible the benefits of reduced energy consumption, and the savings in operating costs throughout the estimated average life of the covered product, outweigh—

...

(iii) any negative effects on competition.

was not given the authority to determine anticompetitive effects on its own. Instead, only the Attorney General could determine the extent of a regulation's impact on competition. § 625, 89 Stat. at 925. The Attorney General would only make such a determination "on request of the Administrator, the Commission, or any person, or on his own motion." *Id.* If the Attorney General decided not to submit a letter with his or her assessment of anticompetitive effects, then the agency could not consider anticompetitive effects at all.

Three years after the EPCA's enactment, these clauses were amended to their current form. Pub. L. No. 95-619, § 422, 92 Stat. at 3259–60. Under the EPCA as amended, the Attorney General always makes a determination about a proposed rule's anticompetitive effects.³⁰ That determination is submit-

(E) For purposes of subparagraph (D)(iii), the Administrator shall not determine that there are any negative effects on competition, unless the Attorney General (on request of the Administrator, the Commission, or any person, or on his own motion) makes such determination and submits it in writing to the Administrator, together with his analysis of the nature and extent of such negative effects. The determination of the Attorney General shall be available for public inspection.

Energy Policy and Conservation Act, Pub. L. No. 94-163, § 325, 89 Stat. 871, 924–25 (1975).

³⁰ According to the EPCA:

(i) In determining whether a standard is economically justified, the Secretary shall, after receiving views and comments furnished with respect to the proposed standard, determine whether the benefits of the standard exceed its

ted to DOE within sixty days of the publication of the proposed rule. 42 U.S.C. § 6295(o)(2)(B)(ii). DOE must then consider the “lessening of competition, as determined in writing by the Attorney General,” in its overall cost-benefit analysis. *Id.* § 6295(o)(2)(B)(i)(V). DOE then publishes the letter in the Federal Register. *Id.* § 6295(o)(2)(B)(ii). Just like its predecessor, the amended EPCA does not grant DOE the authority to alter DOJ’s conclusions or to determine anticompetitive effects on its own.

The petitioners contend that the DOJ letter provided insufficient reasoning and that DOE therefore erred in relying on this letter. We cannot accept this argument. DOE’s reliance on the DOJ letter was clearly consistent with its secondary

burdens by, to the greatest extent practicable, considering—

...

(V) the impact of any lessening of competition, as determined in writing by the Attorney General, that is likely to result from the imposition of the standard;

...

(ii) For purposes of clause (i)(V), the Attorney General shall make a determination of the impact, if any, of any lessening of competition likely to result from such standard and shall transmit such determination, not later than 60 days after the publication of a proposed rule prescribing or amending an energy conservation standard, in writing to the Secretary, together with an analysis of the nature and extent of such impact. Any such determination and analysis shall be published by the Secretary in the Federal Register.

42 U.S.C. § 6295(o)(2)(B).

role under this provision of the EPCA. DOE's statutory duty under the EPCA is to defer to the Attorney General. The New Standards Rule makes clear that DOE acted in complete accordance with the statute:

EPCA directs DOE to consider any lessening of competition that is likely to result from standards. It also directs the Attorney General of the United States (Attorney General) to determine the impact, if any, of any lessening of competition likely to result from a proposed standard and to transmit such determination to the Secretary within 60 days of the publication of a proposed rule and simultaneously proposed rule, together with an analysis of the nature and extent of the impact. (42 U.S.C. 6295(o)(2)(B)(i)(V) and (B)(ii)) To assist the Attorney General in making a determination for CRE standards, DOE provided the Department of Justice (DOJ) with copies of the [notice of proposed rulemaking] and the [technical support document] for review. DOE received no adverse comments from DOJ regarding the proposal.

79 Fed. Reg. at 17,803. DOE did exactly what the EPCA instructs. Once it published the notice of proposed rulemaking, it awaited the Attorney General's assessment of the effect on competition. In fact, DOE provided the Attorney General with additional information—in a technical support document—so that it could receive a more informed determination. After reviewing this document, the transcript of the public meeting, and other “supplementary information,” DOJ provided a response that articulated enough information to

allow DOE to adequately consider anticompetitive effects. *See* 80 Fed. Reg. at 44,892. DOE then considered this “relevant factor[,],” among the other statutory factors, in its cost-benefit analysis. *Citizens to Preserve Overton Park v. Volpe*, 401 U.S. 402, 416 (1971); *see also* 42 U.S.C. § 6295(o)(2)(B)(i)(V). Under the EPCA, DOE could do no more. We are convinced that DOE’s approach was neither arbitrary nor capricious. *Motor Vehicle Mfrs. Ass’n*, 463 U.S. at 43.

We must also determine whether the submission and publication of the DOJ letter were “without observance of procedure required by law.” 5 U.S.C. § 706(2)(D). AHRI and Zero Zone contend that the DOJ letter was submitted to DOE after the EPCA’s deadline. They also contend that the DOJ letter was untimely published in the Federal Register.

Under the EPCA, the Attorney General is required to submit its letter “not later than 60 days after the publication of a proposed rule.” 42 U.S.C. § 6295(o)(2)(B)(ii). However, the Assistant Attorney General for Antitrust did not respond to DOE until 75 days after the notice of proposed rulemaking. 80 Fed. Reg. at 44,892. Although DOJ erred when it submitted the letter fifteen days late, the error was harmless. “[D]ue account shall be taken of the rule of prejudicial error.” 5 U.S.C. § 706. “[I]f we are sure that the agency would if we remanded the case reinstate its decision—if in other words the error in its decision was harmless—a reversal would be futile” *People of the State of Ill. v. ICC*, 722 F.2d 1341, 1348 (7th Cir. 1983); *see also Spiva v. Astrue*, 628 F.3d 346, 353 (7th Cir. 2010). Further, “[w]e will not invalidate [an agency] decision based on procedural error unless the errors alleged could have affected the outcome.” *Zevallos v. Obama*, 793 F.3d 106, 115 (D.C. Cir. 2015). The DOJ letter was submitted on November 25,

2013. *See* 80 Fed. Reg. at 44,892. The final rule was not published until several months later, on March 28, 2014. 79 Fed. Reg. at 17,726. DOE had enough time to consider fully the Attorney General’s determination of anticompetitive effects and to factor that determination into its cost-benefit analysis. Indeed, DOE fully considered the DOJ letter in its final rule. *Id.* at 17,803.

The petitioners note that the DOJ letter was submitted thirteen days after the period for public comment had closed; the public therefore was denied the opportunity to respond to the Attorney General’s analysis. However, this lack of time for public comment does not render the procedural error harmful. Under the EPCA, the notice and comment period shall last “not less *than 60 days*” after publication of the notice of proposed rulemaking. 42 U.S.C. § 6295(p)(2) (emphasis added). However, the DOJ must submit its letter within sixty days of the publication of the notice of proposed rulemaking. *Id.* § 6295(o)(2)(B)(ii). Had Congress intended the public to have the opportunity to respond to the DOJ letter, it would have imposed its deadline for submission of the letter *before* the end of any notice and comment period. Instead, Congress imposed a deadline that ensured DOE—but not necessarily the public—had enough time to consider the letter. We are convinced that this procedural error did not impair DOE’s ability to consider anticompetitive effects and we will not reverse on this basis.

The EPCA also states that “[a]ny such determination and analysis shall be published by the Secretary in the Federal Register.” *Id.* Here, DOE did not publish the DOJ letter until July 28, 2015, which the petitioners contend was untimely.

However, the EPCA does not impose a deadline for publication. In the absence of any statutory language imposing such a requirement, we cannot hold that the delayed publication of this letter was “without observance of procedure required by law.” 5 U.S.C. § 706(2)(D).

C. Regulatory Flexibility Analysis

The petitioners’ concerns about the New Standards Rule’s anticompetitive effects also were addressed, in part, by DOE’s discussion of the standards’ impact on small businesses. The Regulatory Flexibility Act (“RFA”), 5 U.S.C. § 601 *et seq.*, requires agencies to assess the effect of their rules on small entities. Under the RFA, “[w]hen an agency promulgates a final rule under section 553 of this title, ... the agency shall prepare a final regulatory flexibility analysis.” 5 U.S.C. § 604(a). Accordingly, DOE included such an analysis in its final rule. 79 Fed. Reg. at 17,812–14. In that analysis, DOE acknowledged that “[s]mall firms would likely be at a disadvantage,” but it determined that no alternative program would be viable. *Id.* at 17,814.

The petitioners contend that DOE’s final regulatory flexibility analysis failed to comply with the RFA. The RFA requires a final regulatory flexibility analysis to include, in relevant part:

[A] description of the steps the agency has taken to minimize the significant economic impact on small entities consistent with the stated objectives of applicable statutes, including a statement of the factual, policy, and legal reasons for selecting the alternative adopted in the final

rule and why each one of the other significant alternatives to the rule considered by the agency which affect the impact on small entities was rejected.

5 U.S.C. § 604(a)(6). At the outset, we note that “the Act does not require rules that are less burdensome for small businesses;” it instead requires that “agencies ... explain why any such alternatives were rejected.” *Council for Urological Interests v. Burwell*, 790 F.3d 212, 226 (D.C. Cir. 2015). When reviewing an agency’s compliance with the RFA, we ask whether the agency’s analysis “demonstrat[es] a ‘reasonable, good-faith effort to carry out [the RFA’s] mandate.’” *U.S. Cellular Corp. v. FCC*, 254 F.3d 78, 88 (D.C. Cir. 2001) (quoting *Alenco Commc’ns, Inc. v. FCC*, 201 F.3d 608, 625 (5th Cir. 2000)).³¹

In its final regulatory flexibility analysis, DOE identified thirty-two CRE manufacturers that met the definition of a small business, and it interviewed four of those manufacturers. 79 Fed. Reg. at 17,813. DOE concluded that “small businesses will likely have greater increases in component costs than large businesses,” and “may have greater difficulty obtaining credit.” *Id.* After reaching this conclusion, DOE considered several different policy alternatives, including: “(1) [n]o change in the standard; (2) consumer rebates; (3) consumer tax credits; (4) manufacturer tax credits; (5) voluntary energy efficiency targets; and (6) bulk government pur-

³¹ See also *Ranchers Cattlemen Action Legal Fund United Stockgrowers of Am. v. U.S. Dep’t of Agric.*, 415 F.3d 1078, 1101 (9th Cir. 2005); *Associated Fisheries, Inc. v. Daley*, 127 F.3d 104, 114 (1st Cir. 1997).

chases.” *Id.* at 17,814. Those policy alternatives were discussed in detail in the technical support document.³² After considering each alternative, “DOE determined that the energy savings of these alternatives are significantly smaller than those that would be expected to result from adoption of the amended standard levels,” and it opted not to adopt any of the alternatives. *Id.*

The petitioners nevertheless note that DOE failed to consider an exemption for small businesses in its final regulatory flexibility analysis. Under § 604 of the RFA, an agency must discuss “each one of the other significant alternatives” in its final regulatory flexibility analysis. 5 U.S.C. § 604. The RFA does not require that an agency “address every alternative, but only that it address significant ones.” *Associated Fisheries, Inc. v. Daley*, 127 F.3d 104, 115 (1st Cir. 1997); see also *Ranchers Cattlemen Action Legal Fund United Stockgrowers of Am. v. U.S. Dep’t of Agric.*, 415 F.3d 1078, 1102 (9th Cir. 2005). In the petitioners’ view, a small business exemption constitutes a significant alternative and must be considered.

Section 604 does not define what the RFA considers to be “significant” alternatives. See 5 U.S.C. § 604. However, when describing an agency’s duty to write an *initial* regulatory flexibility analysis, § 603 states that:

Consistent with the stated objectives of applicable statutes, the analysis shall discuss *significant alternatives* such as—

- (1) the establishment of differing compliance or reporting requirements or timetables that

³² App. R.6, Admin. R.66 at 17-1 to 17-A-20.

take into account the resources available to small entities;

(2) the clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities;

(3) the use of performance rather than design standards; and

(4) *an exemption from coverage of the rule, or any part thereof, for such small entities.*

Id. § 603(c) (emphases added). According to the petitioners, agencies must also consider all four of these “significant alternatives” in their *final* regulatory flexibility analysis. Therefore, the petitioners contend, by not considering one of the alternatives listed in § 603 during its final analysis, DOE failed to comply with its obligation under § 604 of the RFA.³³

Section 603 of the RFA limits the definition of a “significant alternative” to one which is “[c]onsistent with the stated

³³ To the extent that the petitioners are raising a specific claim that DOE failed to comply with § 603 of the RFA, we note that their claim is not reviewable:

Section 611(c) of the RFA provides that “[c]ompliance or noncompliance by an agency with the provisions of this chapter shall be subject to judicial review *only* in accordance with this section.” 5 U.S.C. § 611(c) (emphasis added). Section 611(a)(2) grants this court “jurisdiction to review any claims of noncompliance with sections 601, 604, 605(b), 608(b), and 610.” 5 U.S.C. § 611(a)(2).

Nat’l Ass’n of Home Builders v. EPA, 682 F.3d 1032, 1041 (D.C. Cir. 2012); see also *Allied Local & Reg’l Mfrs. Caucus v. EPA*, 215 F.3d 61, 79 (D.C. Cir. 2000).

objectives of applicable statutes.” *Id.* § 603(c). Therefore, to determine the merits of petitioners’ argument, we must first consider the objectives of the EPCA. One of the EPCA’s stated “purposes” is to “provide Federal energy conservation standards applicable to covered products.” 42 U.S.C. § 6295(a)(1). The EPCA contemplates exemptions for small manufacturers. *Id.* § 6295(t). However, those exemptions are temporary, lasting for a “period not longer than the 24-month period beginning on the date such rule becomes effective.” *Id.* § 6295(t)(1). In addition, an exemption will only be made “on application of [the] manufacturer” and only after DOE investigates the unique circumstances of that manufacturer. *Id.* Further, the exemption can only be provided after DOE “makes a finding, after obtaining the written views of the Attorney General, that a failure to allow an exemption ... would likely result in a lessening of competition.” *Id.* § 6295(t)(2). These provisions make clear that the EPCA’s objective is to impose consistent, national standards for each class of covered product. Exceptions to those standards are only allowed for short periods of time, and only after consultation with the Attorney General. A blanket exemption—made without any temporal limitation, any applications from manufacturers, or any input from the Attorney General—would be “[inc]onsistent with the stated objectives of” the EPCA. *See* 5 U.S.C. § 603(c). Therefore, a blanket exemption for small businesses was not a significant alternative that DOE needed to consider.

DOE made a “good-faith effort” to describe both the impact of its amended standard on small businesses and the significant alternatives it considered. *U.S. Cellular Corp.*, 254 F.3d at 88. Therefore, its final regulatory flexibility analysis fully complied with the RFA.

D. Cumulative Regulatory Burden

The petitioners contend that DOE failed to properly consider the impact of two other regulatory burdens on CRE manufacturers: EPA's Significant New Alternatives Policy ("SNAP") Rule and the ENERGY STAR Program. According to DOE Process Rule 10(g), DOE must consider the cumulative impacts of other federal regulations. 10 C.F.R. pt. 430, subpt. C, app. A, at 10(g) (2016). DOE decided that neither the SNAP rule nor the ENERGY STAR Program warranted a change in its regulations. 79 Fed. Reg. at 17,754, 17,798. Therefore, we must determine whether DOE has "articulate[d] a satisfactory explanation for its action including a rational connection between the facts found and the choice made." *Motor Vehicle Mfrs. Ass'n*, 463 U.S. at 43 (internal quotation marks omitted).

1. EPA Significant New Alternatives Policy Program

We first turn to EPA's proposed SNAP rulemaking. At the time of DOE's rulemaking, EPA was reviewing the refrigerants R404 and R134a and was considering removing those refrigerants from commercial refrigeration applications. 79 Fed. Reg. at 17,754.³⁴ Both R404 and R134a were used in DOE's en-

³⁴ EPA published its final rule on refrigerants more than a year after the New Standards Rule. *See* 80 Fed. Reg. 42,870 (July 20, 2015). In the rule, EPA noted that:

We do, however, consider issues such as technical needs for energy efficiency (*e.g.*, to meet DOE standards) in determining whether alternatives are "available." EPA recognizes that the energy efficiency of particular models of

gineering analysis. *Id.* NAFEM contends that, based on a potential SNAP rule that EPA was considering, DOE should have considered refrigerants other than R404 and R134a.

Responding to this critique, DOE explained that “there are currently no mandatory initiatives such as refrigerant phase-outs,” *id.*, and that “DOE does not include the impacts of pending legislation or unfinalized regulations in its analyses, as any impact would be speculative,” *id.* at 17,775. Indeed, EPA did not even issue a notice of proposed rulemaking regarding the SNAP program until months after DOE’s final rule. *See* 79 Fed. Reg. 46,126 (Aug. 6, 2014). “In circumstances involving agency predictions of uncertain future events, complete factual support in the record for [an agency’s] judgment or prediction is not possible or required since a forecast of the direction in which future public interest lies necessarily involves deductions based on the expert knowledge of the

equipment is a significant factor when choosing equipment. We also recognize that the energy efficiency of any given piece of equipment is in part affected by the choice of refrigerant and the particular thermodynamic and thermophysical properties that refrigerant possesses. Although we cannot know what energy efficiency will be achieved in future products using a specific acceptable refrigerant, we can point to both actual equipment and testing results that show promise and often better results than the equipment using the refrigerants that we are finding unacceptable.

Id. at 42,921. After assessing the impact of the New Standards Rule, EPA went on to extend the “change of status” date for certain units. *See id.* at 42,908, 42,916–17.

agency.” *Rural Cellular Ass’n*, 588 F.3d at 1105 (internal quotation marks omitted). DOE’s determination that the SNAP rulemaking might not come to fruition is entirely reasonable, and it is certainly within its discretion.³⁵

Further, DOE explained that even if it assumed the SNAP rulemaking would become binding, it did not have adequate “publicly-available data on the design, construction, and operation of equipment featuring alternative refrigerants to facilitate the level of analysis of equipment performance which would be needed.” 79 Fed. Reg. at 17,754. NAFEM finds this rationale inadequate; it contends that DOE should have relied on data regarding the use of alternative refrigerants in Europe. However, NAFEM does not point to any comment that raised this issue before the agency during the notice and comment period. Further, DOE notes that the basic design of CRE in Europe differs from CRE in the United States, making that data unreliable. In light of the deference due to DOE, *White Eagle Coop. Ass’n*, 553 F.3d at 474, DOE’s decision to ignore the EPA SNAP rulemaking was not arbitrary or capricious.³⁶

³⁵ As part of their objection to DOE’s consideration of carbon benefits, AHRI and Zero Zone criticize DOE’s decision to ignore the impact of the EPA’s proposed power plant rule on greenhouse gas emissions. For the same reasons noted above, DOE was entirely within reason to disregard the impact of this pending regulatory action.

³⁶ We observe that DOE provided a remedy for any CRE manufacturers that are unduly impacted by the burden of subsequent regulation. In the New Standards Rule, DOE explained that “[i]f a manufacturer believes that its design is subjected to undue hardship by regulations, the manufacturer may petition” DOE, which “has the authority to grant ... relief on a case-by-case basis.” 79 Fed. Reg. at 17,754.

2. ENERGY STAR Program

NAFEM also contends that DOE failed to take account of the ENERGY STAR program. ENERGY STAR is a program that provides voluntary certifications and ratings to energy efficient products as a way to incentivize manufacturers. 79 Fed. Reg. at 17,739. DOE noted that the program was “voluntary for manufacturers. As such, [it is] not part of DOE’s consideration of cumulative regulatory burden.” *Id.* at 17,798. That determination was entirely reasonable. DOE’s decision not to consider ENERGY STAR was neither arbitrary nor capricious.

In sum, DOE satisfied its duty laid out in Process Rule 10(g). 10 C.F.R. pt. 430, subpt. C, app. A. Neither the possibility of a SNAP rulemaking nor the ENERGY STAR program needed to be considered by DOE.

E. 2014 Test Procedure Rule

We now consider AHRI’s and Zero Zone’s challenges to the 2014 Test Procedure Rule, a rule published after the New Standards Rule. As discussed above, DOE encountered an interpretive difficulty when measuring the total display area (“TDA”) of a CRE unit.³⁷ Determining the TDA of a unit is essential to calculating the maximum allowable energy consumption level for certain CRE units. 79 Fed. Reg. at 22,299. According to DOE, the 2014 Test Procedure Rule clarified how CRE manufacturers should measure a specific aspect of the TDA: “L,” otherwise known as the “Length of Commercial Refrigerated Display Merchandiser.” *Id.* AHRI and Zero

³⁷ See *supra* Part I.C.

Zone now contend, however, that the clarified definition of “L” is contrary to law, substantively arbitrary and capricious, and was promulgated in an impermissible manner. They further submit that if the 2014 Test Procedure Rule is ruled invalid, the New Standards Rule—which incorporates the definition of “L”—must fall as well.

1. Conformity to Industry Standards

AHRI and Zero Zone first contend that the 2014 Test Procedure’s definition of “L” is contrary to the EPCA’s definition of “L.” As previously mentioned, “L” is a variable in the function for determining the TDA of a CRE unit. The EPCA states that “‘TDA’ means the total display area (ft²) of the refrigerated case, as defined in AHRI Standard 1200.” 42 U.S.C. § 6313(c)(1)(D) (emphasis added). Therefore, the definition of “L” employed by DOE must align with this industry standard. According to AHRI and Zero Zone, however, DOE’s clarified definition of “L” deviated from AHRI Standard 1200. Specifically, AHRI and Zero Zone believe that DOE employed an impermissible “compromise” between the industry standard and DOE’s own definition. *See* 79 Fed. Reg. at 22,300 (“As a compromise, DOE is adopting ... this final rule”)

We cannot accept petitioners’ understanding of the “compromise” DOE made when defining “L.” As DOE explained in its notice of proposed rulemaking for the 2014 Test Procedure Rule, AHRI Standard 1200 does not define or illustrate the meaning of “L.” 78 Fed. Reg. at 64,309–12. Because the promulgation and enforcement of energy standards required a precise definition of the term “L,” DOE undertook to define the term in a manner that, while remaining faithful to the statutory language, would provide both the regulator and the industry with a workable metric. DOE proposed a definition of

“L” that was consistent with AHRI Standard 1200’s stated definition of the TDA: “the sum of the projected area(s) *for visible product*.” 79 Fed. Reg. at 22,299 (emphasis added). DOE reasoned that if the TDA was defined as only consisting of the visible area on a CRE unit, then a variable of the TDA also must only consist of the visible area on a CRE unit. *Id.* After considering comments from the industry, however, DOE determined “that defining TDA as strictly the total length of transparent area may be inconsistent with the method used by industry to calculate TDA today.” *Id.* at 22,300. That method typically included non-transparent areas like door frames and mullions. DOE therefore chose what it termed, somewhat imprudently and improvidently, a “compromise” value. *See id.* “L” would be defined

as the internal length of the CRE model, provided no more than 10 percent of that length consists of non-transparent material. For those cases with greater than 10 percent of non-transparent area, L shall be determined as the projected linear dimension(s) of visible product plus 10 percent of non-transparent area.

Id. at 22,301.

Contrary to AHRI and Zero Zone’s contention that DOE created a “compromise” between the department’s desired standard and the AHRI standard, DOE actually crafted a more precise definition of “L”—one not fully articulated in the *text* of the AHRI Standard but found in the *method* of implementing the AHRI Standard. *Id.* at 22,299–301. DOE’s definition of “L” therefore conforms to AHRI Standard 1200 and complies with the mandate of the EPCA. *See* 42 U.S.C. § 6313(c)(1)(D).

2. Operation of the Rule

AHRI and Zero Zone next raise a series of challenges to the operation of the new test procedure. When issuing the 2014 Test Procedure Rule, DOE concluded that the clarified definition of “L” will “not change the measured energy consumption of covered equipment” and therefore will not change the expected impact of the amended standards on the CRE industry. 79 Fed. Reg. at 22,301. AHRI and Zero Zone disagree with this conclusion and contend that DOE’s definition of “L” in the 2014 Test Procedure Rule will result in smaller maximum energy consumption levels for CRE units than the previously enforced definition. In their view, DOE acted arbitrary and capriciously when it modeled the new standards on a less stringent definition of “L.” More significantly, they contend that DOE failed to adhere to the EPCA’s requirement that it “determine, in the rulemaking carried out with respect to prescribing such procedure, to what extent, if any, the proposed test procedure would alter the measured energy efficiency [or] measured energy use ... of any covered product as determined under the existing test procedure.” 42 U.S.C. § 6293(e)(1).

This contention has no merit. Our review confirms that DOE did explain why the definition of “L” in the 2014 Test Procedure Rule was consistent with the definition it had previously employed. DOE referred back to its engineering analysis for the New Standards Rule, and it explained that the calculation for the length of the relevant model of CRE was based “upon the continuous length of transparent area of the CRE model, which included mullions and door frames, but excluded any additional case wall present on the front face of the unit. In other words, DOE included the entire length of

the transparent doors, including minor non-transparent areas.” 79 Fed. Reg. at 22,300; *see also* App. R.6, Admin. R.102 at 5A-6 (displaying the length of the doors and TDA for the CRE models); App. R.13, Admin. R.13-A1 at 2–3 (comment from Hillphoenix noting that mullion and door frame widths were included in DOE’s calculation). DOE stated that the “10 percent of non-transparent area that may be included in the dimension L” was consistent with its consideration of the mullions and door frames during the engineering analysis. 79 Fed. Reg. at 22,301. DOE adequately explained how it reached the conclusion “that this amendment should not change the measured energy consumption of covered equipment.” *Id.*

We note that multiple manufacturers—including AHRI—believed that an even *more* stringent definition of “L” would have been consistent with prior practice. They suggested in comments that DOE only account for door mullion and door frame widths of five inches or less; any non-transparent area greater than five inches would be excluded from the calculation of “L.”³⁸ DOE noted in response that “the 10 percent threshold [it adopted] is less stringent than the 5-inch threshold recommended by manufacturers. That is, a threshold of 10 percent accommodates greater amounts of non-transparent area in the dimension ‘L’ for a majority of CRE models.” *Id.* None of the petitioners have disputed DOE’s assertion that its clarified definition is more favorable to manufacturers than their proposal of a five-inch threshold for non-transparent area, and we find that assertion entirely reasonable. DOE

³⁸ App. R.13, Admin. R.11-A1 at 4 (comment from Hussman); App. R.13, Admin. R.13-A1 at 3–4 (comment from Hillphoenix); App. R.13, Admin. R.15-A1 at 3 (comment from AHRI).

adequately explained that its clarification to the definition of “L” would have no discernable impact on the application of the new standards.

3. Procedural Challenges

AHRI and Zero Zone also object to the timing of both the proposal and the publication of the 2014 Test Procedure Rule. The Rule was proposed after the New Standards Rule was proposed and published after the New Standards Rule was published.³⁹ The petitioners submit that this timeline violated both the EPCA and DOE’s own Process Rules.

We begin with the challenge under the EPCA. According to the EPCA, “[a]ny new or amended energy conservation standard prescribed under this section *shall include*, where applicable, *test procedures*.” 42 U.S.C. § 6295(r) (emphases added). The petitioners contend that DOE therefore was obligated under the EPCA to include the 2014 Test Procedures in the New Standards Rule. DOE did not fulfill this statutory mandate, they contend, because the 2014 Test Procedures were not published at the time of the publication of the New Standards Rule. In response, DOE contends that it satisfied the EPCA by including the 2012 Test Procedures in its New Standards Rule.⁴⁰

³⁹ The notice of proposed rulemaking for the New Standards Rule was issued on September 11, 2013. The notice of proposed rulemaking for the 2014 Test Procedure Rule was issued on October 28, 2013. The publication of the New Standards Rule occurred on March 28, 2014. The publication of the 2014 Test Procedure Rule occurred on April 21, 2014.

⁴⁰ The New Standards Rule notes that “[t]he test procedure amendments established in the 2012 test procedure final rule are required to be used in

We agree with DOE's interpretation: the inclusion of the 2012 Test Procedures satisfies § 6295(r). The EPCA clearly contemplates that DOE will amend and proscribe test procedures independent of energy conservation standards. Indeed, the EPCA states that "[i]f [DOE] determines that the amended test procedure will alter the measured efficiency or measured use, [DOE] shall amend the applicable energy conservation standard during the rulemaking carried out with respect to such test procedure." *Id.* § 6293(e)(2). It naturally follows that if DOE determines that the amended test procedures will *not* alter efficiency standards—as DOE did here—DOE does *not* need to amend the applicable efficiency standards during that rulemaking.⁴¹ Therefore, DOE acted well within the bounds of the EPCA when it included the 2012 Test Procedures in the New Standards Rule and then clarified the meaning of those test procedures in a subsequent rule.

We now turn to the challenges under DOE's own process rules. DOE Process Rule 7(b) explains that "[a]ny necessary modifications [to test procedures] will be proposed before issuance of an [advance notice of proposed rulemaking]." 10 C.F.R. pt. 430, subpt. C, app. A. DOE Process Rule 7(c) further explains that "[f]inal, modified test procedures will be issued prior to the [notice of proposed rulemaking] on proposed standards." *Id.* The petitioners submit that DOE violated both

conjunction with the amended standards promulgated in this ... final rule." 79 Fed. Reg. at 17,735.

⁴¹ See *King v. Burwell*, 135 S. Ct. 2480, 2489 (2015) ("[W]hen deciding whether the language is plain, we must read the words 'in their context and with a view to their place in the overall statutory scheme.'" (quoting *FDA v. Brown & Williamson Tobacco Corp.*, 529 U.S. 120, 133 (2000))).

of these Process Rules because the 2014 Test Procedures were not even proposed until the notice of proposed rulemaking for the New Standards Rule. DOE responds that the 2014 Test Procedures are merely “clarifying amendments” that are not covered by either Process Rule.⁴² DOE Process Rule 7(b) refers to “necessary modifications” and DOE Process Rule 7(c) refers to a “modified test procedure.” *Id.* In DOE’s view, *clarifying* the meaning of a procedure is not equivalent to *modifying* the procedure itself.

DOE created these Process Rules, so we will affirm DOE’s interpretation of those rules “unless plainly erroneous or inconsistent with the regulation.” *Auer*, 519 U.S. at 461 (internal quotation marks omitted); *see also Whetsel v. Network Prop. Servs., LLC*, 246 F.3d 897, 901 (7th Cir. 2001). Here, DOE’s interpretation is worthy of such deference. The Supreme Court has explained that an “interpretation” of a rule, which is meant to ascertain the meaning of text, is not the same as an “amendment” of a rule, which is meant to change the text. *Perez v. Mortg. Bankers Ass’n*, 135 S. Ct. 1199, 1207–08 (2015) (“One would not normally say that a court ‘amends’ a statute when it interprets its text. So too can an agency ‘interpret’ a regulation without ‘effectively amend[ing]’ the underlying source of law.” (alteration in original)). Similarly, a *clarification* of a rule, which is also meant to ascertain the meaning of text, can be distinguished from a *modification* of a rule, which, according to the Supreme Court, “connotes moderate change.” *MCI Telecomms. Corp. v. AT&T Co.*, 512 U.S. 218, 228 (1994). DOE determined that “L,” as defined in its previous

⁴² DOE Br. at 16.

test procedure rules, was ambiguous. By clarifying the meaning of “L” in the 2014 Test Procedure Rule, DOE acted within its authority and did not violate any regulatory or statutory provisions.

Conclusion

For the foregoing reasons, we deny the petitions for review in their entirety.

PETITIONS DENIED