REGULATORY REPORT CARD | April 2015

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AGENCY

Department of Energy

Rule title
Energy Conservation Program: Energy Conservation Standards for Walk-In Coolers and Freezers

RIN	1904–AB86
Publication Date	September 11, 2013
Comment Period Closing Date	June 16, 2014
Stage	Proposed rule

REGULATORY SCORING

	SCORE
1. Systemic Problem: How well does the analysis identify and demonstrate the existence of a market failure or other systemic problem the regulation is supposed to solve?	**2**/5
2. Alternatives: How well does the analysis assess the effectiveness of alternative approaches?	**4**/5
3. Benefits (or Other Outcomes): How well does the analysis identify the benefits or other desired outcomes and demonstrate that the regulation will achieve them?[1]	**4**/5
4. Costs: How well does the analysis assess costs?	**3**/5
5. Use of Analysis: Does the proposed rule or the RIA present evidence that the agency used the Regulatory Impact Analysis in any decisions?	**4**/5
6. Cognizance of Net Benefits: Did the agency maximize net benefits or explain why it chose another alternative?	**4**/5
Total Score	**21**/30

SUMMARY

Under the authority of the Energy Policy and Conservation Act of 1975 (EPCA), the Department of Energy (DOE) is proposing new energy conservation standards for walk-in coolers and freezers. According to the DOE, these new, more stringent standards will lower energy use. This reduction in energy use will result in a net benefit over the expected lifetime of the equipment. The lower energy use will also reduce the emission of pollutants such as carbon dioxide, sulfur dioxide, and mercury, which are generated in the production of electricity.

Unfortunately, the DOE's use of the capital asset pricing model assumes the risks and returns associated with refrigeration units is equal to the average risk and returns associated with all capital expenditures. By assuming the depreciation rate associated with walk-in units is equal to the average depreciation rate of all capital, the DOE likely underestimates the discount rate on walk-in coolers and freezers and therefore overestimates the private expected benefits of this rule. This error is the reason the DOE believes purchasers of walk-in cooler and freezer equipment are behaving irrationally when they are not. Because the estimated private benefits represent anywhere from 57 to 77 percent of the total benefits provided by the proposed rule, correcting this measurement error has the potential to result in a net negative welfare effect on users of walk-in cooler and freezer equipment.

The Regulatory Studies Program at the Mercatus Center at George Mason University issues Regulatory Report Cards scored by a team of economists for economically significant proposed regulations. For more information about the program, scorers, other scores, and scoring conventions, see www.mercatus.org/reportcard.

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1. Systemic Problem: How well does the analysis identify and demonstrate the existence of a market failure or other systemic problem the regulation is supposed to solve?	**2**		
Does the analysis identify a market failure or other systemic problem?	4	1A	According to the notice of proposed rulemaking (NPRM), these new standards address the following failures of the private market: lack of consumer information about energy efficiency opportunities in the walk-in cooler and freezer market, asymmetric information, and externalities. There is no detailed discussion on these points (NPRM, 55875).
Does the analysis outline a coherent and testable theory that explains why the problem is systemic rather than anecdotal?	2	1B	The theory is testable: the lack of consumer information and the costs of emissions not paid by either producers or consumers results in the use of walk-in coolers and freezers that are less efficient than would otherwise be the case. The first part of this theory, however, is questionable because the beneficiaries are profit-maximizing firms rather than fallible consumers.
Does the analysis present credible empirical support for the theory?	1	1C	There is basically no evidence that lack of information or asymmetric information is playing a role. The NPRM provides no measure of potential information asymmetries. Using FUND, DICE, and PAGE models, the agency presents evidence that emissions may be higher, but much of this evidence lacks a complete understanding of the risks faced by operators. The DOE is mostly interested in updating energy efficiency, as it has authority to do so.
Does the analysis adequately address the baseline? That is, what the state of the world is likely to be in the absence of federal intervention not just now but in the future?	2	1D	Since this regulation comes closely on the heels of another regulation issued in January 2009, the industry has not felt the full impact of previous the regulation. Hence the baseline is assumed to be the same as the one for the January 2009 regulation. This suggests that the DOE fails to incorporate how equipment operators are currently seeking to purchase more energy-efficient equipment in response to the 2009 regulation.
Does the analysis adequately assess uncertainty about the existence or size of the problem?	2	1E	Multiple values for the social cost of carbon reflect uncertainty about the size of the problem. There is no estimation on just how big the information gap is or the magnitude of asymmetric information. The analysis assumes the problem is large.
2. Alternatives: How well does the analysis assess alternative approaches?	**4**		
Does the analysis enumerate other alternatives to address the problem?	5	2A	Yes, the DOE enumerates five nonregulatory policy alternatives (no new regulatory action, consumer tax credits, customer rebates, voluntary energy efficiency targets, and early replacement) and also lists alternative energy efficiency standards (trial standard levels [TSLs]).
Is the range of alternatives considered narrow (e.g., some exemptions to a regulation) or broad (e.g., performance-based regulation vs. command and control, market mechanisms, nonbinding guidance, information disclosure, addressing any government failures that caused the original problem)?	4	2B	The "DOE selected seven potential levels for refrigeration systems by performing LCC and NIA analyses for refrigeration systems. Second, DOE selected four levels for the envelope components by performing LCC and NIA analyses for the envelope components paired with each of the seven selected refrigeration system levels alone. Third, DOE chose six composite TSLs from the combinations of the seven potential levels for the refrigeration systems and the four potential levels for the envelope components" (NPRM, 55845–46).

Does the analysis evaluate how alternative approaches would affect the amount of benefits or other outcome achieved?	4	2C	The analysis fully evaluates how the proposed rule affects a number of items, including emissions, consumer prices, and electricity usage. A brief discussion of the impact of the nonregulatory alternatives and estimates of the net present value of the resulting energy savings is provided; however, the discussion and analysis is very limited. In addition, estimates for all energy efficiency standards assume full compliance.
Does the analysis identify and quantify incremental costs of all alternatives considered?	4	2D	The proposed rule provides detailed information on the benefits and costs associated with each alternative, and thus the incremental costs can be calculated moving from one alternative to the next. The engineering analysis also looks at the incremental increases in equipment costs.
Does the analysis identify the alternative that maximizes net benefits?	**5**	2E	The DOE identifies the option that "corresponds to the efficiency level with the maximum NPV for refrigeration system classes and the efficiency level with the maximum NPV for envelope component classes" (NPRM, 55847).
Does the analysis identify the cost-effectiveness of each alternative considered?	3	2F	The DOE looks at the average dollar savings realized by each alternative for a number of components, but it does not look at the kW savings for each alternative for each component nor does it explicitly report cost-effectiveness.
3. Benefits (or other Outcomes): How well does the analysis identify the benefits or other desired outcomes and demonstrate that the regulation will achieve them?	**4**		
Does the analysis clearly identify ultimate outcomes that affect citizens' quality of life?	4	3A	Principal benefits are customer cost savings and environmental benefits of reduced emissions. The DOE estimates lower energy use, which will lower electricity bills, and lower CO2 emissions, which will reduce the estimated negative effects on (but not limited to) "changes in net agricultural productivity, human health, property damages from increased flood risk, and the value of ecosystem services" (NPRM, 55843). The analysis does admit to some "hidden" welfare losses in cases where the higher efficiency equipment is not a perfect substitute for less efficient models, but the DOE "is not prepared at present to provide a fully quantifiable framework for estimating the benefits and costs of changes in consumer purchase decisions" (NPRM, 55874).
Does the analysis identify how these outcomes are to be measured?	4	3B	Customer cost savings are calculated as the monetary value of energy savings. The value of reduced carbon emissions is calculated using estimates of the social cost of carbon. Nitrogen oxide emissions are also calculated. Reduction in other gases (sulfur dioxide, mercury, methane, nitrous dioxide) are quantified but not monetized.
Does the analysis provide a coherent and testable theory showing how the regulation will produce the desired outcomes?	3	3C	The idea is that the DOE has identified a method to save energy, if it is adopted. More specifically, more efficient refrigeration and envelopment of walk-in coolers will require less energy. However, it is not clear as to why consumers of walk-in coolers are not willing to demand such energy-saving measures, if the measures are as effective in reducing costs as is claimed in the rule, although the analysis does reference without citation economics literature that "provides a wide-ranging discussion of how consumers trade off upfront costs and energy savings in the absence of intervention" (NPRM, 55873).

Does the analysis present credible empirical support for the theory?	2	3D	The DOE's RIA provides detailed evidence of lower energy use and emissions with the new equipment. Many assumptions are based on interviews with manufacturers. Experts between agencies and in the field were also consulted. Since customers are mostly firms, the DOE does not provide a strong price analysis. The DOE does not do any analysis of past regulations. The agency also does not discuss how behavior may change.
Does the analysis adequately assess uncertainty about the outcomes?	4	3E	The DOE uses a software package called "Crystal Ball" to generate probability distribution of life-cycle cost based on variability in key input parameters. Three different price forecasts, different economic growth scenarios, and different value of emission scenarios are used. Sensitivity analysis is also completed with a shorter time horizon of nine years.
Does the analysis identify all parties who would receive benefits and assess the incidence of benefits?	4	3F	The agency suggests that users of electricity will realize lower prices given the decline in demand from users of walk-in coolers and freezers. The agency does note that users of smaller units will realize a smaller reduction in energy use than users of larger units.
4. Costs: How well does the analysis assess costs of the regulation?	**3**		
Does the analysis identify all expenditures likely to arise as a result of the regulation?	5	4A	The DOE calculates the cost of materials, cost of labor, and overhead costs for each level. The effects on industry cash flow are estimated. Tear-down analysis is completed. Operating costs and installed costs are also considered.
Does the analysis identify how the regulation would likely affect the prices of goods and services?	4	4B	The DOE estimates the higher costs faced by buyers of the equipment is offset by the gains from lower energy costs. The DOE also looks at the costs faced by large and small producers and large and small users of commercial refrigeration equipment. The agency also looks at the effects of each standard on employment.
Does the analysis examine costs that stem from changes in human behavior as consumers and producers respond to the regulation?	2	4C	There is a dearth of analysis of how operators of refrigeration equipment might delay their purchases of new, higher-cost equipment. Moreover, manufacturers claimed that numerous manufacturers, "particularly small one-to-two person operations, are not currently complying with the existing walk-in regulations in EPCA, which took effect January 1, 2009" (NPRM, 55840). This will only become more of an issue with the higher standard.
If costs are uncertain, does the analysis present a range of estimates and/or perform a sensitivity analysis?	4	4D	The DOE performs a Monte Carlo simulation with a range of values and probability distributions to account for the ranges of values that may be typically associated with the respective input values, such as installation costs and repair costs. A sensitivity analysis is also completed in the area of emissions. Between 55 and 100 percent of customers are predicted to experience net benefits or no impacts and between 0 and 45 percent of customers are predicted to experience a net cost.

Does the analysis identify all parties who would bear costs and assess the incidence of costs?	2	4E	Yes, the "DOE analyzed variability in the LCC and PBP" for small businesses (NPRM, 55927). The DOE recognizes that restaurants have a high failure rate, "but due to the increased complexity resulting from the component-level approach and lack of data on reduced lifetimes on account of change of ownership of walk-in equipment, DOE did not incorporate a shorter restaurant sector economic lifetime in the NOPR life cycle cost model" (NPRM, 55826). This is highly problematic because most of these units are custom-made from different component manufactures for specific use and setting. Therefore, used equipment will have little to no salvage value for those firms that fail before the payback period.
5. Use of Analysis: Does the proposed rule or the RIA present evidence that the agency used the analysis in any decisions?	**4**	5	The NPRM walks through the results of the analysis and chooses TSL 4 as the regulation that is technologically feasible and economically justifiable. The nonregulatory methods are dismissed as not achieving as many benefits as the regulatory approach. Energy savings and emission reduction benefits outweigh the costs.
6. Net Benefits: Did the agency maximize net benefits or explain why it chose another alternative?	**4**	6	The DOE provides a summary of their reasons for choosing TSL 4. The DOE chooses TSL 4 because this is where energy savings are maximized, technologically feasible, and economically justifiable.