

**CHAPTER 17. REGULATORY IMPACT ANALYSIS FOR
REFRIGERATED BEVERAGE VENDING MACHINES**

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CHAPTER 17. REGULATORY IMPACT ANALYSIS FOR REFRIGERATED BEVERAGE VENDING MACHINES

17.1 INTRODUCTION

Under the Process Rule, the U.S. Department of Energy (DOE) is committed to exploring non-regulatory alternatives to energy conservation standards. DOE prepared this regulatory impact analysis under Executive Order 12866, “Regulatory Planning and Review,” which will be subject to review by the Office of Information and Regulatory Affairs (OIRA).

Executive Order 12866 §1(b)(1) requires that each agency identify in writing the specific market failure or other problem that warrants new agency action as well as assess the significance of that problem to determine whether any new regulation is necessary.

DOE has determined that today’s regulatory action is not an “economically significant” action under §3(f)(1) of Executive Order 12866.

In the notice of proposed rulemaking (NPR) for this rulemaking, DOE requested feedback and data on a number of issues related to Executive Order 12866 and the existence of a market failure in the beverage vending machine industry. In this request, DOE sought:

- data on the efficiency levels of existing beverage vending machines in use by owner (i.e., site owner or machine operator), electricity price, equipment class (Class A or B machines) and installation type (i.e., indoors or outdoors);
- comment on the availability of energy efficiency information to end users and the extent to which the information leads to informed choices, specifically given how such equipment is purchased;
- data on the distribution of energy efficiency levels for both the new site owner and equipment operator markets;
- data on and suggestions for the existence and extent of potential market failures to complete an assessment of the significance of these failures and, thus, the net benefits of regulation; and
- comment on the weight that should be given to “external” benefits resulting from improved energy efficiency of beverage vending machines not captured by the users of such equipment. These benefits include both environmental and energy security-related externalities that are not reflected in energy prices, such as reduced emissions of greenhouse gases and reduced use of natural gas and oil for electricity generation.

DOE prepared a regulatory impact analysis (RIA) for this rulemaking, subject to the OIRA review in the Office of Management and Budget (OMB). The RIA consists of:

- a statement of the problem addressed by this regulation and the mandate for Government action;
- a description and analysis of policy alternatives to this regulation;

- a qualitative review of the potential impacts of the alternatives; and
- the national economic impacts of the proposed standard.

The RIA assesses the effects of feasible policy alternatives to beverage vending machine standards and provides a comparison of the impacts of the alternatives. DOE evaluated the alternatives in terms of their ability to achieve significant energy savings at reasonable cost and compared it with the effectiveness of the proposed rule. DOE analyzed these alternatives qualitatively with reference to the particular market dynamics of the beverage vending industry.

17.2 MAJOR POLICY ALTERNATIVES

DOE identified the following major policy alternatives for achieving increased beverage vending machine energy efficiency:

- no new regulatory action;
- financial incentives, including tax credits and rebates;
- revisions to voluntary energy efficiency targets (*e.g.*, ENERGY STAR program criteria);
- early replacement;
- bulk government purchases; and
- prescriptive standards that would mandate design requirements (*e.g.*, lighting and refrigeration controls).

DOE qualitatively evaluated each alternative's ability to achieve significant energy savings at reasonable cost and compared it with the effectiveness of the proposed rule. The policy alternatives are discussed in the following sections.

17.2.1 No New Regulatory Action

The case in which no regulatory action is taken for beverage vending machines constitutes the base case (or No Action) scenario. By definition, no new regulatory action yields zero energy savings and a net present value of zero dollars.

17.2.2 Tax Credits, Rebates, and Other Financial Incentives

DOE considered the impact of various financial incentives at both the ENERGY STAR Tier 2 level and higher efficiency levels and examined the likelihood of an increase in customers purchasing high-efficiency equipment because of these financial incentives. See a discussion of the ENERGY STAR voluntary program below in section 17.2.3.

In considering the impact of financial incentives, DOE reviewed existing rebate programs for beverage vending machines. Most existing rebate programs are utility-sponsored programs that provide incentives for incorporating lighting and temperature controllers. Also, similar rebates for other technologies (*e.g.*, electronically commutated motors for evaporator fans) are provided in other industries, such as in the food sales industry for commercial refrigerated

display cases, and could theoretically be adapted for beverage vending machines. However, utility rebate programs are aimed at the site of installation and not at the manufacturers or purchasers of the machines (as most of the controllers covered by the rebate are add-on devices), and utility rebates are only provided for reduction of electricity at sites served by the utility. Because beverage vending machines purchased by large scale bottlers may not remain on a given site, tracking the location of rebated equipment could be an issue for utilities. Also, because most utility rebate programs are not aimed at the purchasers of the machines, they do not provide an incentive for the large bottlers who purchase the vast majority of the machines to choose high-efficiency equipment.

Besides utility-sponsored rebate programs, other programs possibilities include national manufacturer rebates, purchaser rebates, or tax incentives. Typically, these programs are advocated as a means to encourage households or organizations that are sensitive to the first cost of equipment to purchase or manufacture more-costly efficient equipment that has an ultimate favorable life cycle cost payoff either to the purchaser, to society, or both. The incentive can be given to the buyer of the equipment, the rate payer, or the manufacturer, depending on which method is considered to be most administratively effective. However, the nature of the beverage vending machine industry and market makes this approach largely ineffective.

Two companies (PepsiCo and Coca-Cola) and their affiliated bottlers and distributors purchase at least 75 percent of beverage vending machines. In the ANOPR public meeting, representatives of PepsiCo stated that all company-purchased beverage vending machines are required to meet ENERGY STAR Tier 2 levels. Representatives of Coca-Cola stated that by 2010, the company-purchased beverage vending machines would use half as much energy as they do now, which would meet at least ENERGY STAR Tier 1 levels. These companies purchase ENERGY STAR equipment despite the first-cost increase because it improves their public image, which results in higher sales in the long run. Direct compensation for the energy savings is not guaranteed but comes only through a negotiation with the site. Because the driving economic force for these companies is product sales and not equipment purchases, lowering the purchase price of equipment would make no significant difference in market behavior, and the program would simply transfer the amount of tax credit or rebate to the rebated entity without having induced extra purchases of efficient beverage vending machines.

With regard to the use of rebates or other incentives beyond ENERGY STAR Tier 2 efficiency levels, it is not clear how the buying policy of Coca-Cola and PepsiCo would be influenced by tax credits or rebates. However, the companies are large enough to finance successfully the higher costs of beverage vending machines more efficient than Tier 2 with or without tax credits or rebates. In addition, at the NOPR public meeting, Dixie-Narco, a major beverage vending machine manufacturer, stated that it will be able to achieve the proposed standard for Class B machines without investing significant costs that would need to be passed on to its customers. Dixie-Narco noted that it achieved the TSL 6 energy consumption level with one of its Class A vending machines this year, using a lighting management system. Royal Vendors, also a major manufacturer, stated that it could meet TSL 6 for Class A machines at relatively minor cost if it were not precluded by proprietary design restrictions from adopting a lighting management system similar to Dixie-Narco's. Royal Vendors also stated that implementing an energy management system is not an expensive addition to the machine and that it can be passed on at essentially no additional cost.

While rebates or tax credits may affect small purchasers, their influence over the marketplace for beverage vending machines is marginal. In addition, because of the existing market dynamics, any economic incentive paid for the purchase of Tier 2 efficiency equipment faces the possibility of a significant proportion of the rebates being free riders. This is particularly true of rebates paid to manufacturers. Rebates to purchasers would necessarily have to be limited to small volumes of purchases by individual rebatees to avoid this and target non-bottler, site-owned equipment. Tax credits to purchasers face similar issues. Based on a survey of available rebate programs including a data base maintained by DOE (www.dsireusa.org), no national manufacturer rebates, purchaser rebates, or tax incentives are currently available for enhancement of beverage vending machine efficiency.

DOE sees value in the continued use of rebates for lighting and temperature controller technologies, even under the new standards laid out in the final rule. Because the impact of these technologies is not captured in the DOE test procedure for beverage vending machines, employing these technologies in the field will continue to provide reductions in energy consumption beyond those that can be achieved by the new standards for beverage vending machines. The reductions will continue to accrue at the site of installation; therefore, these rebates, primarily for the purchase of aftermarket controller equipment, should continue to be provided to the installation site directly.

17.2.3 Revisions to Voluntary Energy Efficiency Targets

The voluntary ENERGY STAR program currently has two levels of efficiency targets: Tiers 1 and 2. The current ENERGY STAR program appears to have been effective at inducing large-scale adoption and purchase of ENERGY STAR Tier 1 equipment by the bottlers. Further, it is the beverage vending industry expects that the ENERGY STAR program will be highly effective in securing purchases of Tier 2 equipment because of the favorable response of the two large purchasers, PepsiCo and Coca-Cola, who essentially define the market. While it is possible that voluntary programs for equipment more efficient than Tier 2 would also be effective, DOE lacks a quantitative basis to determine how effective or ineffective such a beyond Tier 2 program might be. As noted previously, broader economic and social considerations are in play than simple economic return to the equipment purchaser. DOE lacks the data necessary to quantitatively project the degree to which such voluntary programs for more expensive, higher efficiency equipment would modify the market.

17.2.4 Bulk Government Purchases and Early Replacement Incentive Programs

DOE also considered but did not analyze the potential of bulk government purchases and early replacement incentive programs as alternatives to the proposed new standards. In the case of bulk government purchases, beverage vending machines are a small part of the total market and the volume of high-efficiency equipment purchases that the Federal Government might make directly (versus equipment installed by bottlers at Federal Government sites) would have very limited impact on improving the overall market efficiency of beverage vending machines. In the case of replacement incentives, several policy options exist to promote early replacement, including a direct national program of customer incentives, incentives paid to utilities to promote an early replacement program, market promotions through equipment manufacturers, and replacement of Federally-owned equipment. Previous DOE analyses of methods to promote early

replacement for other covered equipment have suggested that the energy savings realized through a one-time early replacement of existing stock equipment has not resulted in energy savings commensurate to the cost to run and administer the program. As a consequence, DOE did not analyze this option in detail.

17.2.5 Prescriptive Standards that Would Mandate Design Requirements

The Energy Policy and Conservation Act (EPCA) provides that standards regulating the energy use of certain equipment may be design standards, which require specific features that are required in the design of the equipment; or performance standards, which describe a required level of equipment performance (*e.g.*, maximum kilowatt hour/year energy consumption) and provide a manufacturer with discretion in determining—among the many available options—how best to meet that performance level. However, beverage vending machines are not one of the specified equipment for which EPCA allows a standard to consist of a design requirement. Furthermore, EPCA specifically requires DOE to base its test procedure for this equipment on American National Standards Institute (ANSI)/American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 32.1-2004, *Methods of Testing for Rating Vending Machines for Bottled, Canned or Other Sealed Beverages*. The test methods in ANSI/ASHRAE Standard 32.1-2004 consist of means to measure energy consumption.

For these reasons, DOE does not intend to develop design requirements for this equipment. Instead, DOE intends to develop new energy conservation standards such that each beverage vending machine would be subject to a maximum level of energy use, and manufacturers could meet these standards with their own choice of design methods.

17.2.6 Performance Standards

The difficulty in using these non-regulatory alternatives must be gauged against the more direct benefits calculated for the performance standards DOE has laid out in the final rule.

Based on the qualitative review, DOE is not confident that any of the alternatives examined would save as much energy as today's final rule. In particular, the financial incentives may engender significant free ridership issues. Also, several of the alternatives would require new enabling legislation because authority to carry out those alternatives does not exist.