

RETAILERS AND ENERGY CONSERVATION - A SECOND LOOK

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Abstract

Retailers were surveyed to determine their attitudes about energy conservation. This paper describes the findings and compares them to results obtained in a previous study of retailers' energy conservation attitudes which was reported at the Third Annual Conference of the Academy of Marketing Science.

Introduction

During the 1970's American industries and citizens became more aware of the need to conserve energy. Fuel prices rose rapidly and the likelihood of interruptions in foreign oil supplies increased. There was a growing realization that supplies of fossil fuels might run out some day and that some alternatives were not economically feasible nor totally safe. The beginning of the new decade of the 1980's did not mean the end to what has become known as the "energy crisis." Two major oil supplying nations engaged in a destructive military conflict that threatened to spread to other vital energy producing areas. An obvious response to the world-wide energy situation in the short term is to conserve energy supplies.

When searching for approaches to reduce U.S. energy consumption, special attention should be paid to the retail-commercial sector which has recently accounted for 14.4 percent of total energy consumption (Public Technology, Inc. 1975). Between 1968 and 1975 the retail-commercial sector's increase in energy consumption grew faster than consumption in residential, transportation, and industrial sectors. Furthermore, the Federal Energy Administration expects a 43 percent increase in retail-commercial energy consumption between 1975 and 1985 while expecting lesser increases in industrial and other sectors (Roberts and Redfering, 1979).

The cost of energy to the retailer continues to rise. Chain Store Age (1979) estimates that utility expenditures for supermarkets reached \$3.61 per square foot in 1979. Most other retail stores had utility expenses ranging from \$2.25-\$3.00 per square foot. Space conditioning accounts for 51 percent of total retail energy consumption, lighting 18 percent, water heating 6 percent, cooking 15 percent, refrigeration 6 percent, and other uses 4 percent (Federal Energy Administration, 1977).

Fortunately, sizable quantities of energy can be conserved by retailers through methods that involve little or no capital expenditures. Chain Store Age (1978) points out that by simply trimming energy wastes a retail store can cut its energy bill by 15 to 20 percent. Federal government agencies agree that substantial savings can be achieved relatively easily, but their estimates vary somewhat. The Federal Energy Office estimates savings in the commercial sector can approach 25 percent by using techniques that require no capital outlays (Roberts, 1977). The National Bureau of Standards projects a 30 percent energy savings in the retail-commercial sector through the use of simple energy conservation techniques (Roberts, 1977). There

is a general consensus that substantial energy savings can be achieved through better maintenance, closer control of operations, and a positive attitude toward conservation.

Though many retailers have dramatically reduced their energy consumption in the last few years, many others have not taken any conservation steps nor have they fully implemented a large number of low-cost or no-cost conservation techniques. Why retailers have not adopted conservation techniques is not well understood because most previous studies of retail energy conservation have ignored the attitudes and energy conservation knowledge of retail store managers, owners, and executives. A major exception is an insightful study of Florida retailers which was reported by Roberts and Redfering (1979) at the Third Annual Conference of The Academy of Marketing Science. That provocative study was a stimulus for the study reported in this paper.

The purpose of this present paper is to report key findings obtained during a recent study of the energy conservation attitudes and beliefs of Colorado retailers and to compare those findings to the results obtained in the study of Florida retailers. The public policy implications of those findings are also examined. The method and findings of the Florida study are reviewed first and then the method and findings of the Colorado study are reported and compared to the Florida data.

The Florida Study

During the summer of 1977, researchers from the University of West Florida surveyed retail establishments in the six largest metropolitan areas in Florida. The respondents were randomly selected from six retail categories, and the total population was defined as those firms which were listed in the "yellow pages" of the telephone directory. The six retail store categories were groceries, department stores, restaurants, pharmacies, discount stores, and shopping malls.

The survey consisted of a series of structured personal interviews. Two hundred retail managers and assistant managers were selected to be interviewed, and the researchers were able to complete interviews with 159 of them. The interview contained 53 questions which required approximately 45 minutes for completion.

One key finding was that the retailer respondents believed that the U.S. energy problem was real and should be of concern. Approximately one-third said it was a very serious problem; over one-half said it was a serious problem, and the remaining one-sixth believed that the energy problem was minor or did not exist. However, the respondents often indicated that the problem might soon disappear because of technical breakthroughs. Many were prone to place blame for the high level of national energy usage on people and industries in other parts of the country.

Another key finding was the lack of knowledge about federal energy guidelines. Approximately two-thirds of the managers were not aware of the voluntary

With regard to the voluntary adoption of energy conserving techniques, the managers felt energy conservation should be a voluntary program at first with mandatory cutbacks later. Most managers indicated considerable reluctance for government to enforce and impose energy regulations, but 33 percent of the retailers felt that mandatory controls were the only ways to obtain substantial energy conservation. In fact, when they were asked for suggestions on how to alleviate the energy problem, the only clear suggestion was for the government to impose mandatory lighting and temperature levels; although the government's program would have to be fair and equitable.

The retailers stated that greatest effort in energy conservation could be expected when there was a financial incentive. Most who had already implemented energy conservation procedures said they did so because it was cost effective. Not surprisingly, more than three-fourths were in favor of government tax credits for energy conservation programs.

The respondents showed generally favorable attitudes toward specific energy saving techniques. Seventy percent had already extinguished interior lights more often and sixty percent had extinguished lights at additional times. They were far less likely to have altered the store's temperature and were not in favor of curtailing store hours in the future.

Methodology: The Colorado Study

Unlike the personal interview approach used in the Florida study, the Colorado study of retailer attitudes used a self-administered questionnaire which was mailed to retailers. These questionnaires were sent to a total of 383 retail stores in Fort Collins and Loveland, Colorado. The recipients included all retailers in the following retail activity areas as defined by the SIC numbers shown in brackets: eating places (5812), food stores (5411), general merchandise stores (5311, 5331, and 5399), building materials (5211, 5251), apparel and accessory stores (5611, 5621, 5631, 5641, 5651, 5661) and furniture, home furnishings and equipment stores (5712, 5713, 5722, 5732). These categories were selected because of the diversity of their operations, their visibility to consumers, the relatively high numbers of stores in each category.

The questionnaires were pretested and mailed during March, 1980. Three weeks later, a 41 percent response rate had been achieved. It was decided to mail out a follow-up questionnaire to the remaining non-respondents. This second wave of questionnaires resulted in a total 57.7 percent response rate, which is relatively high for a mail questionnaire.

Table 1 shows the number of questionnaires and the response rate by type of retail store. Only the eating places category had a response rate below 50 percent, but that category is the one with the highest total number of respondents. Ninety percent of the people completing the questionnaire were either store owners or store managers.

A portion of the questionnaire consisted of statements about the energy crisis. Retailers were asked to indicate their degree of agreement with the statement. A five-point Likert-type scale was used to quantify responses with a value of five for strongly agree, four for agree, three for uncertain, two for disagree, and one for strongly disagree.

The Colorado study, like the Florida study, revealed that retailers believe that there is a serious energy problem in the U.S. As shown in Table 2, nearly half strongly agreed with the statement, "There is an energy crisis in the United States." Another 38 percent agreed with the statement and only 8 percent disagreed or strongly disagreed. Furthermore, 71 percent of the responding retailers believed that conservation by retail stores was a major way to reduce total energy consumption.

In another portion of the questionnaire, retailers were asked whether or not they were adequately informed about government imposed store temperature restrictions. Three-fourths answered that they were. This is in sharp contrast to the Florida study where two-thirds were not aware of temperature guidelines. Explaining much of this change in knowledge is the fact that the government implemented the Emergency Building Temperature Restriction (EBTR) program in July, 1979. President Carter and other government agencies attempted to gain maximum publicity for the new guidelines which called for thermostats in most non-residential buildings to be set no lower than 78 degrees in the summer and no higher than 65 degrees in the winter.

Only 41 percent of the respondents indicated that they were aware of federal lighting level guidelines. While this is more than were aware of the lighting guidelines three years earlier in Florida, it is below what might be considered acceptable.

A key issue is retailers' attitudes toward government-imposed temperature restrictions. Florida retailers were opposed to mandatory controls. However, their attitudes were measured prior to enactment of the EBTR program. Colorado retailers were questioned when the EBTR program was in force. As shown in Table 3, almost half of the Colorado retailers believed that the EBTR program was effective in reducing energy consumption. Relatively few believed that it cuts volume or lowers productivity. There were mixed reactions as to whether it produced customer complaints. Many thought the EBTR discriminated against some types of retailers.

As in the Florida study, Colorado retailers believed that financial incentives were of critical importance in adopting conservation measures. Surprisingly, 55 percent of the Colorado respondents believed that implementing conservation procedures is usually cost effective for the retailers. In both the Colorado and Florida studies, three-fourths of the respondents thought that the government should offer tax credits to retailers for implementing energy conservation procedures.

Finally, despite nearly three years between the studies and increased publicity about how retailers can save energy, the Colorado and Florida retailers stated that they had implemented specific programs to about the same degree. As shown in Table 4, about 30 percent had removed lights from fixtures, 60 percent had reduced exterior lighting, 50 percent had decreased lighting in non selling areas and less than 25 percent had installed interior reflective material, added insulation, or curtailed hours of service. The major difference is in the area of reducing interior lighting. Florida retailers were much more likely to have taken that step. In general, Florida retailers were more likely than Colorado retailers to be in favor of energy conservation procedures they had not yet adopted.

TABLE 1
RECIPIENTS OF THE MAILED QUESTIONNAIRE AND FINAL RESPONSE RATE

Retail Activity	Number of Respondents	Total Number in Category	% Returned
1. Eating places	71	153	46.4%
2. Food stores	25	35	71.4%
3. General merchandise	15	19	78.9%
4. Building materials	20	26	76.9%
5. Apparel and accessory	51	92	55.4%
6. Furniture, home furnishings, and equipment stores	39	58	67.2%
Total	221	383	57.7%

TABLE 2
ATTITUDES TOWARD ENERGY CONSERVATION/FREQUENCIES AND (PERCENTS)

Statement	Extent of Agreement (Weighted Values)*				SD (1)
	SA (5)	A (4)	U (3)	D (2)	
There is an energy crisis in the United States. (n = 218)	102 (46.8%)	83 (38.1%)	16 (7.3%)	15 (6.9%)	2 (.9%)
	Mean = 4.299 Std. Dev. = .922				
	Coefficient of Variation = .218				
Conserving energy by retailers is a major way to reduce total energy consumption in this country. (n = 219)	45 (20.5%)	111 (50.7%)	33 (15.1%)	27 (12.3%)	3 (1.4%)
	Mean = 3.767 Std. Dev. = .961				
	Coefficient of Variation = .255				

*SA = Strongly Agree A = Agree U = Uncertain D = Disagree SD = Strongly Disagree

TABLE 3
ATTITUDE TOWARD THE EBTR PROGRAM/FREQUENCIES AND (PERCENTS)

	Extent of Agreement (Weighted Values)*				SD (1)
	SA (5)	A (4)	U (3)	D (2)	
The federal government's mandatory "Emergency Building Temperature Restriction Program" is an effective program for reducing energy consumption by retail stores. (n = 219)	24 (11.0%)	81 (37.0%)	49 (22.4%)	49 (22.4%)	16 (7.3%)
	Mean = 3.219 Std. Dev. = 1.132				
	Coefficient of Variation = .352				
The "Emergency Building Temperature Program" discriminates against some type of retailers. (n = 218)	18 (8.3%)	73 (33.5%)	80 (36.7%)	43 (19.7%)	4 (1.8%)
	Mean = 3.266 Std. Dev. = .932				
	Coefficient of Variation = .285				
Reducing the temperature level to 65 degrees decreases sales volume in retail stores. (n = 219)	11 (5.0%)	37 (16.9%)	54 (24.7%)	93 (42.5%)	24 (11.0%)
	Mean = 2.626 Std. Dev. = 1.048				
	Coefficient of Variation = .399				
Customers complain when the temperature is 65 degrees in retail stores. (n = 219)	29 (13.2%)	68 (31.1%)	23 (10.5%)	87 (39.7%)	12 (5.5%)
	Mean = 3.068 Std. Dev. = 1.208				
	Coefficient of Variation = .394				
Keeping the store temperature at 65 degrees lowers productivity of employees in retail stores. (n = 219)	19 (8.7%)	39 (17.8%)	41 (18.7%)	97 (44.3%)	23 (10.5%)
	Mean = 2.699 Std. Dev. = 1.142				
	Coefficient of Variation = .423				

*SA = Strongly Agree A = Agree U = Uncertain D = Disagree SD = Strongly Disagree

Major differences between Colorado and Florida retailers are in the areas of reducing interior lighting and altering store temperatures. Colorado retailers favor adjusting store temperature while Florida retailers favor reducing interior lighting. Colorado retailers (67%) said they have already decreased store temperature during cold weather months, but fewer (38%) said they had reduced interior lighting. Few Florida retailers (30%) on the other hand, have altered store temperatures (increased them during warm weather months) but many (70%) have reduced store lighting. The Colorado study was conducted after the EBTR program went into effect thus making the altering of store temperature mandatory. This fact may account for the differences detected.

Conclusion

Five major conclusions can be drawn from the two major studies of retailer attitudes about energy conservation:

1. Retailers continue to believe that there is an energy crisis. The Colorado study indicates that retailers believe that energy conservation by retailers can help alleviate that crisis.
2. Retailers are more aware of government temperature restrictions on retail businesses. However, there is a lack of knowledge of the guidelines for lighting levels.
3. Retailers are largely supportive or at least not strongly against government temperature restrictions. They do not believe that the restrictions are severely harming their businesses.
4. Financial incentives are critical to motivating retailers to implement energy conservation procedures.
5. Retailers have implemented or partially implemented a wide range of energy conservation procedures.

All five conclusions have public policy implications. Retailers are unlikely to doubt government claims that there is an energy crisis that needs to be responded to. Furthermore, retailers do not believe that the EBTR is unfair or unduly injurious. The government needs to continue its efforts to inform retailers about energy consumption standards and guidelines, especially in the lighting area. It should stress the financial advantages of implementing specific energy conservation procedures. Finally, retailers are willing to change their energy wasting ways, and they have already implemented a wide range of energy conservation techniques.

References

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TABLE 4
MANAGER'S ATTITUDES AND DEGREE OF IMPLEMENTATION OF ENERGY CONSERVATION TECHNIQUES

Technique	Already Implemented		In Favor of Technique		Not in Favor of Technique	
	Florida	Colorado	Florida	Colorado	Florida	Colorado
Remove lights from fixtures	30%	31%	35%	8%	35%	51%
Reduce exterior lighting	60%	63%	30%	6%	10%	17%
Reduce interior lighting	70%	38%	20%	6%	10%	22%
Decrease lighting in non-selling areas	50%	51%	30%	7%	15%	13%
Install interior reflective material	15%	22%	30%	7%	38%	52%
Install additional insulation	10%	17%	54%	18%	25%	39%
Curtail hours of service	6%	13%	35%	3%	55%	70%
Altering store temperature*	30%	67%	40%	9%	20%	16%

*Data is not directly comparable. The Florida study investigated increasing store temperature during summer months which the Colorado study investigated lowering temperatures during winter months.