Using National Policies to Promote Electric Energy Efficiency Programs in Ghana: Reactions of the Industry

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This study reports on an exercise carried out to identify the reactions and views of regulators, producers and industrial electric energy consumers to policy suggestions to promote electric energy efficiency programs in Ghana. It aims at identifying barriers to the establishment of a policy framework to promote electric energy use efficiency. The author interviewed twelve policy or decision makers most of whom are members of the board of directors of their respective companies or in charge of approving policies or decisions in their agencies. The informal semi-structured interviews solicited the reactions of the policy or decision makers to five policy suggestions. The responses and reactions within each group were similar but varied across groups. While the industrial consumer group felt the policies will reduce their cost in general and improve their energy-use efficiency, the regulators were very skeptical. They felt that some of the policies were not going to work and consumers' behavior was not going to be affected in any appreciable way. They felt the country does not have the required organizational machinery to implement some of the policies. The producers, on the other hand, believe that the government should take the initiative through policy instruments to direct the promotion of energy efficiency programs.

INTRODUCTION

The interest of the various state utility regulatory commissions in the US in promoting demand-side management (DSM) or energy efficiency programs necessitated the need for the reform of some regulatory policies. Prior to 1988, most regulatory policies provided negative incentives to utilities investing in electric energy efficiency programs (Moskovitz 1992). However, in 1988, the Energy Conservation Committee of the National Association of Regulatory Utility Commissioners (NARUC), through the passing of its resolution encouraging state commissioners to ''adopt appropriate mechanisms to compensate a utility for earnings lost through the successful implementation of DSM programs and seek to make the least-cost plan a utility's most profitable resource plan'' (NARUC 1993), stimulated some interest within state regulatory commissions. The result was an active reform of regulatory policies that acted as barriers to the promotion of energy efficiency programs and the institution of policies that provide positive incentives to the electric utilities. The major focus of the regulatory reforms was to de-link the profitability of an electric utility to its total kilowatt sales (Marnay and Comnes 1992). Most electric utilities reacted with financial, technical, legal and political resources by increasingly investing in DSM programs. There was also the rapid adoption of least-cost planning procedures by most electric utilities. Without regulatory reforms, it is not likely that electric utilities would have invested in DSM programs. States with pro-DSM regulatory policies showed high levels of DSM activities (e.g., California, New England States, etc.), while those without pro-DSM regulatory policies (e.g., Alabama, South Dakota, etc.) had low DSM activities (NARUC 1993). Thus, the state regulatory commissions provided the initiative and direction which encouraged the electric utilities to design and implement successful DSM programs.

In Ghana, the Ministry of Energy and Mines (MEM), the regulatory agency of the Electric Energy Industry has not been able to effect such changes within the industry. It has not proposed any policies to date that direct the industry toward improvement in energy efficiency. The result has been the absence of any programs or plans that specifically encourage electric energy consumers to conserve or use electric power more efficiently. The only energy efficiency programs in the country are in-house programs being undertaken by multinational corporations to cut their energy use. Currently, the country is facing a severe electric power supply shortfall. The level of water in the hydroelectric dam, the main source of electric power, is just above the minimum level needed for operation due to drought conditions in the catchment area since the early 1980s. Residential consumption has been growing at an average rate of ten percent each year for the past seven years (Berko 1994). Commercial and industrial consumption has grown at an average of five percent each year since the inception of the Economic Recovery Program in the country (Brew-Hammond 1993). This has resulted in power curtailment during certain times of the year as well as lengthy waiting periods for new subscribers to electric power. Despite all these shortages, electric power continues to be used inefficiently in most places in the country. Incandescent bulbs and lamps are still the most common form of lighting fixtures (Berko 1994). The electric utilities which could have taken the initiative have

still not been able to design and implement a comprehensive energy efficiency program that effectively addresses the problem. Like a typical developing country, where the government owns and controls most of the industries and capital, the electric utilities are looking to the government for directives.

This paper presents the results of semi-structured interviews conducted between January and February 1995 in Ghana. The interviews were used to identify the reactions and views of producers, major industrial consumers, and regulators of the electric power industry in Ghana to five proposed policies. The focus of the interviews was to identify the perceptions of policy or decision makers as to how consumer behavior will be influenced by national policies on electric energy efficiency. The report presents the methodology of the study and the five policy suggestions. It goes on to present the reactions and an analysis of the policy or decision maker's responses. It ends with a summary of conclusions from the interviews.

METHODOLOGY

A semi-structured interview format was used within an informal setting. A total of twelve policy or decision makers were chosen from the electric energy industry in Ghana. The criteria was to choose people who either formulate or approve policies or decisions within Volta River Authority (VRA), the only electric power producing company, Electricity Corporation of Ghana (ECG), one of the electric power distribution companies, MEM, and major industrial power consumers. No decision maker was interviewed from Northern Electricity Department (NED), the other power distribution company since it is a subsidiary of VRA and its decision makers influence NED's day-to-day activities. Also, the consumer group was limited only to industrial consumers for two reasons. First, residential consumers are not organized and do not exert any pressure on the government to implement energy efficiency policies. Secondly, it was the belief of the author that the industrial consumers have the potential to influence national policies on electric energy because of the size of their individual consumption. Each of the policy or decision makers was interviewed independently with the exception of the industrial consumer group. The interview sections ranged between an hour and half to three hours depending on the interviewee and his interest in the discussions and was tape recorded with their permission. Each policy or decision maker was expected to comment on the policies by specifying any positive or negative impacts of the policies as well as behavioral changes among consumers expected by the policies.

PROPOSED POLICY SUGGESTIONS

In all, five policies were proposed in order to focus the interviews on specific issues. These policies have been implemented in other countries and have succeeded at various levels. Even though their success may have been influenced by certain specific conditions in those countries that may be different in Ghana, it was anticipated that, the suggestions will stimulate discussions within the industry. Hopefully, eliciting opportunities or barriers for a range of policies.

Policy Suggestion: Codes and Standards, and Device Labeling

The first policy suggestion was that a code and minimum standard could be established for all major residential, commercial, and industrial electrical devices based on the safe operation, maintenance and the energy consumption of the device. The standard could be strictly enforced through product inspections and equipment testing. All manufacturers, wholesalers and retailers of electric devices would be required to display labels on electrical products providing information on the energy consumption of the unit. The information would include how that particular unit rates compared to the most energy efficient devices in that group.

Policy suggestion: Import Tariffs

The import tax assessed on imported electrical devices could be based on the energy consumed per unit of service instead of its sales value. The tax scale would be graduated to favor high energy efficiency products. Cut off points would be established based on the highest energy efficiency standards for each device group, so that import tax will not be assessed on devices that fall within the group. Electrical devices with the lowest electrical energy efficiency standard would attract, in addition to the regular import tax, a penalty. This penalty could be a function of the excess energy consumption of the device over the average energy efficient device in that category and the marginal cost of generation to meet peak demand. The proceeds from the penalty should be paid into a national energy efficiency promotion loan fund to finance energy efficiency and utility capacity improvements.

Policy suggestion: Integrated Resource Planning

The government could require all electric utilities to;

(1) adopt Integrated Resource Planning (IRP) procedures,

(2) promote energy end-use efficiency as part of their everyday operations.

It could also give tax breaks and reward electric utilities and major electric energy consumers for promoting, implementing, and achieving certain levels of electric energy end-use efficiency. The rewards could be in the form of supporting or reimbursing electric utilities and major consumers for a greater percentage of the cost of research and development in the areas of energy efficiency.

Policy Suggestion: Rebates and Incentives

The electric utilities could implement programs that compensate all consumers based on the amount of energy they are able to save through investments in electric energy efficient devices. The level of compensation could be set at a level equivalent to the cost of purchasing an equivalent amount of generating capacity or the avoided cost. In addition to the rebates, these programs could offer assistance to consumers in the form of information and education, product labeling and classification, feedback on electric energy use, audit on buildings, and some technical assistance in improving energy use efficiency if need be.

Policy Suggestion: Financing Energy efficiency Improvements

The government should establish a ''national electric energy efficiency loan fund'' which would be financed by demand charges on electric power consumption, proceeds from penalties assessed on the importation of inefficient electric devices, as well as contributions and grants from foreign agencies interested in promoting energy efficiency and reducing global warming. The monies in the fund could be guaranteed by the government and loaned out as 'energy efficiency improvement loans' to all interested developers and electric energy consumers to help finance efficiency improvements as well as some utility expansion programs. The amount lent to an individual should not exceed the cost of planned retrofits or electrical devices. The efficiency would have to be at least in the top 20 percent of similar devices sold in the country. The interest rate could be set at a level slightly lower than the going commercial lending rate. Repayments of loans can be directed through ECG's or NED's monthly energy billings to consumers. The pool of money could be managed and disbursed by a consortium formed by the electric utilities, consumer's representatives and government officials from the ministry directly in charge of monitoring the activities of the electric utilities.

REACTIONS OF THE POLICY OR DECISION MAKERS

Three main groups of policy or decision makers were interviewed: The regulators, the producers and the large industrial consumers. Each of them was initially asked about the level of energy efficiency within the system that is feasible and cost effective to attain before proceeding to the discussions on the policy suggestions. Within each group, the reactions were very similar and the discussions were on the impacts of the suggested policies on their activities. However, the reactions and issues raised differ markedly between groups. Below are the summarized reactions of each group.

The regulators

Three policy makers were interviewed at MEM. Initially, they were quite negative in their reactions to the policy suggestions. Throughout the interview none of them ever smiled and it seemed they did not believe government policies would help address the current electric energy crisis in the country. They also did not believe that adopting the appropriate policies could result in the provision of the logistics and mechanisms necessary for the successful implementation of the policy suggestions. They sounded quite frustrated.

Generally, they all felt that the level of efficiency that should be targeted should be cost-effective to the consumer. According to a top policy maker with an engineering background in MEM, ''levels that are cost-effective make sense since that is what can easily be appreciated by consumers that do not know much about energy efficiency. The concept of a market system is new and long run marginal cost pricing is not currently used to set tariffs,'' he continued. With regards to the codes and standards policy suggestion, they all believe that the policy is good and can ensure the availability of energy efficient devices on the market. However, they felt that there is a need for MEM to investigate how the policy is going to affect the prices of those devices before implementing it. ''Right now, institutions in the country do not have the means to test or cross check labels that are placed on electrical devices,'' commented one of the policy makers, who is an economist. He continued, ''how can we enact such a policy if the National Standard Board (NSB) does not have the capacity to develop and enforce such a standard?'' ''Thus, if the manufacturers provide wrong information on the labels, there will be no means to cross check them,'' said the other policy maker who is an engineer. According to them, there is the need to put institutions that can effectively test devices on the market before enacting such a policy will make sense. ''We are now starting to put mechanisms in place such as contracting with University of Science and Technology (UST) to help set standards and test electrical devices for the country. We must keep in mind that we cannot achieve efficiency levels that exist in the developed countries over night. It must be a gradual process and MEM has given itself five years to raise the efficiency standard to the level that exists in developed countries,'' said the third policy maker who is also an engineer. They also believed

that the import tariff policy suggestion is a follow up to the one on codes and standards and once again, there is the need to put in place an appropriate mechanism before it can be effectively implemented to the benefit of all. They felt that the impact of the policies on prices and availability of electrical goods should be seriously considered before enacting them.

Their reaction to the IRP policy suggestion was pessimistic. They said that the government is not currently providing any incentives to the utilities to promote energy efficiency and it does not look like it is something that is going to happen in the near future. ''Electric energy is currently being subsidized by the government since VRA and ECG are not allowed to charge consumers for the cost of generating electric power. I do not really see how the government can provide any incentives to the utilities,'' remarked one of the policy makers who is an engineer. ''Moreover, the utilities are government owned and providing incentives will look like providing incentives to itself,'' said the other policy maker who is also an engineer. However, the economist felt that providing incentives to the utilities in the form of reimbursing and rewarding managers for fruitful research in improving energy use efficiency could serve as a good stimulus to encourage utility interest in the promotion of energy efficiency programs.

On the rebates and incentives policy suggestion, they felt there will be a problem with who was going to bear the cost of the rebate. ''If the manufacturers bear the cost then it will imply that we are going to promote the goods of only those particular manufacturers in this country. This is against free trade policies and the government will end up being sued,'' lamented the economist policy maker. ''If the utilities bear the cost, it will just be providing more subsidies for electric energy consumption,'' he ended. However, they all felt that the policy may encourage consumer interest in energy efficiency depending on the level of rebates, but they doubt very much if consumers will be very enthusiastic about it. ''Rebates are something new in this country. Very few people know about how it works. The consumers are generally suspicious and may even think it is a kind of rip off. A lot of education has to be done to get them to understand how it works. Most likely, a lot of them will think the rebate amount is not worth the investment,'' said one of the policy makers (engineer). They also thought that the policy will not do much good for the utilities since the consumers may not actively participate in the programs to reduce their energy consumption.

On the financing policy suggestion, their reaction was very negative. They felt that consumers would use the loan money for things other than energy efficiency improvements. Generally, they had a very negative idea about the average consumer in Ghana with regards to credit facilities from the government. ''The average Ghanaian concept of credit is far different from that of people from developed countries, especially if the source of money is the government,'' said one of the policy makers, who is an engineer. ''Most people will default and collapse the fund because they will see it as their own tax money,'' he ended. They also made mention of the possibility of the managing consortium favoring certain consumers and a possible mismanagement of the fund if it is kept within the government machinery. They strongly felt that the fund management will mirror the attitudes and behaviors of the local banks by making out loans only to the affluent within the society.

The producers

Five decision makers were interviewed from the utilities. A board member and a top manager were interviewed at VRA, while a board member and two top managers were interviewed at ECG. They were all engineers. They looked very much interested in the policies and were very positive and enthusiastic throughout the interview. They saw the entire session as an open discussion to try to identify solutions to a national problem. They were optimistic about the success of the policies even though they acknowledged throughout the interview that certain institutional arrangements would need to be made. They believed all the problems that were mentioned can effectively be addressed to ensure the smooth implementation of the policies. They thought the government should take a bold stand on energy policy to ensure the success of the economic recovery program. They felt the problems with electric energy in the country are real, and believe people are prepared to work together to solve the problems. The only thing missing is direction. They all felt that if the government set the pace by implementing the right policies the people will follow and the electric energy problem of the country will be addressed effectively.

While both board members felt a level of energy efficiency that is cost-effective to the consumer was a good place to start, the managers felt that a level that is equal to the long run marginal cost of electric power production, transmission and distribution was better. The board members thought that the concept of energy efficiency is quite new in the country and to make people understand and appreciate what energy savings means, it would be better to interpret the benefits in terms of money that the consumer saves. The managers, on the other hand, felt that since electric power tariffs are going to be increased to reflect long run marginal cost, it will be reasonable to push for comparable energy efficiency levels.

They all felt that introducing energy-efficiency standards and codes will help ensure that electrical devices used in the country are energy efficient. According to the manager at VRA, ''if strictly enforced, it can contribute to better load

management by the electric utilities. It is a good policy in the right direction since local manufacturing of electrical devices are beginning to pick up in the country,'' commented the VRA board member. ''In this way, the government as well as consumers will be assured that the devices that are purchased and used are energy-efficient,'' he continued. They all felt that the policy will help in controlling the energy use of electrical goods on the market and help prevent the dumping of energy inefficient electrical goods that are banned from the developed countries in Ghana. However, they felt that there was going to be a problem with implementation if certain institutional changes and training programs are not provided. ''To ensure that the policy achieves its objectives, we must put into place a machinery that ensures that the information provided by manufacturers or distributors on the energy efficiency of the electrical devices is right,'' suggested the board member of VRA. ''The standards board will have to expand into the electrical field to be able to better handle the setting of standards as well as testing of devices to ascertain that they really meet the required standards,'' he ended. ''There is also the need for the creation of specialized groups within the utilities that have the technical know-how to develop appropriate testing procedures and recommend electrical devices that meet the requirements of the codes and standards,'' suggested one of the managers of ECG.

On the import tariffs policy suggestion, the policy makers agreed that current government policy indicates only an interest in the money that importation of electrical goods attract. They felt that introducing such a policy would be like killing two birds with one stone. ''It will ensure that electric energy in the country is used efficiently. It will also encourage importers to bring in energy efficient appliances since the high duty that the inefficient appliances will attract could make the first-cost of the inefficient appliance more expensive,'' remarked the board member of ECG. ''The financial interest of the government in the importation of goods will also be satisfied,'' he ended. According to the manger at VRA, ''this policy will discourage dumping of energy inefficient devices banned in other countries.'' They also felt that this policy suggestion was similar to the first one and could be combined into one coherent policy. In this way common logistics can be provided for smooth implementation. They also mentioned the need for the training of specialized groups within the enforcing agency since energy efficiency has traditionally not been part of the parameters used to assess import duty. The major problem they envisage was the determination of the duty rate that will equalize or make energy-inefficient appliances more expensive than energy efficient ones.

The two board members and the manager at ECG strongly felt that there is the need for restructuring of the planning procedures in the electric energy industry in the country. ''Adoption of IRP by the utilities will ensure a sustainable development of the industry,'' according to the VRA board member. ''Research has been of very low priority on the agenda of the utilities and it is time policies are set into place to encourage it,'' said the manager at ECG. ''Rewarding utilities for promotion of end-use efficiency and IRP can stimulate utility executives to reconsider their planning procedures and make them more productive in addressing current supply problems,'' ended the manager at ECG. ''IRP should be encouraged in our planning framework. The concept is new and we do not really understand it very well. We need to train our planners in that area so that they incorporate it in our planning framework,'' commented the manager from VRA. They all felt that providing the utilities with incentives can encourage the promotion of energy efficiency programs. However, they wondered how it could be done considering the fact that all the utilities are currently owned by the government. ''One of the problems will be how the incentives are determined and provided,'' remarked the VRA board member. They all agreed that end-use energy efficiency should be encouraged as a way of dealing with some of the electric energy problems the country is facing now. However, all the managers felt that the right time to provide incentives to encourage energy efficiency will be when ECG is privatized. According to the ECG board member, ''it will then be in the business interest of ECG to take advantage of the incentives to boast its shareholder's value.''

''This is an excellent way of inducing consumer interest in energy end-use efficiency,'' said the VRA board member in reacting to the rebates and incentives' policy suggestion. ''Generally, rebates are not something that is known in Ghana and there will definitely be the need for consumers to be educated on how rebates work,'' he concluded. According to one of the managers at ECG, ''the rebates and information program policy is great. It will really catch the attention of the consumers.'' They all felt that it will be one great driving force that can bring the idea of energy efficiency to the doorstep of the consumers. They felt that consumers are always looking for ways to save some money and this will give them an opportunity to cut their electric energy bill, save some money in the process and enjoy a better level of services from the utilities. They also felt that it will reduce the initial cost on investments in energy efficiency improvements. However, they expressed concerns about who was going to pay the cost. They all stressed that it must be set up in a way that does not compromise the financial status and level of services of the utilities. The ECG board member expressed his reaction this way, ''the problem I see with this policy is how the cost of the rebates will be recouped. I do not think the utilities will be prepared to bear the cost. I do not think a large market can be assured right from the on set and that can make the manufacturers a little reluctant to bear the cost,'' he paused for a short while, and ended by saying, ''however, it is a step in the right direction and

it has a good chance of making a difference if a means can be devised to absorb the cost.'' With regards to making energy efficiency information available, they expressed the need to train their staff to be able to provide the right information since it has not been part of their activities in the past. As the VRA board member puts it, ''until recently, VRA had a large surplus margin that was going to waste. Therefore, we were encouraging consumption. Now we have to reorient our activities to encourage efficiency in end-use instead and this requires some training.''

They all felt that the loan fund policy suggestion is an excellent idea especially for both small and large scale consumers who have a great potential for improving their energy end-use efficiency. ''It will provide an incentive to them to improve their energy-use efficiency,'' according to one of the managers at ECG. ''In this case the financial constraint will be eliminated,'' he concluded. However, they felt more thought needs to be given to the idea so that a means of effective collection can be devised. They also expressed the need to ensure loan monies are used for the intended energy efficiency improvements since there might be the temptation for it to be used for other unrelated ventures because of its low interest rate. They expressed the problem of how the fund can be financed. According to one of the ECG managers, ''currently one percent of consumer bills go toward street lighting and another one percent goes toward rural electrification projects. I am not sure how consumers will react if they are informed that an additional one percent of their total bill will be used to fund a loan program to promote energy efficiency improvements,'' he concluded. ''There is also the equity problem,'' as the other ECG manager reacts to the policy suggestion, ''what will be the benefit to a consumer who contributes to the fund but does not get the privilege to use it?'' He paused for a while and went on, ''if the loan is opened to all consumers then I do not see any problem with the implementation of the policy, on the other hand, if certain consumers are denied access to the loan fund then an equity problem would have to be addressed. Maybe the best way to go about it is to look for an outside independent source for the money just like the Global Environmental Facility (GEF) you mentioned,'' he concluded.

The consumers

Decision makers from four major industrial electric power consumers were interviewed. They were selected at random from a pool of about thirty major industrial consumers. They are all manufacturing companies located in an industrial city near the capital. In each of the companies, the decision maker in charge of making decisions about cost of production and electrical energy use was interviewed. In each of the interviews at least two people were present with the information being provided mostly by the senior decision maker. The second person in most cases just provided specific data or information when needed. They were enthusiastic about the interview but they were a little skeptical about its impacts since traditionally they have never been consulted or had the chance to influence electric utility decisions.

With the consumers, the general consensus was to push for a level of energy efficiency that is justified by consumer savings in energy cost. They felt that any policy that will lower cost of production will be most heartily welcomed. They all felt that the codes and standards' policy suggestion would help standardize electrical devices brought into the country. They agreed that the policy will force manufacturers and distributors to only supply electrical devices that meet the standards. ''It will eliminate the problem of having to second guess the energy efficiency of an electrical device,'' said one of the policy makers who is a food technologist with one of the food processing companies. Another policy maker from the aluminum processing company (an engineer) puts it this way; ''with this policy in place and well enforced, we will not have to worry about searching for energy efficient devices anymore, that will be what the market offers. This will save us a lot of time and money spent just looking for an energy efficient electrical device,'' he ended. One of the policy makers (engineer) from a food processing company also said; ''we will be forced to use efficiently a resource we have all along taken as given, by just choosing the right electrical devices. The resulting savings will help the utilities better manage the ever-growing consumption load as well as improve their service delivery.'' However, they expressed some fears about the impacts such a policy could have on prices of electrical devices in general. These fears were reduced after bringing in the issue of savings that will accrue from electrical billings. They also expressed some concerns about the lack of an institution that can effectively test electrical devices to make sure they conform to the consumption specifications on their label. They felt that special infra structural developments and training needs to be provided to NSB so that it can effectively monitor the situation.

They all felt that the import tariffs policy suggestion was quite similar to the codes and standards policy suggestion. They agreed that it will encourage importers and distributors to bring only energy-efficient devices into the country. The penalty, they concluded, will make it unwise for them to bring energy inefficient electrical devices into the country. As one of them, a food engineer from one of the food processing companies, said; ''the policy will prevent the dumping of inefficient electrical devices by the Asian countries in Ghana.'' However, they suggested that since the government does not tax the importation of industrial electrical devices, it will be better if an efficiency range is set, just like the standards. In this way, devices that fall outside the range can be taxed heavily. Paying the penalties assessed on energy-inefficient devices into an energy efficiency fund

to promote energy efficiency and utility capacity building was largely accepted by all of them. They all thought it made a lot of sense for those going to use energy-inefficient devices to pay for the cost of adding extra capacity to the generating systems.

The IRP policy suggestion was considered as a step in the right direction. They all felt that the utilities have the manpower and resources to actively encourage energy efficiency in the country. According to one of the decision makers from the food company, ''It is within their business capacity to promote such programs. They can do a better job in researching and providing us with the information on how we can save energy,'' he continued. They felt the incentives will give the utilities a cause to actively find ways of improving energy efficiency and educate the consumers so as to take advantage of them. They saw this as a mutual way of helping each other. Even though they had a feeling that it is in their interest to invest in energy efficiency, they felt that they have to be directed and pushed by either the government or the utilities. The decision maker who is an engineer with the aluminum company asked, ''is it not funny that we have to be pushed to invest in energy efficiency even though it is to our own benefit to do so? Are we not supposed to maximize our benefits at all times?'' Another decision maker with one of the food processing companies put it this way; ''we are always looking for ways to cut cost and increase our profits but we never consider cutting energy cost as one of the ways of reducing cost of production? I guess with a push from the government and utilities, we will be able to take advantage of the potential that exists.''

They were all excited about the incentives and rebates policy suggestion. They felt it held a lot of promise and will encourage every consumer to actively engage in energy use efficiency. They felt there will be the need for an initial education of consumers on the mechanics of the rebate program and once the consumers catch up to it, the program would be a success. They felt that it would be foolish for a consumer, either small or large not to take part in the program. ''Its money in your pocket,'' one of the decision makers from the food processing company remarked. They felt the information and the technical assistance that would be provided would be an eye opener for consumers and make them aware of their pattern of electric energy consumption. ''We will not need to worry again, the information will be there and there will be help to show us the right way to do it,'' was the reaction of one of the decision makers from a food company.

The financing policy suggestion was received with a lot of enthusiasm. They felt that the problem of not having enough funds to do electric energy efficiency improvement and retrofit jobs would be solved by the fund. They even suggested that some of the companies that benefit from it could capitalize the fund. They liked very much the low interest rate suggestion and felt it would greatly motivate consumers to improve their energy use efficiency. ''You know one of the problems we have here is capital,'' complained one of the decision makers from a food processing company. He continued, ''we are always fighting to generate enough capital to keep us both in business and also to finance our expansion. This will be a big relief to management,'' he ended. The decision maker from the aluminum company said; ''having money from this fund for energy efficiency improvements will release more funds for business expansion and help create more funds for the expansion of other related activities.'' He continued, ''it is a great idea and we must all help push the government and utilities to do this.'' They, however, hoped that the fund would be managed well so that it will be an on going process to help each and every energy consumer to improve their energy use efficiency.

DISCUSSION OF RESULTS

Even though the reaction of each group was different from the other, there were a few things that were common to all the three groups of policy makers. They all expressed concern about the need for infra structural development and training for the codes and standards setting as well as the enforcing agencies. They also expressed the fears of mismanagement of the energy efficiency fund. Generally, the reactions within each group of policy makers were similar. Even though each of them was interviewed separately, their reactions and responses were so similar that it sounded as if they had a discussion prior to my meeting each of them.

It is clear from the results that all the three groups suggested levels of efficiency that they and the constituents they represent can easily appreciate. The regulators had the interest of the consumers in mind and therefore suggested that levels that are cost effective will better be understood by the consumers. This was confirmed by the industrial consumer group. They suggested levels of efficiency that are cost effective and directly translate into money saved. On the other hand, the producer group seemed to be divided. While the board members felt efficiency levels that are cost effective were better, the executives felt levels that are equivalent to the long run marginal cost of production and distribution was more reasonable. This clearly shows the mind set of the board members and the executives. The board members were thinking more of the consumers whose actions will determine the success of the policy. The executives were more interested in their utilities and felt that since long run marginal cost pricing was going to be used in determining tariff levels in the country, it will be better to aim now for efficiency levels that will correspond to that.

There was some form of resistance on the part of the regulators to the code and standards and the import tariff policy

suggestions. They justified their resistance by indicating the lack of institutions to cross check the labels on the electric devices. They made it sound as if it was beyond the capacity of the government to establish a testing institution to randomly check labels. Their response leaves the impression that the lack of a testing institution makes it unnecessary to consider such a policy. The producers on the other hand saw the same problems but were more positive about them. They felt that the institutions can be established alongside the implementation of the policy. This clearly gives an indication of the willingness of both groups to effectively dealing with the supply shortfall in the country. The producers feel the pressure from the public to deal with the problem because they are in direct contact with the consumers. This pressure makes them more willing to consider any measures that can significantly help deal with the problem. The issue of the impacts of the policy on prices of electrical devices raised by the regulators shows their concern for consumers. But it stops there. Instead of seeing that as a guide to determining the right code and standards, they saw it as a barrier to the implementation of the policy suggestion. Again, the willingness of the producers to deal with the problem was made clear by their responses. They suggested training and education of personnel to help and guide the effective implementation of the policy suggestions. Even though the industrial consumer group expressed some comments similar to the regulators, they saw some positive sides of the policy suggestion. They felt the policy will save them the trouble and time used in finding out whether devices that they are considering purchasing are energy efficient or not. Contrary to what the regulators thought, the industrial consumer group felt that the policy suggestion will help consumers improve their energy use efficiency. Thus, even though the regulators have the interest of the consumers in mind, their perceived reaction of the consumers is different from the observed reactions of the consumers interviewed. It seems that the producers were able to predict consumer reaction better than the policy makers. On both policy suggestions, all the three groups suggested that they could be combined as one even though they all felt differently about them.

On the IRP policy suggestion, the regulators clearly indicated that it was not necessary. To them, the utilities are government owned and it does not make any sense for the government to encourage IRP through the provision of incentives. There was a clear lack of understanding of the IRP procedure to the regulators. Even after explaining the whole process to them, they keep dwelling on the incentives to the utilities' part. It seems they felt it was not fair for the government to provide incentives for a part of it that was doing its work more efficiently. Here again they perceived consumer reaction to energy efficiency programs wrongly. The producers seemed to understand the concept better and really saw the need for it. They felt that IRP procedures will help create a sustainable electric energy industry and promote research within the industry. Their reaction goes to further indicate their willingness to consider any measure that can effectively help them deal with the supply shortfall situation in the country. Both the regulators and producers wondered about how the incentive will be determined and provided since the utilities are government owned. Unlike the regulators that did not make the producers see the policy suggestion as unnecessary. The industrial consumer group felt that the IRP policy suggestion will push the utilities to encourage energy efficiency programs to their benefit. It can be seen from their responses that, each group paid more attention to ways that the IRP policy suggestion will affect them. The regulators felt that there was no need for the utilities to receive any incentives. Since they consider themselves as representing the government, they saw the policy as an extra demand on them by the utilities.

On the incentives and rebate policy suggestion, the regulators again showed their resistance to using policy to effective changes in energy consumption patterns. They dwelt on the negative aspects of the policy and showed no willingness to consider ways that those negative impacts can be addressed. They were concerned about who was going to pay for the rebates and incentives and its impact on free trade policies. They never saw themselves as playing a role in encouraging manufacturers to offer rebates or devising ways to work around the free trade policy problem. They did not take into consideration, the impacts the policy suggestion might have on the level of electric energy consumption in the country. They justified their reaction by indicating that it is in the interest of the consumer to use energy efficiently. Again, they were wrong about consumer reaction to the policy. Unlike the regulators, the producers kept their positive attitude. Even though they alluded to some of the problems brought up by the regulators, they dwelt more on the positive aspects of the policy suggestion. They were more positive about the problems and suggested ways that most of the problems can be addressed. Their major concern was the financial stability of the utilities. This is expected since their continued existence depends on that. Again, they correctly predicted the response of the consumers and showed their real willingness to consider all measures that have the potential to reduce the electric energy demand load. Contrary to the perceptions of the regulators, the industrial consumer group expressed real interest in the policy suggestion. They believed that each and every consumer will be interested since it is about reducing the cost of electrical devices and electric energy consumption. This clearly shows that the industrial consumers are really interested in ways to cut down on their electric energy consumption and would be very receptive to energy efficiency programs that help them achieve that.

On the energy efficiency financing policy suggestion, the regulators clearly showed their distrust in the average Ghana-

ian energy consumer. They showed their prejudism and were down right negative about the policy suggestion. Not a single positive response was given. They showed so much distrust for the consumer that it makes is difficult to believe whether they really have the interest of the consumer at heart. This makes one wonder whether they will ever initiate any policies that may be to the benefit of the consumers. Unlike the regulators, even though they felt there was a possibility of mismanagement of the loan fund, they felt that the policy could be implemented in such a way to ensure that the fund was not mismanaged. Their responses expressed their concern for the consumers. They brought up the equity and fund financing problems. This shows their genuine concern for the consumers. At least, they trusted the consumers better than the regulators do. They saw the policy suggestion as a tool to help consumers overcome some of the problems of improving their energy use efficiency. To them, this was a way of helping the consumers to help them manage their load problems. The industrial consumer group was enthusiastic about the policy suggestion since they had everything to gain. They saw the policy suggestion as making money available to help them reduce their cost of production. It was clear that their interest in the policy was mainly based on what they stand to benefit from its implementation.

Of all the three groups, the regulators were less positive about the impacts of the suggested policies. They seem to have an excuse for why each of the policy suggestions would be difficult to implement. It sounded like they were saying that conditions in the country will not make it possible for the policy suggestions to be implemented. They will have to wait for certain changes within other institutions, they had no control on, before they can do anything. Yet, they were not doing anything to bring to the attention of those concerned the need to initiate those changes. Their responses were very skeptical. They were quick to assume that the information provided by manufacturers on electrical devices could be wrong. Even though they claimed they felt some of the policy suggestions were good, they never indicated their willingness to initiate any action that would create a condition to promote energy efficiency. They felt consumers were not very interested in energy efficiency even if they were provided with incentives. They had very little trust for the consumers. They were not even prepared to give them the chance to prove themselves. They felt that they would not pay back the loans from the energy efficiency improvement fund. They felt the government was already doing enough for both the utilities and the consumers. Generally, they felt that since the consumers stand to benefit if they improve their energy use efficiency, there was no need for the government to interfere. Overall, they were quite negative in their reactions. However, discussions a year later with some officials of MEM indicated they were considering most of my policy suggestions in their energy efficiency plans. Their negative reactions to my proposal may be due to the fact that they saw me as an outsider trying to show them how to do their work. Thus, an acceptance of my ideas will indicate they did not know how to do their jobs. I think they would have been more accepting if I had worked through lower level managers instead of the senior policy makers.

The producers, on the other hand, saw the policy suggestions as the needed initiative to direct the country to take advantage of the large potential that exists for energy efficiency. Just like how private agency managers look up to their shareholders for direction, the electrical utilities look up to the government for initiative and direction of the industry. According to their responses, they are prepared to promote energy use efficiency if the government takes the initiative. Unlike the regulators, the producers strongly felt the shortcomings can be addressed. They sounded far more positive about the impacts of the policy suggestions than the regulators. They felt that consumers need to be directed and educated so that they can take advantage of the potential savings that can accrue from investments in energy efficiency. They agreed this could be achieved through the educational, rebate and energy efficiency loan programs. On the whole, they saw themselves as partners with both the government and consumers in promoting energy efficiency in the country.

Contrary to the feelings of the regulators, the consumers were very enthusiastic about the rebate and incentive programs. They were eager to enjoy the benefits. Their interest in reducing their cost of production so as to maximize their profits makes them a good partner to promote energy efficiency programs. They were willing to invest in energy efficiency but had a problem of finance. They felt the loan program was a great way to overcome the finance problem. They were willing to take the initiative if the government could create the conditions conducive for energy efficiency investments. Just like the producers, they look to the government for direction.

CONCLUSION

From the reactions of the policy makers, it can be said that, for energy efficiency programs to be promoted in Ghana, the government will have to take the initiative to enact policies that create a condition conducive for investment by both the utilities and consumers. However, the reactions of the policy makers in MEM makes one wonder whether the government will do anything on its own. The producers and consumers are ready to take advantage of the potential for energy efficiency that exist in the country, but they feel they need some directions and guidance from the government. Since the attitude of the regulators (MEM) does not look encouraging, it looks as if the utilities and the consumers will have to push very hard to get any policies from the government. It is clear that the regulators do not even know

the needs of the consumers. This makes it difficult for any effective policy to be put in place to encourage consumer interest and investments in energy efficiency. For now, the only hope for energy efficiency policies for the country will have to be initiated and pushed by the electric energy producers and the consumers. Traditionally, consumer activism is very low in Ghana. The producers have in the past been able to get the government to enact some of the policies they wanted. Therefore, they are in a better position to pressure the government to take the needed initiative.

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