ATTACHMENT A

Staff's DSM Program Proposal

BEFORE THE
PUBLIC SERVICE COMMISSION
OF MARYLAND

IN THE MATTER OF THE COMMISSION'S	**)**	**CASE NO. 8738:**
INQUIRY INTO THE PROVISION AND	**)**	**DEMAND SIDE**
REGULATION OF ELECTRIC SERVICE	**)**	**MANAGEMENT**

COMMENTS AND EXHIBITS OF THE STAFF OF THE PUBLIC SERVICE COMMISSION OF MARYLAND

OCTOBER 18, 2000

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Section I: Introduction and Summary of Recommendations

A. Introduction

This report presents Staff's comments on the Compilation of Proposed Demand-Side Management (DSM) programs requested by the Commission in its July 20, 2000 letter to all parties and interested persons. As directed by the Commission, the parties submitted proposed programs on August 28, 2000. Program proposals were submitted by National Association of Energy Service Companies, Northeast Energy Efficiency Partnership, the Southern Maryland Electric Cooperative and Maryland Energy Administration. Parties also exchanged data requests.

Interested parties met on September 26, 2000 to exchange additional information about the proposed programs, and to discuss the organization of this compilation of DSM programs. The attendees included: Allegheny Energy, American Council for an Energy Efficient Economy, Baltimore Gas and Electric, Bethlehem Steel/Eastalco Aluminum, Choptank Electric Cooperative, Columbia Gas, Conectiv Power Delivery, Exelon Energy, First Energy, Maryland Department of the Environment, Maryland Department of Natural Resources, Maryland Energy Administration, Maryland Industrial Group, Maryland Public Interest Research Group, National Association of Energy Service Companies, Natural Resources Defense Council, Northeast Energy Efficiency Partnerships, Inc., Office of People's Counsel, Southern Maryland Electric Cooperative, Potomac Electric Power Company, US Department of Energy, Washington Gas Light, Westvaco.

During this meeting parties provided summary presentation of program filings and answered questions. There was discussion regarding the nature of the filings and the continued need for additional information regarding current practices in building and equipment markets.

B. Purpose of Staff Comments

The second is to report on the state of electric and gas companies current efforts to promote energy efficiency and conservation. The purpose is to propose a program that balances the state's interest in energy efficiency and conservation with the goals of the Act. The state can have a conservation program which encourages conservation and energy efficiency, spur competition in the delivery of energy services and preserve the rate relief assured residential customers under the Act.

C. Summary of Conclusions and Requested Commission Action

It is Staff's opinion that the compilation has not achieved its purpose and an alternative strategy should be considered and adopted by the Commission. There appears to be insufficient data and information regarding the cost-effectiveness and rate impacts of the proposed programs in Maryland. There are, however certain features contained in each proposal, which should be integrated into a program design.

As a whole electric and gas companies currently provide few energy efficiency and conservation programs to customers. This is the result of changes in the structure of the electric and gas industries in Maryland. In terms of impacts, electric and gas are no longer in a position to individually evaluate energy efficiency and conservation options. Institutionally, these resources have either been lost or moved to other activities. Clearly, an alternative model needs to be examined to further the state's interest in conservation of energy resources.

Staff proposes the following education program pursuant to the provisions Section 7-201 and Section 7-211 of the Public Utility Companies Article. Staff believes that the education program proposed herein, can provide the basis for both the Commission and electric companies and natural gas companies to strike a reasonable balance between the goals or restructuring and

energy efficiency that found in the Articles. Staff believes that the proposed MD Utility ENERGY STAR® Partnership not only represents a reasonable balance of the statutory goals for both competition and energy-efficiency, but furthers both of these objectives.

Staff recommends that the Commission initiate a separate proceeding to consider its proposal to establish a Statewide MD Utility-ENERGY STAR® Partnership Program.

Section II: Analysis of Program Filings

A. Introduction

In response to the Commission letter dated July 20, 2000, five parties filed programs on or before August 28, 2000. The programs proposals were included in the recommended Compilation of Programs filed by Staff on October 6, 2000. This section provides brief summaries and discusses critical elements of each proposal.

B. Summary of Proposals

1. Northeast Energy Efficiency Partnerships

The Northeast Energy Efficiency Partnerships proposal would create a statewide portfolio of 12 programs to address commercial, industrial and residential energy efficiency and conservation opportunities. NEEP proposed the following programs:

Residential Programs

- HVAC Tune-Up/Repair Program
- Electric HVAC Replacement Program
- ENERGY STAR® Appliance & Consumer Products Program
- ENERGY STAR® Lighting Program
- ENERGY STAR® Windows Program
- New Construction Program
- Low Income Program

Commercial Programs

- Industrial Efficiency Program
- C&I Building Operation & Maintenance Program
- Commercial Building Retro-Commissioning Program
- C&I Energy Efficient Construction Program & Equipment Replacement
- C&I Motor System Optimization Program

NEEP's stated objectives for the programs are market transformation, lost opportunities, peak demand reduction and to provide services to low-income customers. The programs would utilize a number of different strategies, including incentives for customers and trade allies, marketing and coordination with other state, regional and national energy efficiency and conservation programs.[1] This approach is similar to program adopted by Maryland gas and electric utilities during the 1990s.

In terms of program costs, NEEP proposes a three-year budget of approximately $265 million, of which approximately $225 million or approximately 85 percent of budgeted costs would be paid to customers and contractors in the form of rebates or other incentives.[2] The largest programs would be for Commercial and Industrial New Construction ($96 million), industrial efficiency ($55 million), and residential HVAC ($33 million) and Residential New Home Construction ($26 million). These four programs account for approximately 80 percent of total budgeted programs costs for all programs.

The NEEP proposal does not include a cost-benefit analysis or rate impact analysis. NEEP has stated its intention to file this information some time after November 1, 2000. Without this information, a detailed analysis of this proposal cannot be performed.

2. National Association of Energy Service Companies

NAESCO believes the Maryland Public Service Commission (PSC) should adopt Standard Performance Contract (SPC) programs. In a SPC program, the program administrator develops a contract, delivery times, and conditions, with specific incentive payments for specified units of energy as delivered savings. It is proposed that PSC seek to acquire the equivalent of 200 MW of capacity, and associated energy use reductions.

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1 Compilation at page 10.

2 For discussion purposes, the estimated budgets for programs proposed by NEEP at pages 15-23 of the

The program will be available to all customers paying Systems Benefit Charges. Government and public facilities in Maryland will be a specific target. Improvements in these buildings yield benefits to all ratepayers and additional benefits in operating economies for MD taxpayers. Funding should come from SBC payable by all electric utility distribution customers.

NAESCO proposes that the program be administered by an independent entity under PSC supervision. Participants develop projects according to terms of the contract and submit savings measurements over a multi – year period in exchange for incentives for each kWh savings from the administrator. It is suggested that PSC follow the example set by New York PSC programs. These programs embody the best SPC features that have been evolving over the past 8 years in other states.

NAESCO asserts that the SPC approach offers significant advantages over other Programs. NAESCO identified the following advantages:

- Measured units of savings are delivered, directly equated to measured units of produced energy. Ratepayers can see the value. Participants who do not produce savings do not get paid. Penalties are sometimes paid when savings are not delivered.

- Stimulates development of market of ESCOs. Existing program in NJ has acted as a catalyst for two major and two dozen smaller in – state ESCOs and attracted a number of national companies to develop projects in the state.

- SPC programs offer a level playing field with regulatory supervision. Delivery of projects is the responsibility of the competitors in an open marketplace. A competitive, performance based approach will help overcome market barriers.

- The program encourages technology and business innovation among multiple customers and ESCOs.

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programs have been rounded to nearest million.

NAESCO also provided a review of SCP program in New Jersey and New York. New Jersey's SCP program called the Standard Offer has been in operation since the early 1990's. NAESCI reports that the program produced 860 efficiency projects in 5,078 commercial and industrial facilities and 53,697 residential units in PSE&G territory by the end of 1998. The program resulted a 200 MW reduction in summer peak and 1,100-gigawatt hrs of reduction in energy use. Additionally, the monitoring requirements of this program required verification of reductions of major environmental emissions. NAESCO contends that millions of dollars were spent on construction work, resulting in the creation of thousands of jobs in New Jersey. Additionally, NAESCO asserts that this program was an important factor in introducing new florescent and compact florescent lighting technologies into the mainstream of industrial, commercial, and residential markets. Further contends that the New Jersey program led to the Creation more than two dozen ESCOs in New Jersey and introduced performance based contracting into the energy and environmental services industry.

NAESCO also summarizes the key attributes of New York's SPC program is another example of a successful SPC program. These included the following:

- Statewide consistency makes market more attractive for new companies.
- Multi–Year commitment offers ESCO's confidence in making a significant investment in a program or market. Three years of stable incentive commitment allows ESCO to establish a good business plan that will yield success.
- Marketing to various segments of the population provides more opportunity.
- School/university program may be designed to produce cash flow to subsidize infrastructure improvements.
- Industrial program would minimize contractual restrictions on changes in future operations.

- Penalties for non–delivery
- ESCOs will set realistic levels, not extend marketing beyond reasonable delivery capabilities.

3. Southern Maryland Electric Cooperative

Southern Maryland Electric Cooperative, Inc.'s, (SMECO), proposal is designed to serve SMECO's territory. Initiatives include: Home Weatherization; Construction Standards; Heating and Cooling Contractor Technical Assistance and Training; Customer Education; Technology Promotion; Financing Improvements.

SMECO has offered three specific programs as examples of ways to directly benefit their customers by reducing energy use, costs, and environmental degradation, without compromising reliability. The three programs proposed include the *ENERGY STAR® Home* program, the *PowerWise* program, and the *SelectHVAC* program. These are programs that are likely to be attractive to existing customers. The customers are familiar with the programs because they are already in place in SMECO's territory. The programs administrative costs are minimal and participation costs to customers are low. Local trade allies, builders, contractors, inspectors, and auditors are familiar with and easily integrated into the programs.

SMECO is concerned with the possible imposition of a public benefits surcharge to fund statewide programs. SMECO contends that there will be more customer acceptance of a program that invests their funds back into their communities rather than outside their service area. Regional programs also keep local job opportunities available rather than providing work to out of state contractors. SMECO contends that local programs solidify relationships between administrators and trade partners that deliver the service.

SMECO, notes that its proposal may be tailored to meet cost effectiveness requirements

that are to be established. New methods should be explored to advance efficiency, rather than adding charges to bills, such as the provision of tax credits for efficiency, lighting standards to transform the market to improve efficiency, and requiring mechanical performance inspections.

The ENERGY STAR® Home program evolved from the Power Saver Home program as rebates were phased out. SMECO inspects homes and certifies them as Energy Saver Homes if requirements/standards are met. A registration fee of $275 is paid by the builder and covers administrative costs, inspections data base tracking, mileage, and labor. Upon approval of inspection the home is registered with the Environmental Protection Agency and a certificate is mailed to the buyer. SMECO estimates that 30–50 % heating and cooling cost savings. The home is also a better investment and more marketable in the future.

The PowerWise program was designed to help existing homeowners improve the comfort of their homes and lower consumption by installing energy savers, providing financial incentives for major retrofits, and educating customers regarding energy management. The program is tiered to meet customers needs depending upon their electric usage.

- High – use customers are eligible for all components of the program but may not qualify for financial incentives.
- Residential customers receive direct – install measures and financial incentives towards major retrofit measures deemed cost effective.
- Low – use customers are eligible for only some components of the program.

Direct – install measures include conservation measures installable at the initial site visit. If cost effective, these measures are directly installed for high and low use customers, regardless of income. Examples of these products include: compact fluorescent lamps, water heater wraps, pipe insulation, faucet and showerhead flow devices. Major retrofit measures include building insulation, duct insulation, HVAC equipment service/maintenance, equipment controls, programmable thermostats, pool pump timers. These measures may qualify for financial

incentives, determined by measure screenings and scaled in relation to incremental cost and expected savings.

The SelectHVAC program is designed to promote home comfort and efficiency by working directly with HVAC contractors. SMECO aims to alleviate forces that prevent customers from purchasing an energy efficient HVAC system. These barriers include: lack of knowledge, difficulty obtaining an unbiased, technical opinion; contractors only interested in the bottom line, not quality; lack of product availability; lack of inspection requirements.

SMECO uses the EC Home Improvement Loan program as a vehicle for promoting energy efficiency. Some 205 customers have received over $785,000 in loans through ECHI program, offered at no cost to SMECO.

SMECO formed a group of contractors who agree to maintain trained technicians and adhere to standards for installing and servicing HVAC equipment. Customers are provided with a list of participating contractors. The list contains names and services offered, giving the customer confidence in their contractor. SMECO coordinates training and exams for contractors, training must be completed to participate in the program.

4. Maryland Energy Administration

The Maryland Energy Administration and the Department of Natural Resources/Power Plant Research Program proposed four program types:

- Informational program
- Residential/Small Commercial program for appliances
- New Home Construction program
- Commercial/Industrial Pilot

The informational program would involve consumer education to facilitate intelligent decision-making. Marketing assistance would be offered in the form of point of sale exhibits showing the savings to the consumer. The consumer would benefit from the training offered to the retail personnel in facilitating the decision–making process for consumers who may have questions or issues to discuss. This support opens up the market for efficient appliances. The program would also address technology, conservation costs, efficiency measures and the expected environmental effects of the program.

Residential/Small Commercial Programs for appliances would focus on reducing the cost differential between efficient and standard appliances for end users and builders. This may be done through rebates for refrigerators, window AC, and lighting. Target market would be both the replacement and new construction markets with rebates directly to consumers and builders.

New Home Construction programs would offer incentives to builders and customers making major renovations to existing homes. Certificates may provide additional marketability of homes and builders. Rebates would be based on the cost of improvements/appliances relative to baseline purchases.

Commercial/Industrial Pilot programs would help ESCOs market services and efficiency measures to commercial/industrial/institutional customers. Opportunities to conserve energy are offered through improved operation and maintenance practices, equipment replacement, operational modifications, and new construction.

5. U.S. Department of Energy

The U.S. Department of Energy (DOE) submitted information about the ENERGY STAR® Program. The DOE offered to assist the State of Maryland in both designing and implementing local and regional ENERGY STAR® -based programs for customer education,

market transformation, economic development and environmental protection. The DOE did not propose address specifically any of the questions posed by the Commission, but noted that the ENERGY STAR® Program can be tailored to meet the specific needs of a jurisdiction.

C. Discussion

Inadequate information is a problem that has bedeviled this proceeding since it was initiated by the Commission. The Commission expressed its concern about the lack of detailed information contained in party filings in its July 20, 2000 letter to parties and interested persons. Indeed, the request for programs was undertaken to gather additional information. Staff believes that the programs found in the Compilation of programs do contain substantially more information than those filed by parties on June 9, 2000.

The issue of the adequacy of the information found in the programs submitted was a topic of discussion at the meeting convened by Staff on September 26, 2000. There appeared to be consensus among parties present that the proposals submitted on August 28, 2000 still lacked specificity regarding savings, costs, cost-effectiveness, environmental and economic impacts that Commission was seeking. There appeared to be consensus among all parties that there was inadequate information sources such as benchmark studies and impact estimates to prepare detailed filings or address cost-effectiveness issues. NEEP, NAESCO and MEA indicated that they would attempt to address these concerns and file this information when it becomes available. Additionally, some parties expressed a concern that a process was not in place to address this problem. Further, it appeared that most, if not all, parties believed the information submitted was probably inadequate for the Commission to form a recommendation for its report to the General Assembly. In general, Staff agrees with these positions.

An additional concern relates to the costs of the proposed programs. The NEEP, NAESCO and MEA programs would require expenditures of hundreds of millions of dollars over a multi-period. These are very expensive initiatives, particularly when considering that over $500 million has been invested in commercial and residential demand-side management programs which addressed many of the same markets. One concern is that if there is a justification to continue spending at levels, which equal or, in some cases, exceed utility expenditures, during the mid-1990s, when utility expenditures for DSM program were at their highest levels.

The largest single category of spending in the NEEP, NAESCO and MEA proposals are for incentives. Experience in Maryland and elsewhere has demonstrated that rebates and other direct financial incentives are effective tools for encouraging program participation and maximizing net program benefits from the societal and total resource cost perspectives. In general, rebates set at levels equal to the full-incremental cost of an energy efficiency or conservation measure will usually result in the highest levels of participation and lowest rates of free-ridership, thereby maximizing the net benefits of a program. Staff believes that for purposes of market transformation programs that the total resource cost and societal perspectives are not appropriate. Therefore, such aggressive incentive structures cannot be justified.

A second concern is whether any of the benefits which could accrue are sufficient and widely distributed to justify the investments. There are significant issues related to the distribution of costs and benefits that have not been addressed in the program proposals.

A third concern is whether it is justifiable to impose a systems benefits charge on customers that would effectively eliminate the legislatively mandated rate reductions. These issues have been discussed previously by parties in the proceeding and will no doubt be

discussed in the comments of other parties. Staff believes that this is a matter for the General Assembly and not the Commission.

One of Staff's concerns regarding the proposals is that these issues will over-shadow the many merits of certain features of each proposal. Among the features that Staff believes should be included in new energy efficiency and conservation programs include the following:

1. Statewide approach to programs.
2. Utilities have the experience of working with their customers and this should be incorporated into a programs design.
3. Education and limited incentives.
4. Partnerships and Coordination.

D. Conclusions

There are many unanswered questions regarding the analysis and detail contained in the program proposals submitted in the Compilation of Programs filed by Staff. These include information concerning cost-effectiveness (e.g. costs, impacts, bill savings, etc) in Maryland. Without such information it is difficult to form a judgement on the efficiency of implementing these programs in Maryland. Staff is concerned that the rate reductions implemented pursuant to the Act not be significantly reduced by the cost of new energy efficiency and conservation programs. Staff believes that there are certain features included in the proposed programs which can be incorporated into an alternative programs design.

Section III: Statutory Requirements

A. Introduction

With the implementation of customer choice complete the Commission should focus on the role of consumer financed energy conservation in the restructured gas electric industry. Legislation directives, seem to envision that the Commission still play a role in directing these activities. At a minimum, a framework for analyzing these programs will be maintained.

B. Section 7-201. Electric Companies--Long-Range Plans

Section 7-201 (a) provides that the Commission shall be responsible for assembling and evaluating annually the long-range plans of Maryland's electric utilities. This subsection further provides that the Commission include information on the current and projected efforts of electric companies to moderate electric generation demand and peak demand through the electric companies' promotion of energy conservation by their customers. The section provides that the Commission's evaluation shall include: promotion and conduct of a building and audit and weatherization program; utilization of renewable resources; promotion and utilization of electricity from cogeneration and wastes; widespread promotion of energy conservation programs.

C. Section 7-211. Energy Efficiency

Section 7-211 provides for energy efficiency and conservation programs to be developed by gas and electric companies in Maryland and the role of the Public Service Commission in promoting and regulating these programs. Section 7-201 (a) addresses the promotion of energy efficiency by requiring each gas and electric company to develop and implement programs and services to encourage and promote the efficient use and conservation of energy by consumers, gas companies and electric companies.

Section 7-211 (b) provides that the Commission shall require each gas company and electric company to establish any program or service that the Commission deems appropriate and cost-effective to promote the efficient use and conservation of energy. Additionally, the Commission is empowered to adopt appropriate cost recovery and incentive mechanisms for natural gas and electric companies to develop and implement program that encourage the efficient use of energy and conservation of energy. Finally, the Commission is required to ensure that customer choice does not adversely impact the continuation of cost-effective energy efficiency and conservation programs.

Section IV: Status of Electric and Gas Company Programs in Maryland

A. Current Status

As a practical matter very little if anything, beyond low-income programs, are now being operated by electric and gas companies. Staff Exhibit 1 contains responses to a data request sent by Staff to investor-owned electric and gas companies in Maryland. The first question asked electric and natural gas companies to describe their efforts to implement the provisions of Section 7-211 (a). A review finds that electric companies continued to operate active load control programs, low-income programs and exit rebate programs. The gas companies reported that they focused on low-income programs.

The second question asked electric and gas companies to provide a statement of the Company's plans concerning the implementation of Section 7-211 (a) for the next 12 months. The electric companies will continue existing programs but exit other programs, including low-income programs, with the start of the Universal Service Program. It appears that no new programs will be filed. Reference is made to the consideration and evaluation of programs, but it is unclear, what efforts, if any, are being made to identify or seriously evaluate new energy efficiency and conservation programs. The natural gas companies plan to continue low-income programs, but little reference is made to consideration of other programs. This suggests that little if any resources are now being devoted to identify and analyze potential energy efficiency and conservation programs. In general, the response of the electric and gas companies indicate that little effort is now going into fulfilling the provisions of Section 7-211 (a).

B. Causes for Decline in Conservation and Energy Efficiency Programs

Identifying the role of conservation programs in a restructured electric industry has been a challenge. Many programs justified on an avoided cost basis became economically

unattractive as marginal costs fell. No new structure was developed to test cost effectiveness. Finally rate freezes have made utilities reluctant to adopt any new program adding costs.

1. Changes in industry structure

The integrated electric and gas utility of the past no longer exists. Supply and distribution are separate and distinct activities. Investor-owned electric companies in Maryland have either sold their generation assets and/or transferred these assets to unregulated subsidiaries, as mandated by the Public Utility Companies Articles. The fact is that these entities no longer resemble their organizations of two years ago. Electric companies have moved human and technical resources from DSM programs to either regulated or unregulated activities as these changes have occurred and programs were closed.

2. Changes in economics

Programs that initially appeared to be cost-effective were, found not to be no longer cost-effective. The two major reasons for this were overly optimistic planning estimates and declines in energy costs. The Commission rightly approved the closing of uneconomic programs to new participants**.** There were no programs and no means to justify the resources to continue evaluating programs and technologies.

3. Concerns About Equity and Competition

Demand-Side Management programs resulted in the costs of programs, financial incentives, and lost revenues to be shifted to the general bodies of ratepayers. Additionally, many utilities expressed concerns about the impact that such programs had on rates. Additionally, concerns were expressed in financial markets about the acquisition of additional regulatory assets.

4. Rate Freezes

Under the Act utilities were required by freeze rates. Developing new conservation programs would require how costs. Since utilities would argue such cost are not embedded in frozen rates they are reluctant to evaluate or establish new programs.

C. Conclusions

As a whole, electric and gas companies currently provide few energy efficiency and conservation programs to customers. This is the result of changes in the structure of the electric and gas industries in Maryland. In terms of impacts investor-owned electric and gas companies are no longer in a position to individually evaluate energy efficiency and conservation options. Institutionally, these resources have either been lost or moved to other activities. Staff believes that these factors partially explain why information necessary to conduct an analysis of programs is lacking in this proceeding. It also provides an explanation why electric and gas companies may not be systematically analyzing potential energy efficiency and conservation opportunities.

Section V: An Appropriate Role for Energy Efficiency and Conservation Programs

A. Introduction

Staff in its initial and reply comments urged the Commission to consider any proposal within the context of specified policy objectives. Staff identified four possible policy objectives for such programs: 1) education; 2) market transformation; 3) economic development; and 4) environmental programs. The types of programs, the cost-effectiveness and the funding should be driven by consideration of these policy objectives. Staff has not proposed a specific program so far in this proceeding for consideration by the Commission in its report to the General Assembly pursuant to the provision of Section 7-211 (c), and has no plans do so at this time.

Staff proposes the following education program pursuant to the provisions in Section 7-201 and Section 7-211 of the Public Utility Companies Article. Staff believes that the education program proposed herein can provide the basis for both the Commission and electric and natural gas companies to strike a reasonable balance between the goals of restructuring and energy efficiency found in the Articles.

B. Background

The purpose of public education programs is to provide information to customers about the benefits of energy efficiency. Education usually provides specific information about how implementation of energy efficiency measures and practice can save money on utility bills and help the environment. This section identifies two approaches to education programs which have been used by utilities in Maryland as well as across the country.

1. Public Information Programs

Electric utilities have offered education programs to their customers for many years. Bill inserts, pamphlets and booklets have been made available to customers by electric utilities in

Maryland and elsewhere. Additionally, utilities have used information and education to respond to system emergencies. Information and education about energy efficiency was treated as a service that utilities provided as part of an overall commitment to community and customer relations.

2. Education, Information and DSM Programs

In the 1980s, utilities began to view customer demand as a resource that could be managed to help reduce demand and avoid or delay the construction of new power plants. Utilities developed and implemented a variety of programs, which included active load control programs and energy efficiency programs. A component of such programs was information and education. In Maryland, utilities made substantial investments in education and information to make customers aware of energy efficiency opportunities. Staff believes that current efforts are underway on the part of what are now electric planning of demand-side management programs in Delaware and Maryland. Staff believes all programs that were approved by this Commission included an information of education component. Utilities offered several education programs and education was included as part of rebate programs as well. In almost all cases, the education and information was used to demonstrate to a customer how the adoption of a particular practice or high-efficiency device could reduce energy costs. Rebates were provided as an incentive to induce the customer to actually adopt the practice. As part of the evaluation of demand-side management programs, utilities typically surveyed non-participants and trade allies about their impressions and reactions to the quality of education materials included as part of the program.[3]

[3] Staff Initial Comments at page xx).

C. Evaluation of Current Energy Efficiency and Conservation Programs provided by Electric and Gas Companies in Maryland

1. Methodology

This section describes Staff's analysis of electric and gas companies programs or efforts to educate customers about energy efficiency and conservation opportunities. During this past July, Staff sent a data request to all natural gas and electric companies in Maryland which request consisted of five questions:

a) Please describe the efforts of your utility to educate ratepayers about energy efficiency and conservation opportunities during 1999;

b) Please describe the efforts of your utility to educate ratepayers about energy efficiency and conservation opportunities during 2000;

c) Please provide copies of literature, brochures, and website addresses and any other relevant information and educational materials related energy efficiency and conservation that are currently available to Maryland Customers;

d) Please provide budget information for the energy and conservation education and information programs for 1999 and 2000; and

e) Please describe your utility's plans to provided information regarding energy efficiency and conservation programs in 2001.

2. Summary of Responses

Staff Exhibit 2 contains a summary of responses to the above mentioned Staff data request. It appears that all respondent electric and gas companies provide some form of education and information about energy efficiency and conservation opportunities. The information and education is disseminated through a number of different media, which includes websites, pamphlets, booklets, bill inserts, newsletters, newspapers, audits and public speakers. Staff did not query utilities regarding the frequency of distribution of this information and to whom such information is distributed. Staff also did not query electric and gas companies regarding the availability of market research to assess the effectiveness of the education efforts.

The education materials provided by electric and gas companies responding to the Staff data request are located in Staff Exhibits 3 to 11. While Staff did not conduct a detailed analysis of the information submitted, it did review the materials and found the following:

Table 1
Categories of Education Programs

Appliance Purchase	This included such items as entertainment, personal computers, dryers, washers, and window air conditioners.
HVAC Equipment	Explanation of technology (how it works, efficiency ratings), replacement, installation, duct sealing, maintenance (tune-ups, recharging, filter changes).
Home Weatherization	This includes seasonal maintenance (i.e. caulk, weather stripping sealing, shell measures, insulation, doors, windows).
New Home Construction	Efficiency decisions involved with building a home
High Bill	How to control high bills, where energy is consumed in a typical home
Energy Audit	Audit materials, in-home audits.
Weather Related	Advertisements, usually in newspapers, timed with weather events—heat waves, cold waves.
Environmental	Environmental impacts of conservation.

During its review, staff noted the following variations in the materials provided or referenced websites:

- the availability of information;
- the volume of materials available to customers;
- the topic of materials;
- the detail of information;

- the quality of presentations;
- the medium used to send information.

In addition, Staff noted occurrences where information was outdated. Some of the variations can be explained by the size of the utility, the structure of the utility (municipal, cooperative, investor-owned), and the commitment of the utility to energy efficiency and conservation. It is significant to note that none of the materials referred to the sales tax incentives now offered to customers purchasing appliances and equipment specified in the Maryland Clean Energy Incentive Act, which went into effect on July 1, 2000.[4] On the basis of this review, Staff believes that the information and education materials provided to customers at this time reflects more of a focus on public service information (characterized by the materials in the 1970s) than systematic approach to make customers aware of energy efficiency and conservation opportunities that the hallmark of DSM programs in the early 1990 in Maryland.

In terms of total educational expenditures by electric and gas companies in Maryland, Staff was not able to develop a reliable estimate. The reason for this is that many of the electric and gas companies do not track and book these expenditures as "conservation and energy efficiency" costs. It appears that these costs are recorded under several different accounts with other information and education expenditures. However based on the information provided Staff believes that expenditures for 2000 are modest. In terms of future expenditures, it appears that electric and gas companies in Maryland do not plan any new initiatives during 2001. It is not clear what impacts restructuring will have on future and expenditures on these efforts. On that basis, Staff believes that the focus and intensity of efforts of electric and gas companies is currently far below efforts that were made during the 1990s.

[4] The Act provides Maryland sales tax exemptions when purchasing certain qualifying high efficiency ENERGY STAR® appliances, electric and hybrid-electric vehicles, and certain renewable resource energy

C. *Conclusions and Recommendations*

Staff believes that providing education and information about the energy-efficiency and conservation opportunities to residential customers is an appropriate and desirable role for electric and gas companies in the current restructured environment. Information and education provided by electric and gas companies is uneven due to size and type of the companies. While some of these variations can be explained by the type of utility and customer profile, others variations reflect some differences that should not exist. Total expenditures statewide and individual companies expenditures are difficult to estimate. It is reasonable to conclude that expenditures are quite modest both statewide and for individual companies, with the exception of the SMECO. Finally, it appears that there is little or no research available to assess the effectiveness of efforts to educate and inform customers about energy efficiency and conservation opportunities.

systems.

Section VI: Residential Energy Efficiency Opportunities in Maryland

A. Introduction

An issue related to consideration of increasing education and information program concerns the technical and economic resources and opportunities available to residential gas and electric customers in Maryland. This section considers this issue

B. Residential Energy Opportunities

To estimate the potential for savings in residential market, Staff used a publicly available software package known as the Home Energy Saver. The Home Energy Saver (HES) is an interactive web-based simulation model designed to help consumers identify the best ways to save energy in their homes. The simulation model allows the analyst to using HES to calculate heating and cooling consumption using DOE-2.1E simulation model. The DOE-2 model is widely used by utilities across the country, including BGE, to evaluate the impacts of residential and commercial building programs. The program performs a full annual simulation for a typical weather year (involving 8760 hourly calculations) from 239 locations around the United States.

Staff used the HES to estimate the energy use in a "typical" home in the Baltimore area. The house selected was a single-story 2,000 square foot house. Staff ran a total of 6 scenarios for this house based on fuel type and vintage of the home. In terms of fuel type, Staff ran simulations for heat pump (heating and cooling) and electric hotwater; gas furnace, central air-conditioning and gas hot water; and gas furnace, window air-conditioner, and gas hot water. The vintages of the houses was 1970 and 2000. The vintage of the house reflects the insulation levels, windows, and appliance stock that could exist in a house from each year. In all cases the estimated efficiency were the default values supplied by the program. The "Energy Efficient House" is an estimate for a home had adopted all recommended measures. Staff did not have the

opportunities to run more detailed scenarios estimating the impacts of the various recommended efficiency upgrades to the house.

Tables 1 and 2 show the results for the simulation runs. Regardless of the vintage of the home, there appears to be a potential for savings regardless of fuel source and vintage. The difficulty with this simulation is estimating the actual savings for a home. The expected savings for a house is largely determined by assumptions regarding such factors as the appliance and equipment stock, insulation levels and energy use patterns of the occupants. In these scenarios Staff relied entirely on the default values used by the HES when these factors are not specified. Without a baseline survey of homes in the area, it is difficult to make an informed judgement regarding the default values used by the HERS. Consequently, these estimates are only illustrative of the potential savings that exists in Maryland.

C. Conclusions

It appears untapped opportunities for energy conservation currently exist within Maryland households. The challenge is to identify mechanisms to capture opportunities is a cost-effective manner.

Table 2
Estimated Annual Energy Bill Savings
2,000 Square Foot Home
Vintage: 1970
Baltimore, Maryland
(Baseline versus High Efficiency)

	Heatpump, Electric Hot Water	Gas Furnace and CAC, Gas Hot Water	Gas Furnace, Window AC, Gas Hot Water	Energy Efficient House Area
Estimated Annual Energy Bill	$1747	$1664	$1380	$1082
Heating	$501	$576	$568	$387
Cooling	$285	$282	$6	$90
Hot Water	$319	$190	$190	$135
Appliances	$321	$295	$295	$190
Miscellaneous	$239	$239	$239	$239
Lighting	$82	$82	$82	$41

Table 3
Estimated Annual Energy Bill Savings
2,000 Square Foot Home
Vintage: 2000
Baltimore, Maryland
(Baseline versus High Efficiency)

	Heatpump, Electric Hot Water	Gas Furnace and CAC, Gas Hot Water	Gas Furnace, Window AC, Gas Hot Water	Energy Efficient House in Area
Estimated Annual Energy Bill	$1,614	$1,497	$1220	$1,082
Heating	$316	$384	$385	$387
Cooling	$288	$284	$6	$90
Hot Water	$369	$215	$215	$135
Appliances	$320	$293	$293	$190
Miscellaneous	$239	$239	$239	$239
Lighting	$82	$82	$82	$41

Section VII: *ENERGY STAR® Activities in Maryland*

A. US DOE/EPA ENERGY STAR® Program: An Introduction

ENERGY STAR® is a voluntary partnership program between the private sector and US EPA and US DOE. There are a number of different ways in which ENERGY STAR® programs are being implemented nationwide by utilities. To become a partner, utilities must sign a license agreement with US DOE and US EPA requiring partners to follow the ENERGY STAR® logo use guidelines and at a minimum, conduct general promotions of ENERGY STAR® qualified products.

The Federal government defines minimum standards for energy consumption for many consumer products such as major appliances. In order for one of these products to receive an ENERGY STAR® ® rating, it must exceed the minimum Federal standards by a certain amount, which varies from product to product. For other products where there are no minimum energy use standards (such as office equipment), products which qualify for the ENERGY STAR® ® label have special features which enable them to use less energy than similar products.

The DOE reports that since its inception in 1992, the program has established partnerships in lighting, appliances, windows, heating, and cooling equipment, office electronics, home electronics, exits signs, transformers, roofing products, insulation, homes, and commercial buildings. The ENERGY STAR® Program has been adopted as the platform for energy efficiency activities by over 90 utilities and state administrators, 1,200 retailers and product manufacturers, 2,000 residential builders and supplier allies. This program would further the promotion of energy efficiency and provide the basis for electric and gas companies and Maryland to fulfill their statutory obligations to promote the efficient use and conservation of energy through education and information targeted initially to residential customers.

B. Energy Star Activities in Maryland

ENERGY STAR® attempts to promote the introduction of high-efficiency appliances and equipment by targeting critical points in the technology delivery system, such as manufacturers, retailers, utilities, builders, customers, and government programs. Staff has identified the four areas where ENERGY STAR® programs now operate in Maryland.

1. Sales Tax Incentives[5]

The Maryland Clean Energy Incentive Act, which went into effect on July 1, 2000, provides Maryland sales tax exemptions when purchasing certain qualifying high efficiency ENERGY STAR® appliances, electric and hybrid-electric vehicles, and certain renewable resource energy systems. The law becomes effective for specific products on certain dates and provides tax exemptions as follows:

a. Appliances

ENERGY STAR® Qualified Clothes Washers
ENERGY STAR® models are designed to use less water while cleaning clothes thoroughly without wear and tear. They also can save 30-40% less energy per load (in effect from July 1, 2000 to July 1, 2003).

Room Air Conditioners
ENERGY STAR® room air conditioners differ from conventional models by transferring more heat from the air to the unit's coils which saves the amount of energy required to compress the refrigerant. Energy consumption is reduced by at least 15% of the minimum federal standards (in effect from January 1, 2001 to July 1, 2004).

Standard-size ENERGY STAR® Refrigerators
ENERGY STAR® qualified refrigerators exceed minimum federal energy consumption standards by at least 20%. They have better insulation so that the compressor runs less frequently, very efficient compressors, and improved heat transfer surfaces. They also require very precise temperature and defrost mechanisms (in effect from July 1, 2001 to July 1, 2004).

[5] Maryland Energy Administration website (www.energy.state.md.us)

b. Water Heaters

Advanced Natural Gas Hot Water Heaters with an Energy Factor of at least 0.65. Electric Heat Pump Hot Water Heaters which yield an Energy Factor of at least 1.7 (in effect from July 1, 2000 to July 1, 2004).

c. Central heating and cooling equipment
in effect from July 1, 2000 to July 1, 2004):

The following energy efficient ratios will be exempt from Maryland sales tax:

- Electric Heat Pumps
  With a Heating System Performance Factor of at least 7.5, and a Cooling Season Energy Efficiency Ratio of at least 13.5. This also includes Ground Source units.
- Central Air Conditioners
  With a cooling Seasonal Energy Efficiency Rating of at least 13.5.
- Natural Gas Heat Pumps
  With a co-efficient Performance of at least 1.25 for heating and at least 0.70 for cooling.
- Fuel Cells
  Two kilowatt or larger electricity-generating fuel cell systems with an electricity-only generation efficiency greater than 35%.

d. Photovoltaics and Solar
(in effect from July 1, 2000 to July 1, 2004):

Systems are eligible which generate electricity and meet performance, quality standards, and certification requirements specified by the Maryland Energy Administration. The solar energy system may generate electricity to heat or cool a structure, or to provide hot water use within the structure, although it *excludes swimming pools and hot tubs.* A State *income tax credit of 15%* is available on the installed cost up to $2,000 for photovoltaic (PV) systems and $1,000 for solar systems.

2. Participating Stores and Retailers

The US Department of Energy's store locater identified[6] 124 stores within 50 miles of the 21202 zip code and 220 stores within 100 miles of the 21202 zip code.

3. SMECO ENERGY STAR® Homes

In 1993, SMECO began promoting the PowerSaver Home program, which was designed to increase the energy efficiency of new homes being built in SMECO's service area. As rebates were phased out, the PowerSaver Home program evolved into the ENERGY STAR® Home program. SMECO began rating homes under the Environmental Protection Agency's (EPA's) ENERGY STAR® Home program in 1997 to develop a protocol for certifying PowerSaver Homes as ENERGY STAR® homes. Through an agreement with the EPA, all SMECO PowerSaver Homes built after January 1998 were certified as ENERGY STAR® homes (over 800 homes).

SMECO began promoting the ENERGY STAR® Home program in June 1999. Homes built under the ENERGY STAR® Home program are not eligible for rebates, but they may use any type of energy source: propane, oil, gas, or electricity. Builders pay $275 for SMECO to inspect their home and certify it as an ENERGY STAR® Home if it passes the required inspections. The registration fee charged for each ENERGY STAR® home covers administrative costs, inspections, database tracking, mileage, and labor. From June 1999 to July 2000, SMECO registered 82 homes as ENERGY STAR® Homes, 50 of which have been completed.

A builder registers a home in the ENERGY STAR® Home program by completing a form with the following information:

- builder information (name, address, and phone)
- home information (directions, address, size, and style)
- insulation values
- heating, ventilation, air conditioning (HVAC) information (type of system, type of duct design, and name of contractor)
- window type, manufacturer, and shading coefficient
- water heater information

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[6] http://www.energystar.org/stores/storelocator.asp

SMECO conducts a pre-drywall inspection to check the following items:

- windows
- floor, wall, and ceiling insulation
- attic ventilation
- duct sealing
- duct insulation
- air infiltration sealing
- dampers on exhaust fans

At the final inspection, SMECO conducts a blower door test to determine the air infiltration rating of the house (the maximum acceptable rating is .40 air changes per hour). The inspector also checks the heating and cooling equipment by turning on the unit to make sure it is operational and installed to program standards. The following items are also checked:

- weatherstripping
- water heater pipe insulation
- adaptive recovery or programmable thermostat
- HVAC filter
- airflow, supply and return temperatures
- vented gas ranges and carbon monoxide detectors where necessary

Upon approval of the final inspection, SMECO registers the home with the EPA to obtain the certificate and mails the ENERGY STAR® certificate to the buyer. The ENERGY STAR® program does not offer rebates. SMECO estimates that participants can expect savings of between 30 and 50 percent on their heating and cooling costs..

While major benefits for the homeowner still include reduced energy use and improved comfort levels, home buyers who purchase a home with an ENERGY STAR® rating can expect this home to be a better investment and more marketable in the future through the nationally recognized program.[7]

[7] Conectiv offer ENERGY STAR® New Home Construction in its New Jersey service territory, but not its Maryland, Delaware or Virginia service territories.

4. Energy Efficiency Mortgages.

Energy Efficient Mortgage (EEM) is a federally recognized home financing option and is related to the ENERGY STAR® rating system.. The US DOE reports that EEM option can be applied to most home mortgages. The EEM provides the borrower with special benefits when purchasing a home that is energy efficient, or can be made efficient through the installation of energy-saving improvements. Home owners with lower utility bills have more money in their pocket each month. They can afford to allocate a larger portion of their income to housing expenses. If you have more cash, why not buy a better, more comfortable home? There are two options with the Energy Efficient Mortgage. The first is to finance energy efficiency improvement in an existing home. The bills savings which flow from these improvements can be used toward monthly payment on the debt. The second is for new homebuyers. An energy efficient home costs less to operate than a standard home. Consequently, a homebuyer may qualify for a lower interest rate and a higher debt-to-income ratio from their mortgage provider.[8]

At the present time there appears to be very little interest Energy Efficient Mortgages in Maryland. SMECO has reports that it has promoted the concept of energy efficient home mortgages in the past but the local mortgage lenders have not popularized their use. Staff was only able to identify two lenders that offer Energy Efficient Mortgages in Maryland. In contrast, Staff was able to identify over 100 mortgage providers in the 21202 zip code area.

5. ENERGY STAR® Transformers

Electric Utilities commit to perform rigorous economic evaluation of the total owning costs of distribution transformers and purchase cost-effective transformers that meet the ENERGY STAR® criteria. The DOE lists Allegheny Power (Potomac Edison) as a participant

[8] Energy Efficient Mortgage Home Owner Guide. http://www.pueblo.gsa.gov/cic_text/housing/energy_mort/energy-mortgage.htm).

in this program.

C. Conclusions

There is activity with regard to ENERGY STAR® in Maryland. The state has enacted sales tax incentives, numerous retailers carry ENERGY STAR® products. Two Maryland utilities now participate in this program. Southern Maryland Electric Cooperative has implemented a new home construction program that promotes construction of new home that meet ENERGY STAR® standards for efficiency. Allegheny Power also participates in the ENERGY STAR® Transformer. Other than these two small exceptions, there appears to be very little activity on the part of electric and gas companies in Maryland.

Section IX: Program Recommendation: MD Utility ENERGY STAR® Partnership

A. Introduction

Staff proposes that electric and gas companies in Maryland be required to develop and implement programs to educate and inform residential customers about energy efficiency and conservation opportunities. The MD Utility ENERGY STAR® Partnership Program proposed by Staff would use the US DOE and EPA ENERGY STAR® program as the platform for this program. The program would provide information and education about energy practices and measures not included as part of the US DOE/EPA ENERGY STAR® program. The proposal is included as part of this filing in Appendix A.

Staff has borrowed what it considers to be the best elements from the programs proposed by parties in this proceeding and attempted match the requirements of statute, regulatory policies, and the current structure of the electric and gas industries. Many of the concepts and ideas contained in this proposal have been proposed or discussed by parties and interested persons in this proceeding. Staff acknowledges the contributions of all parties, and especially those who submitted program proposals.

B. Major Program Features

1. Targets Residential Customers

The MD Utility ENERGY STAR® Partnership Program would initially target residential gas and electric customers in Maryland. The decision to focus on residential markets initially is predicated on the assumption that an active energy services industry currently exists to address the needs of large commercial and industrial customers which provides education and/or information to these customers about energy conservation and conservation opportunities. Additionally, it also provides shared savings incentives to address first cost and other market

barriers. Staff believes that the needs of small commercial customers are not being addressed by the competitive energy services industry at this time. This issue will be addressed after the implementation of the proposed residential program.[9] The program does not specifically address the needs to low-income customers, which are being addressed by the Universal Program, but this information and education would flow to customers regardless of income.[10]

2. Market Transformation

The MD Utility ENERGY STAR® Partnership Program will seek to transform the following markets by providing information and education to residential customers about energy-efficiency and conservation opportunities:

- New Home Construction
- HVAC Replacement
- Home Appliances

The program will provide information and education to trade allies to improve practices and improve installation and building practices and educate customers about the benefits of energy efficiency products and services.

3. Minimal Rate Impacts

This program will initially rely on education and information. No direct financial incentives will be provided to customers[11] but limited incentives may be provided to trade allies. Staff proposes that a maximum funding level of 0.5 mills be established for residential electric

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9 The rationale for this assumption is describe in greater detail in Staff's Initial Comments.

10 The Universal Service program is funded by a surcharge on ratepayers. In response to the Low-Income segment of the Universal Service program, electric utilities have or will seek Commission authority to terminate funding of these programs through the DSM surcharge.

11 The use of rebates and other direct financial incentives would be considered if the program failed to achieve results and only after careful study of the impacts.

customers and a comparable level for residential gas customers.[12] For a typical customer using 750 kWh per month, this would equal approximately 37.5 cents per month or $4.50 per year[13]. Collections would total approximately $10-12 million annually.

4. Funded through DSM Surcharge

This program would be funded through a surcharge on residential electric and gas customers pursuant to Section 7-211 (b) of the Public Utility Company Articles. The surcharge would be limited to direct approved program costs and carrying costs. Lost revenues would not be included in the surcharge. Utilities would have the option to defer and amortize these costs over a period beyond the year the expenditures occurred. This approach offers greater rate stability and can be used to mitigate rate impacts. Specific details regarding cost recovery would be approved by the Commission on a case-by-case basis.

5. Defines Appropriate Role for Electric and Gas Companies

This proposal addresses the need for customers to have better information when making decisions concerning energy efficiency and conservation and the role of electric and gas companies in promoting the efficient use and conservation of energy in a restructured environment. Information is recognized by almost all parties as a critical element to competitive markets. Information by some parties is a barrier confronting consumers when making choices about energy efficiency and conservation.

Electric and gas companies should assume some role in the process of providing information and education about energy efficiency and conservation opportunities. This would provide a useful service to furthering the goals of competition and allow electric and gas companies to fulfill their statutory obligation to promote energy efficiency and conservation.

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[12] The Staff is not proposing a funding level for gas companies in this filing. Conceptually, Staff favors a funding formula that would create an equitable burden between gas and electric heating customers.

6. Expansion of existing information delivery mechanisms

Electric and gas companies regularly communicate with all of their customers. This communication occurs monthly, in the form of bills and bill inserts. Additionally, electric and gas companies may use other media such as advertisements in newspaper. This program will further develop and expand these mechanisms.

7. Allow Company Flexibility

Electric and gas companies in Maryland come in all shapes and sizes. Baltimore Gas and Electric served over 1 million residential customers during 1998, while A&N in Maryland served approximately 300 customers. Assigning personnel at BGE to a program creates different challenges than the Town of Berlin. Additionally, there are differences in the traditions of customer relations, and communications between cooperatives and municipalities and investor-owned utilities in Maryland. These differences offer both opportunities and challenges.

The MD Utility ENERGY STAR® Partnership program will create a minimum standard for information and education about energy efficiency and conservation opportunities available to residential customers. The specifics of how an electric or gas company will comply with this standard is a matter for individual electric and gas companies to determine and subject to the approval of the Commission. Staff believes that, while a statewide approach is needed to coordinate efforts between electric companies (large and small) and to provide technical assistance as needed, these are company programs.[14]

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[13] A more detailed analysis is found in Appendix A.

[14] Process issues related to this program are discussed in the next section.

8. Coordination and Leveraging of Resources

One of the major advantages of the proposed program is that it seeks to utilize resources from a number of different sources, either through coordination and/or leveraging of resources. Among the areas identified to further this goal are:

(1) State and federal Programs;

(2) Technical assistance with trade and retail allies;

(3) Cooperative advertising; and

(4) Existing utility resources.

C. Conclusions

Staff believes that the proposed MD Utility ENERGY STAR® Partnership not only represents a reasonable balance of the statutory goals for both competition and energy-efficiency, but furthers both of these objectives.

Section X: Process Recommendations

Both the electric and natural gas industries have undergone major structural changes in recent years. The introduction of competitive forces coupled with legal and regulatory changes have reshaped both industries. The factors have changed both the nature and focus of energy efficiency and conservation programs and the resources to address these issues. The Commission has relied on the individual utility collaborative process to address these issues.[15] Staff believes that an individual collaborative process is no longer appropriate since it appears not to have resulted in extensive conservation and energy efficiency gains. Staff believes that, in the restructured environment, its statewide approach to planning is preferred.

[15] The Collaborative process was described in Staff Initial Comments at page.