

**REPORT ON
ENERGY EFFICIENCY AND CONSERVATION PROGRAMS
(DEMAND-SIDE MANAGEMENT)**

MARYLAND PUBLIC SERVICE COMMISSION

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Table of Contents

| | |
|--|----|
| I. Overview | 1 |
| II. Legislative Requirements..... | 11 |
| III. Demand-Side Management in Maryland | 12 |
| A. Current DSM Program Design and Trends | 15 |
| 1. Impacts of Restructuring | 15 |
| 2. Conservation and Demand-Side Management in the Private Sector | 16 |
| B. Environmental Considerations: NOx Offset Program Feasibility Study | 19 |
| C. Economic Development | 21 |
| IV. Funding for Energy Efficiency and Conservation Programs | 22 |
| A. Funding Mechanisms | 25 |
| B. Cost-Effectiveness..... | 26 |
| 1. Comparing Supply and Demand Options | 28 |
| V. Status of Energy Efficiency and Conservation Programs..... | 28 |
| A. Utility Demand-Side Management Programs | 28 |
| B. Other Government Programs | 31 |
| 1. Federal Government..... | 31 |
| 2. State Programs | 33 |
| VI. Commission’s Program Proposal..... | 35 |
| A. Maryland ENERGY STAR® Residential Electric HVAC Replacement and Installation Program | 36 |
| B. Maryland ENERGY STAR® Residential Appliance & Consumer Products Program | 37 |
| C. Maryland ENERGY STAR® New Residential Construction Program..... | 38 |
| D. Program Administration..... | 39 |
| VII. Conclusion | 40 |
| Attachment A – Staff’s DSM Program Proposal | |
| Attachment B – Energy Conservation Program Proposal Summaries | |

I. OVERVIEW

As a component of the Electric Choice and Restructuring Act of 1999 (“the Act”), the General Assembly required the Maryland Public Service Commission (“Commission”) to evaluate current and potential Demand-Side Management (“DSM”) programs, to suggest whether these programs are necessary or desirable, and to identify what programs are cost-effective. Further, the General Assembly required that if the Commission determines DSM programs are useful and cost-effective, the Commission should recommend the appropriate method of funding and administration.

Demand-side management, simply put, means efforts to manage or reduce energy consumption through the implementation of conservation or energy efficiency measures. Such efforts have included energy audits, utilization of appliances and motors that meet enhanced energy efficiency standards, structural improvement programs and weatherization efforts such as insulation and replacement windows, and improved lighting efficiency. Other programs reward changes in electric use patterns such as time-of-day pricing and alternative load management including interruptible rates. These DSM conservation programs were primarily organized around and administered by regulated utility companies with oversight by the Commission. The utilities were then authorized by the Commission to recover their investments in these programs through their electric or gas rates or through DSM surcharges. Some other programs utilize public funds through tax credits or grants and loans to assist consumers in making investments in new technologies such as solar panels.

The advent of competition in electric generation and natural gas commodity supply necessitates the reevaluation of DSM programs as to their public policy value in this new, evolving world. In the gas industry, customers of the Baltimore Gas & Electric Company

("BGE"), the Washington Gas & Light Company, and Columbia Gas of Maryland have access to competitive retail gas supply and gas supply services. With respect to electricity, the Act restructured the industry so that electricity generation or supply is no longer a regulated commodity and will be available competitively from a variety of suppliers in the future. Utility owned generation has been divested from the regulated companies and either been sold or placed in unregulated affiliates. Thus, the only remaining regulated functions of electric and gas utilities in Maryland are those associated with distribution and transmission.¹ This means that the cost savings from DSM programs to electric companies are greatly reduced, since they no longer are responsible for the costly construction of new power plants. As a result, the type of DSM programs that the Commission has authorized in the past may no longer be applicable today. These new circumstances do not mean that the value of DSM programs is diminished, just that the programs themselves need to evolve to meet the needs of the consumers at the same pace as the energy industry is evolving. New determinations must be made as to the most appropriate programs and the most appropriate methodology for financing such programs.

The Commission utilized its electric restructuring proceeding, Case No. 8738, to gather DSM information from a variety of interested parties during the 1996 - 2000 time period. As this report is being written, however, several events have unfolded which suggest that the accumulated information needs some updating in order for the Commission to produce a report fully responsive to the legislative mandate. One major event is the significant increase in the cost of natural gas and crude oil since the initiation of this review. Natural gas prices at the wellhead have tripled in the past eight months and crude oil rose from \$15 a barrel in the fall of 1999 to approximately \$28-30 a barrel currently. There is a linkage in the cost of both, and the effects upon Maryland consumers, both residential and commercial, are substantial. Higher

¹ Given the interstate nature of transmission services, this area is largely regulated by the Federal government.

energy prices result in higher costs for heating, production and transportation. Thus, the impacts are felt by all segments of society and the State's economy as a whole. The second notable event is the current situation in California where energy supply and demand dislocations have created problems of both energy affordability and reliability. The impact today of both pricing and supply on the entirety of our State's population and economic well-being clearly heightens the need to consider DSM programs outside the utility realm and as part of a broader public policy determination.

The Commission considers that one of its most important missions is to ensure that electricity and natural gas customers receive sufficient, reliable power. Utilities are required to deliver or distribute power or gas to their customers pursuant to stringent Commission regulations and oversight. In the new competitive world, if a customer does not contract with an alternative competitive supplier for power or gas, the utility must continue to provide the commodity through Standard Offer Service. Under the law, the Commission must ensure that such power is delivered efficiently, cost-effectively, and that market power does not control pricing. In addition, each regulated utility must maintain its financial integrity. However, in this new competitive world the Commission does not retain its authority to require generation suppliers to produce or purchase its commodity in any particular fashion. These suppliers cannot be ordered to implement DSM programs at the State level, nor is the price of the commodity fixed or controlled by this Commission.

All the parties to this proceeding recognize that DSM programs can serve as useful tools in assuring that reliability is maintained. Further, there are other overarching benefits associated with DSM programs: enhanced consumer education and awareness of ways to conserve energy use, reduced environmental pollution, and positive effects on both an individual's economic

well-being and the State's overall economy. Educated consumers can engage in personal activities that lessen their demand for energy. Such activities can reduce their energy costs and serve to help reduce overall demand including peak demand. Simple, inexpensive actions such as using a humidifier during the winter months, or wrapping pipes and hot water heaters can help reduce both energy usage and cost. The more consumers are educated to understand the relationship between use and cost the better. Time of day pricing is a useful tool, and new meters that are both accessible and readable will further assist consumers to help themselves and the overall public good.

Conservation efforts have a positive effect on maintaining the State's environmental integrity by lessening both air and water pollutants. Reduced energy demand can translate into a diminished need to construct new power plants or new gas lines. This reduces land disruption and eliminates their related additional air pollutants and runoff. Thus, Maryland's overall environmental quality is enhanced. In addition, important economic spin-off occurs as limited air emission credits are freed up and made available for use by other productive industries within the State. This tradeoff is difficult to quantify, but clearly, there are significant benefits to the economy and job development.

In addition to air emission tradeoffs, the State's economy receives other significant benefits from reducing energy demand. Not the least of these is the important issue of reliability of service for businesses. Reducing demand translates into enhanced reliability, which is of particular concern for those businesses and industries that have become increasingly reliant on technology and computers. Reducing demand can also result in reduced prices for the commodity. For large users of energy, the location of their plants and facilities is often largely determined by their price of energy. Therefore, a predictable source at a reasonable price can

assist the State in its efforts to both attract and retain business and related jobs. The present situation in California has had a dramatic effect on businesses located there. Both reliability and price have affected many entities with the net impact on that state's economy yet to be fully felt. However, aluminum plants have shut down and furloughed their employees in order to sell their electricity supply back to the grid at prices that net them greater profit than would the sale of aluminum. Nationally, the high price of natural gas has resulted in exceedingly high costs for fertilizer. Consumers will experience increases in food costs as farmers must raise their prices. Other industries confront the same situation with increased production and delivery costs. It can be readily seen, therefore, that DSM efforts can also aid in improving each consumer's personal economy. Lower consumption of electricity and natural gas translates into lower utility bills. Each dollar not used to pay energy costs creates more disposable income that can be applied to savings or to make other economic investments. Overall, the State benefits from an improved economic posture.

Before a DSM program can be implemented, consideration must be given to the important issues related to program cost-effectiveness, appropriate funding level and funding mechanism. Much information was provided regarding various methodologies for determining cost-effectiveness, and parties disagreed as to the right approach. Many approaches centered on utility sponsored DSM programs. Calculation of avoided cost has a long history, but is based on the amount of money not needed for construction of new power plants. This approach is less useful in an era of deregulated generation as most avoided cost were related to generation. Further, the measurement of avoided costs in the economic and environment arenas is quite difficult. Whether and to what extent the benefits felt in these arenas should be included in cost-effectiveness calculations were greatly at issue in this proceeding.

SUMMARY AND RECOMMENDATIONS. The Commission believes that DSM programs are valuable, are in the overall public interest, and assist the Commission in fulfilling its mission to maintain reliable, cost-effective natural gas and electric delivery systems. Other values include the overall economic benefits to the State including job creation and job retention, a cleaner environment with fewer pollutants, and enhanced personal economics for our citizens as their out-of-pocket expenses for electricity are reduced. The Commission supports the need to reduce demand or the growth in demand for energy and believes that DSM programs are useful tools in achieving these worthwhile public policy goals. Information is essential for customers to make informed choices; therefore, the Commission supports the notion that consumer education greatly assists any conservation effort. As educated consumers reduce their own energy consumption, overall demand is reduced, costs lessened and growth is slowed in peak demand.

The determination that DSM programs are useful then gives rise to the difficult questions regarding which programs are cost-effective and how they should be financed. Parties disagree vigorously over the appropriate method to determine cost-effectiveness. Indeed, the definition of cost-effectiveness appears to lie in the eye of the beholder. The traditional determination of cost-effectiveness no longer can be used because generation, which has been deregulated, is no longer a part of avoided costs. Perhaps the most beneficial way to determine whether a conservation program is cost-effective is to determine the overall demand reduction goal and decide if that goal is worth the effort and attendant costs. The Commission suggests that a reasonable target should be chosen, such as a percentage reduction in consumption or load growth. Then programs should be selected which provide the opportunity to reach that goal. This approach allows program success to be measured over time and a determination to be made as to whether the investment achieved the desired goal.

Some criteria to consider in program selection include those enumerated in §7-211(2) of the Public Utility Companies Article of the Annotated Code of Maryland. These include: the program's ability to educate the consumer, to contribute to the state's economy and the personal economy of the end user, and to maintain or improve the environment. The Commission adds that no program should be undertaken which might negatively affect electricity or gas reliability. Parties offered various programs during this proceeding. They ranged from the piecemeal to broad-based with a similar range of associated costs. The ability of parties to attach cost-effectiveness data, measured by any methodology, was limited. There are many worthy suggestions. Those selected should be determined by the goal established, by whether efforts are focused solely on residential customers, and by the funding level policymakers choose to invest.

Throughout this proceeding, utilities supported limited, utility-run programs, and suppliers proposed that programs should be offered through the competitive market. They generally expressed the view that if something is cost-effective the market will offer it. We welcome these entities coming forward with their demand-side management ideas and new technologies. In addition, we support continued use of time of day pricing and other reasonable alternative load management efforts. We also welcome increased private marketing efforts to alert consumers about available demand reduction methods and private financing plans. Indeed, recently BGE proposed a pilot program using the Internet to reduce energy consumption through remote sensing. Such product development should accelerate and should be available from several competitors. However, for many consumers the upfront DSM purchase cost still remains a deterrent whether for new or old concepts. Therefore, there is a continuing need for some form of governmental financial assistance.

While the utilities generally supported only new DSM programs that they could administer, keeping the administration of most DSM programs with the utility proves problematic. Today's utility differs drastically from the regulated entity of just two years ago. The "utility" is no longer all encompassing. While it is the commodity supplier of last-resort, its primary purpose today is to ensure that the power is distributed to the end-user. Distribution of energy is not as interrelated with demand and conservation efforts to curb demand. Previously, the Commission was the ideal agency to consider and review DSM programs in a fully regulated setting where generation was fully integrated with distribution and transmission and where costs and lost profits were recovered solely through rates set by the Commission. This is no longer the case. The Commission believes that new efforts to reduce demand will assist in the transition to a market-based system. A first step begins with improving the stability of our State's needs and lessening potential volatile gaps until supply and demand equilibrium is achieved in the deregulated market. However, the Commission's existing mission is clear, and our regulatory and oversight responsibilities broad and full. Therefore, in this new competitive world, the Commission recommends that another State agency should take the lead in promoting demand-side management efforts as it can focus on the specifics of the programs and provide flexibility and day to day management oversight.²

We support the Maryland Energy Administration ("MEA") as the right agency to oversee such programs. Entrusting administration and oversight of conservation efforts with MEA, a capable, knowledgeable agency will ensure that a rational, affordable effort will be undertaken which will be monitored and evaluated carefully. MEA's mission is to maximize energy efficiency while promoting economic development, reducing reliance on foreign energy supplies,

² The Commission's recommendation is not intended to discontinue time of use rates and load management programs contained in utility tariffs.

and improving the environment. As demand increases, issues surrounding competition in supply, technological innovations, and federal policy changes affect market sensitive energy sectors (e.g., petroleum markets, gas deregulation, and emerging competition in the electric utilities sector), Maryland must be in a position to respond to new opportunities, as well as adjust to potential dangers. MEA has the ability to focus on all of the issues pertinent to energy efficiency and conservation programs. The Commission expects to continue to work closely with MEA on issues of mutual concern.³

In the past, most of the associated costs of DSM programs have been recovered through the ratepayer either in rates or through DSM surcharges. While existing utility DSM programs should continue until reviewed individually, for most future DSM programs the Commission does not suggest rates as the appropriate recovery method. The benefits to be recognized by new DSM programs are no longer utility specific, but are now State-wide. They range from enhanced reliability, positive benefits to individuals' and the State's economy, and substantial benefits to the State's environmental quality. Thus we do not necessarily suggest the utilization of a surcharge or public benefits charge ("PBC") levied against the ratepayer at this time. Since the focus of DSM programs is on the unregulated commodity and broad public policy interests exist for any future conservation program, the Commission recommends that either the general fund or general obligation bonds are a more appropriate source of funds. Additionally, funding conservation measures through the use of State tax dollars is indicative of the higher public purpose of these programs.

Should the General Assembly decide to pursue a public benefits charge assessed against individual rate-payers, we remind the General Assembly that its effects are disproportionately felt by lower income customers. In addition, a 0.5 mil surcharge on residential customers

³ The Commission submits this report after consultation with MEA as required by the Act.

translates into \$11 million. The total reductions presently enjoyed by electric residential ratepayers as a result of restructuring only total \$82 million. Thus, the level of public benefits charge selected directly affects mandated rate reductions. Further, the Commission suggests that any PBC be flat rate, not based on usage, capped for large customers, and that it be rolled into the current universal service charge to avoid adding an additional line item to consumer bills and creating consumer dissatisfaction.

The Commission believes that the timing of this report is most appropriate and that the concerns sparked by the California situation and extremely high commodity prices serve to renew consumer interest in and support of efforts to reduce demand and the growth in demand. High costs of energy mean that consumer payback on energy conservation investments is accelerated. Thus, programs which promote pay-as-you-save efforts with monthly payments collected on utility bills should be heavily marketed. Consumers will likely welcome such information and little government support is required. The Commission notes, however, that there are two distinct classes of energy users: residential and business. The same measures that are useful to residential customers might be of little benefit to commercial and industrial customers and vice-versa. For this reason, the Commission recommends that the Department of Business and Economic Development (“DBED”) work in conjunction with MEA to address potential conservation programs targeted towards commercial and industrial customers. For instance, DBED could undertake marketing energy audits and promoting specific programs such as efficient motor replacement as part of their ongoing business and job recruitment and retention efforts. As an initial funding level, the Commission suggests that \$2 million in State funds be provided to DBED to fund such programs through grants and loans. Further, the Department of the Environment should explore linking NO_x credit trading with conservation efforts.

The General Assembly is to be applauded for its existing tax credit legislation that is designed to encourage the purchase of energy efficient appliances which will further the State's efforts to encourage conservation measures. Information is a barrier confronting consumers when making choices about energy efficiency and conservation. Thus, MEA is encouraged to undertake a program designed to educate and inform residential customers and to leverage resources from existing private and public resources. As a beginning effort in establishing a DSM program, the Commission recommends a Maryland ENERGY STAR[®] Program for residential customers focused on appliances, HVAC and energy efficient housing. Funding at the level of approximately \$10 million in State funds should be provided to MEA to establish the education and outreach program and loans and grants for a DSM program for residential customers.

II. LEGISLATIVE REQUIREMENTS

In 1991, the General Assembly enacted an energy conservation measure, then codified in Article 78, Section 28(g) of the Maryland Annotated Code, currently codified as Section 7-211 of the Public Utility Companies Article of the Maryland Annotated Code ("PUC Article"), which required each gas and electric company to develop and implement programs to encourage energy conservation pursuant to the Commission's jurisdiction. In response to that mandate, the Commission directed each affected utility to develop a comprehensive conservation plan consistent with the objectives of Section 28(g). The Commission further directed each utility to engage in a collaborative effort with its Staff, the Office of People's Counsel and other interested parties to develop its plan. The result of the Commission's directive was that each utility implemented conservation and energy efficiency programs that complied with Section 28(g).

At the conclusion of the 1999 General Assembly Legislative Session, Maryland's Electric Customer Choice and Competition Act ("the Act") was signed into law. The Act established the

legal framework for the restructuring of the electric utility industry in Maryland. The Act also modified Section 7-211 of the PUC Article to require that the Commission ensure that adoption of electric customer choice pursuant to the Act does not adversely impact on the continuation of cost effective energy conservation and efficiency programs⁴, by enumerating some of the factors that the Commission should consider when determining whether a program or service encourages and promotes the efficient use and conservation of energy⁵, and by requiring that:

On or before February 1, 2001, the Commission, in consultation with the Maryland Energy Administration, shall report, subject to § 2-1246 of the State Government Article, to the General Assembly on:

- (i) the status of programs and services to encourage and promote the efficient use and conservation of energy; and
- (ii) a recommendation for the appropriate funding level to adequately fund these programs and services.

III. DEMAND-SIDE MANAGEMENT IN MARYLAND

Since the 1970s the Commission has encouraged the promotion of energy efficiency and conservation efforts on the part of the State's electric and gas utilities. In particular, pursuant to Maryland law, all electric and gas utilities providing retail service in Maryland were required to include in their long-range plans adequate provision to promote energy conservation to decrease or moderate electric and natural gas demand from their customers. Demand-Side Management ("DSM") is the term used to describe these conservation efforts to either reduce the actual consumption or reduce the level of overall electric growth and, where appropriate, natural gas

³ §7-211(b)(3) of the PUC Article.

⁵ §7-211(c)(2) of the PUC Article. The Commission shall consider, among other factors: the impact on jobs; the impact on the environment; the impact on rates and the cost-effectiveness.

consumption. Demand-side management may include such aspects as integrated resource planning⁶, renewables or other education and social programs.

In 1995, the Commission issued Order No. 72136 (the “1995 Regulatory Policies Order”) concluding an investigation into regulatory and competitive issues affecting the electric industry in the State of Maryland. In the 1995 Regulatory Policies Order we noted that the rapidly changing nature of the electric industry would require further inquiry into and review of a variety of issues, including the utility’s ability to provide environmental and social programs. We recognized that the review would be a “continuous process” as the industry evolved.

The 1995 Regulatory Policies Order also addressed the cost-effectiveness of DSM Programs and their effect on the competitiveness of utility generation supply services in the increasingly competitive electric supply marketplace. In the Order, the Commission reaffirmed its support for DSM, stating as follows:

The Commission's goal is to preserve the benefits of IRP, DSM, renewables, and social programs within the context of a more competitive environment, while at the same time not disadvantaging the State's electric utilities in competitive markets.⁷

The Commission noted that it continued to believe that “DSM offers important benefits to ratepayers and the industry.” The Commission found that despite growth in the competitiveness and size of the energy services industry, appropriate incentives to encourage ratepayer participation in DSM programs remained necessary because the availability and affordability of such services to the average consumer absent Commission mandated incentive programs was

⁶ Integrated Resource Planning is a planning and selection process for new energy resources by which the utilities select the best combination of resources to meet anticipated load growth over a long time frame, typically fifteen to twenty years.

⁷ Order No. 72136 at 62, note 1, *supra*.

“unclear.” The Commission also stated that one concept that it wanted stakeholders to develop involved providing consumers with financing, rather than rebates, for DSM measures.⁸

However, because of the rapidly changing face of the utility industry, the Commission recognized that to some extent the market for DSM services for residential and small commercial customers is not robust and that incentive programs funded through distribution company rates may be needed to bolster the market. Therefore, the Commission found that existing DSM programs should continue through the transition period ending April 2001, unless otherwise directed and established a State-wide Roundtable, the DSM Working Group, to consider the role of DSM in the competitive marketplace. The DSM Working Group included members from the Commission’s Staff, the Office of People’s Counsel, the Maryland Energy Administration, representatives from the jurisdictional electric and gas utilities, consumer advocates and customer groups.

On May 3, 1999, the DSM Working Group issued a final report to the Commission on its activities and results. The overall consensus of the DSM Working Group was that DSM conservation programs should not continue to be administered and funded as they have been in the past in light of the deregulated environment, and that the Commission should consider future proposals for conservation services which are appropriate and cost-effective. After considering the recommendations of the DSM Working Group, the Commission directed all parties to comment on: 1) what type of energy conservation and efficiency programs should be adopted; 2) how should energy conservation and efficiency programs be funded in Maryland and what level of funding is required; and 3) what test should be used to decide whether a program is cost-effective? The Commission further directed its Staff to meet with the parties and present specific recommendations for energy efficiency and conservation programs to the Commission.

⁸ Id. at 64-65, note 1, supra.

A. Current DSM Program Design and Trends

The structure of the current utility-sponsored energy efficiency programs is a function of the savings that could be achieved in terms of avoiding utility system costs.⁹ Typically, avoided costs are calculated based on the traditional vertically-integrated utility structure of “bundled” generation, transmission and distribution services. As the structure of industry and the utilities change, so would the structure of utility-sponsored efficiency programs. For example, the emergence of a competitive generation market impacts the avoided cost of generation. This effect has two parts. First, competitive pressures would drive innovations to minimize generation costs from current levels. The relatively low short-run costs related to current surplus capacity in the regional market is not expected to persist over the longer term. This would affect the cost-effectiveness of a substitute. Second, the effort to avoid a cost would have to be targeted to the avoidance of costs of component(s) of service over which the utility has some control, namely transmission and distribution.

1. Impacts of Restructuring

Restructuring of the energy industry should intensify competition in energy management markets. Some market research indicates that marketers anticipate that the introduction of customer choice could result in smaller margins on bulk power services. Energy suppliers will have limited options for offering lower prices to customers, including reducing administrative costs and helping customers to lower energy usage. One option to improve margins is to offer energy services in addition to bulk power¹⁰. This has led to an increase in the types of

⁹ The utility DSM programs operating as of 1995 have saved over 1,802 MW and were projected by the utilities to save over 3,000 MW by 2010. This is equivalent to the deferral of six-500 MW power plants. Additionally, these programs will conserve an estimated 5,000 MWH of energy in the same period.

¹⁰ Marketing-Savvy Energy Companies Use Smart Solutions, Right Price to Turn Business Prospects Into Customers, October 22, 1999, Atlanta, Oct. 21, PRNewswire via NewsEdge Corporation.

companies, such as competitive energy suppliers and facility managers, that provide energy service, as part of a “total energy service” package. Deregulation has also enabled large energy management service companies to offer service to large commercial multi-site establishments across utility and state boundaries.

There are a variety of options for restructuring utility-sponsored energy efficiency activities in accordance with restructured utility functions. One that holds great promise is what is being called “targeted” or area-specific resource planning. This process focuses on reductions of transmission and distribution costs, or the total cost of supplying a particular area, through demand-side activities and coordinated transmission and distribution planning.

Increasing competition in the electric generation market has been accompanied by new activity in the markets for energy services that provide direct links with the energy customer. Utilities and others are becoming increasingly aware that the market for energy services can be lucrative, particularly for projects with larger commercial, industrial and institutional customers. The opening of retail competition should provide even greater opportunities.

Some envision that energy services will be provided in a competitive market totally separate from the utility. An unregulated entity would no longer have any responsibilities for supplying energy services. In anticipation of this, many of the utilities have based their savings estimates on the assumption that utility-sponsored DSM programs would close after 1996 or 1997 as a result of industry restructuring.

2. Conservation and Demand-Side Management in the Private Sector

Many types of businesses provide energy management services. They include energy service companies (“ESCOs”), energy suppliers, manufacturers of energy efficiency equipment, facility management companies, independent contractors and consultants. An Energy Service

Company is a company engaged in developing, installing and financing comprehensive, performance-based energy efficiency projects that improve the energy efficiency and lower the maintenance costs for facilities. ESCOs typically provide services on a performance or shared savings basis. With this approach, an ESCO receives a portion of the savings realized by the customer as payment for its services. This approach addresses certain initial cost issues faced by electricity consumers, since the flow of payments follow the flow of savings. It also provides the ESCO with a financial incentive to deliver verifiable savings to a customer. ESCOs usually target large commercial, industrial, institutional facilities, and multi-family dwellings. Generally, these facilities utilize more energy than smaller facilities and therefore offer the greatest potential for energy and demand reductions.

Energy suppliers, including utility affiliates and non-regulated competitive suppliers, may offer energy management services as part of a government mandated demand-side management program or as part of a supply service package. Energy efficiency equipment manufacturers have provided energy management services as a means for selling their products. For example, Johnson Controls, Inc. and Honeywell design, manufacture, install and service energy control systems for nonresidential buildings. Both companies also provide integrated facility management services to both the commercial buildings and government facilities markets worldwide.

In addition to firms that are primarily focused on energy and energy services, facility management companies provide services related to the design, construction, operation, and maintenance services to commercial, industrial, or institutional facilities. Such a company may offer energy management services similar to those provided by an ESCO as part of its overall facility management portfolio. Consultants and contractors may work under contract with an

electric customer or for any of the above companies to provide advice or arrange for the labor necessary to design, construct, operate, or maintain an energy efficient building or operation.

A number of technologies have come to form the core of the typical energy services projects. These include high-efficiency lighting; high efficiency heating and air conditioning; efficient motors and chillers; variable speed drives; and centralized energy management systems. Additionally, weatherization services are sometimes offered. Depending upon the characteristics of a particular project, these core technologies may fully exhaust the energy savings available for that project. In some cases, core technologies may form the basis upon which other innovative efficiency applications, such as integrated cogeneration or renewable energy technologies. Similarly, an older facility may benefit from a renovation of its steam heating system or from a new on-site power plant. The Internet has also begun playing a role in the development of energy management services. Internet-based technologies are capable of providing a wide range of analytical tools such as energy use monitoring and analysis, load profiling and aggregation, and facility and commodity management. For example, a few weeks ago BGE filed a proposal to implement a Voluntary Electric Energy Monitoring and Use Pilot Program¹¹ for business and residential customers that would utilize the internet for just this purpose.

Energy management companies primarily serve large commercial and industrial customers, including retail chains, large banks, large restaurant and fast food chains and hotel operators. In addition, industrial and institutional customers have reported using energy management services to analyze and consolidate electric bills, reduce energy price risk, procure power and make infrastructure improvements to reduce energy consumption.

At this time there are very few energy management companies providing comprehensive services to residential customers. Many firms provide insulation, high-efficiency windows, and

HVAC equipment in Maryland. There are few in Maryland that provide these services comprehensively or provide advance sealing treatments by the use of a blower door test. Unlike an ESCO that addresses electricity end-uses in a facility, residential services tend to be fragmented.

B. Environmental Considerations: NO_x Offset Program Feasibility Study

Proponents of energy efficiency and conservation note that compared to conventional forms of electricity generation, efficiency and conservation have relatively few adverse environmental impacts. This fact has led many to argue that these qualities should be given consideration when comparing power plants to conservation.

The State of Maryland is in compliance with the National Ambient Air Quality Standards (“NAAQS”) for particulate matter (“PM”), nitrogen dioxide (“NO₂” or “NO_x”), sulfur dioxide (“SO₂”), lead (“Pb”) and carbon monoxide (“CO”). However, large parts of Maryland are at nonattainment levels for ozone. These nonattainment regions include: Central Maryland, the Baltimore Metropolitan region, the Washington Metropolitan region, part of Southern Maryland and parts of the Eastern Shore. Since NO_x is an ozone precursor, its levels need to be lowered in Maryland, even though they are otherwise in attainment.

The Ozone Transport Commission (“OTC”) NO_x Budget Program was created to reduce summertime NO_x emissions, which cause ozone formation, in the northeast United States. The program caps NO_x emissions at 219,000 tons in 1999 and 143,000 tons in 2003, less than half of the 1990 baseline emission level of 490,000 tons. The NO_x Budget Program uses an allowance trading system which harnesses free market forces to reduce pollution.

¹¹ January 17, 2001 Administrative Meeting, item 21 (ML#75050).

Beginning January 1, 2000, based on Phase II of the U.S. Environmental Protection Agency's ("EPA's") April 1995 rule, NO_x emissions from utilities will be reduced by an additional 15 percent, or 900,000 tons per year, beyond the 1.2 million per year reduction required by Phase I. As required the EPA's NO_x SIP Call, the Maryland Department of the Environment ("MDE") recently adopted COMAR 26.11.29 NO_x Trading program and COMAR 26.11.30 Policies and Procedures Relating to NO_x Reduction and Trading Program. MDE's regulations set emissions targets for each Maryland power plant. In addition, 725 tons per year of credits remain unassigned. As required by the MDE's regulations, 436 tons are to be allocated to clean air projects and the balance are to be allocated to new or modified affected trading sources. Unused allowances can be banked. All affected trading sources must install, operate, maintain and certify an approved monitoring method. Additionally, there are penalties for noncompliance, which include losing credits.

One area that we feel warrants further consideration is whether energy efficiency and conservation programs can be designed to create environmental credits. These credits could be used as part of a strategy to retain and attract business and jobs in Maryland. New Jersey has implemented such a program. In the DSM Roundtable portion of the Commission's electric restructuring proceeding, this concept was identified by the Commission's technical staff. However, parties participating in this proceeding, including the Maryland Department of the Environment, and Maryland Department of Natural Resources, did not comment on this proposal.

There are a number of unanswered questions regarding such a program, its costs, and feasibility that need to be addressed. However, we believe this concept merits further study

given the nexus between the NOx restrictions in Maryland and economic development.¹² Therefore, we recommend that the General Assembly direct the Maryland Department of the Environment to further study the feasibility of linking conservation to the NOx trading program as is currently being done in New Jersey.

C. Economic Development

There are many factors that influence the private sector to create jobs in a particular locale. These include the available labor force, taxes, wages, real estate costs, and operating costs. Maryland is in direct competition with other states within the region and other regions of the country. The State and local governments have focused a great deal of time and resources on economic development. The State has any number of programs to attract and retain businesses and jobs in Maryland.

One of the most visible has been the Governor's Smart Growth Initiative. The smart growth initiative is made up of several initiatives. One initiative is the Job Creation Tax Credit Program. This program is designed to encourage mid-sized and smaller businesses to invest in Smart Growth areas around the State. Small businesses comprise almost 80 percent of Maryland businesses and generate the majority of new job growth in the State. This proposal will encourage small business development and job growth in areas accessible to available labor pools, and will encourage more efficient use of the State's existing infrastructure.

One factor not always considered in the economic development matrix concerns energy costs. While it appears that many larger commercial and industrial organizations are served by competitive energy service companies, small to mid-sized businesses may not be served by these

¹² The Environmental Protection Agency has published a technical manual, Guidance on Establishing an Energy Efficiency and Renewable Energy (EE/RE) Set-Aside in the NOx Budget Trading Program, March 1999, to assist states with developing such programs.

companies. It has been documented that small to mid-sized businesses are critical to the job creation process. It appears that an energy efficiency component be added to the State's current efforts to attract and retain business in Maryland, in particular small and mid-sized firms.

To address this need, a program could be undertaken by the Department of Business and Economic Development to improve energy use patterns among commercial and industrial customers in the State. This program could be coordinated and integrated with other strategies and policies used by the State and local governments in Maryland to attract and retain businesses. Funding for such a program could be provided by the State's general fund at a level of \$2 million dollars per year.

IV. FUNDING FOR ENERGY EFFICIENCY AND CONSERVATION PROGRAMS

Section 7-211 of the Public Utilities Companies Article requires the Commission to recommend appropriate and adequate funding levels for any programs the Commission proposes. One factor that the Commission is required to consider is the impact that the proposed programs will have on rates. This reflects the fact that energy efficiency and conservation opportunities will probably always be greater than the resources available to implement them. Therefore, a set of priorities for funding must be established. Additionally, a balance must be struck between program spending and the impacts on rates.

Table 1 estimates the revenues that will be collected from various rate classes if a system benefits charge or surcharge on electricity consumption were implemented. The table shows the revenues associated with charges ranging from 0.1 mil to 3 mils per kWh.¹³ Each 1 mil collected from all ratepayers results in approximately \$57 million of revenues. As is true of utility revenues in general, the weather and economic conditions would affect collections during any given year.

Additionally, §7-211(b)(3) requires the Commission to ensure that adoption of electric customer choice does not adversely impact the continuation of cost effective energy conservation and efficiency programs. As detailed below, we note that while none of the restructuring settlements approved by the Commission for the State’s four largest investor-owned electric utility’s foreclose the potential for a conservation surcharge, it is conceivable that the imposition of a large surcharge could negate any rate decrease consumers currently realize as a result of electric restructuring.

| | 1998 Sales (GWh) | 3 mils/kWh | 2 mils/kWh | 1 mil/kWh | 0.5 mil/kWh | 0.1 mil/kWh |
|--------------|---------------------|----------------------|----------------------|---------------------|---------------------|--------------------|
| Residential | 22,444 | \$67,332,000 | \$44,888,000 | \$22,444,000 | \$11,222,000 | \$2,244,400 |
| Commercial | 25,222 | \$75,666,000 | \$50,444,000 | \$25,222,000 | \$12,611,000 | \$2,522,200 |
| Industrial | 9,733 | \$29,199,000 | \$19,466,000 | \$9,733,000 | \$4,866,500 | \$973,300 |
| Total | 57,399 | \$172,197,000 | \$114,798,000 | \$57,399,000 | \$28,699,500 | \$5,739,900 |

Table 2 provides information on typical customer bills in Maryland for various customer classes for the four largest electric utilities in Maryland.¹⁴ The typical bill was calculated for each utility according to load and consumption parameters prescribed by EEI. The bill is what a customer pays, and includes surcharges, fuel rates and taxes. EEI indicated that the typical bill did not include any applicable sales taxes. The average bill for Maryland is a simple average.

Further below in Table 2 under the “usage” column is the total monthly bill impact of a public benefits charge of 1-mil per kWh for a typical residential, commercial or industrial customer for each utility. The columns to the right set forth the percentage increase for each

¹³ These estimates are based on 1998 Statewide sales figures provided by utilities as a part of their responses to the Ten Year Plan data request.

¹⁴ This information was gathered from Edison Electric Institute (“EEI”) surveys conducted of investor-owned utilities and published in the Institute’s semi-annual *Typical Bills and Average Rates Report*.

utility that a typical customer would see as the result of the implementation of a 1-mil per kWh PBC. The last column to the right provides a simple average for the entire State. These increases range from less than one percent to one and one-half percent per month. While all similarly situated customers would pay the same surcharge each month, the impact as expressed as a percent of the bill would be higher for those customers of utilities with comparatively lower rates. Additionally, the impact of the PBC as a percentage of income is greater on those with lower incomes. Finally, a usage based PBC may warrant a cap for those customers with high energy usage.

| Table 2 Bill Impact of 1 Mil Public Benefits Charge For Typical Customers By Utility | | | | | | | |
|---|--------------|-----|----------|----------|----------|----------|----------------------------|
| Monthly Bill (Without PBC) | Usage KWh | kW | BGE | DPL | PE | Pepco | Simple Average Maryland |
| Residential | 750 | NA | \$78 | \$71 | \$55 | \$79 | \$72 |
| Commercial | 12,500 | 50 | \$1,173 | \$1,244 | \$955 | \$1,351 | \$1,208 |
| Industrial | 200,000 | 500 | \$16,047 | \$12,448 | \$11,352 | \$16,268 | \$14,364 |
| Bill Impact of 1 mil PBC | PBC/month | | | | | | |
| Residential | \$2.25 | | 1.0% | 1.1% | 1.4% | 0.9% | 1.0% |
| Commercial | \$37.50 | | 1.1% | 1.0% | 1.3% | 0.9% | 1.0% |
| Industrial | \$600.00 | | 1.2% | 1.6% | 1.2% | 1.2% | 1.4% |

Source: Typical Residential, Commercial and Industrial Bills, Summer 1997, Edison Electric Institute

Table 3 contains the revenue reductions approved in the stranded cost settlement cases with the Maryland investor-owned utilities. These revenue reductions should be compared with the revenue increases that would result from adopting new energy efficiency and conservation program funding requirements as outlined in the previous table. The comparison shows that modest spending levels associated with 1 mil per kWh or less rate increase would still result in a net decrease in rates for customers during the transition period. Required revenues associated with rate additions above the 1 mil rate could potentially eliminate the impact of the rate cuts and produce overall higher rates.

Table 3
Annual Revenue Savings from Rate Cuts
Investor-Owned Maryland Utilities
(\$ Millions)

| | APS | BGE | DPL | Pepco | Total |
|------------------------|-----------------|-----------------|-----------------|-----------------|----------------|
| Residential | \$10.8 -7% | \$50.2 -6.5% | \$12.4 -7.5% | \$10.1 -3.0% | \$82.65 |
| Non-Residential | \$1.5 <-1.0% | 0 | 0 | \$3.0 <-1.0% | \$ 4.50 |
| Total | \$12.3 | \$50.2 | \$12.4 | \$13.15 | \$88.05 |

With respect to funding of energy efficiency and conservation programs the DSM surcharges were terminated for BGE and Pepco on June 30, 2000. Beginning on July 1, 2000 BGE standard offer service rates include costs related to DSM programs that otherwise would have been collected through DSM surcharges. These costs will continue to be collected until 2003, when Standard Offer Service may no longer be provided by electric companies. Delmarva's Maryland customers will continue to pay a surcharge through May 2002. These costs and bill impacts have not been factored into the Bill Impact or Collections Tables.

A. Funding Mechanisms

There are a number of funding mechanisms that could be used to fund energy efficiency and conservation programs in Maryland. These include surcharges on electricity consumption, dedicated taxes on energy, user fees, and general fund revenues and bonds. The choice of any recommended mechanism should be determined by the policy objectives of the recommended program and the type and distribution benefits created. As noted above, the make-up of the electric and natural gas utility has evolved over the past few years. Today's utility is largely a distribution and transmission company. The supply side is now deregulated and beyond the scope of the Commission's jurisdiction. In the past, most of the costs associated with DSM

programs have been recovered through the ratepayer either in rates or through DSM surcharges. However, the benefits to be recognized from DSM are most closely aligned with the supply function, a function that is no longer found within the utility company, nor under the Commission's control. These suppliers cannot be ordered to implement DSM programs at the State level.

Notwithstanding the changing utility environment, implementation of conservation measures to ensure the adequacy of electricity or natural gas supply remain valid State concerns because of their effects on the entirety of the State's population and economic well-being. Because DSM programs service a broader societal goal and because of the changes occurring within the energy industries, the Commission suggests that funding for DSM programs should be found outside of and apart from the utility. As an alternative, the Commission recommends that future conservation programs utilize either grants or loans and that funding be provided through general fund revenues or general obligation bonds. Additionally, the use of State monies to support future conservation programs would have less impact on customer's income, thereby eliminating one side-effect associated with the imposition of a public benefits charge. Another benefit to be gained by the use of State funds is that the disparate impact that is often seen between the average customer and the low-income customer would be eliminated.

B. Cost-Effectiveness

Demand-side options can be viewed as a potential resource like any other energy resource. There is the technical potential for energy efficiency, which has been defined as the amount of energy savings that could be achieved if all consumers installed the most efficient devices without considering long lag times or other practical constraints, such as cost. The technical potential is an upper limit to the amount of efficiency that could be captured by a utility. In the former regulated

environment, a utility program was only concerned with the part of the efficiency resource base where the marginal cost of the efficiency measure was below the marginal cost of electricity production (often referred to as a utility's avoided cost). The determination of cost-effectiveness should be expanded to include consideration of continued reliability and the three “E’s”: education, the environment and the economy (State and personal).

Markets will capture part of the technical potential over time without the assistance of utility or government intervention. There are, however, markets where barriers can block or slow the adoption of energy efficiency measures. These barriers include capital constraints, regulatory distortions, risk aversion or other forms of market failure, such as many of the environmental costs of electricity generation. The portion of the energy efficiency resource that has a marginal cost equal to, or below, the marginal cost of electricity supply provides a cost-effective resource alternative to generation or power purchases. Utility programs are designed to intervene in markets to remedy these barriers.

Since the resource base for energy efficiency will continue to exist as an alternative to supply, it can be used to create other benefits outside the direct benefits that accrue to electricity companies and suppliers. Energy efficiency can reduce energy use, and customers' bills, both of which are laudable and a worthy goal in and of themselves. However, as result of restructuring, saving energy and reducing demand should no longer have the same implications. In a restructured environment, the purposes of energy efficiency programs must evolve to reflect the goals and values found in the restructuring legislation. These include economic competitiveness of Maryland, environmental quality and lower rates. Programs should be designed and implemented to further these goals.

1. Comparing Supply and Demand Options

Cost-effectiveness as it relates to utility-sponsored DSM programs refers to a comparison of the cost and benefits of a supply resource versus the costs and benefits of a demand-side management program. If a demand-side management program is found cost-effective, it means that it is a less costly option to meet customer demand than an equivalent increment of supply.

There are several approaches used by utilities and regulators to estimate the cost-effectiveness of utility-sponsored DSM programs. These approaches differ mainly in what costs and benefits are considered in the calculation, and how they can be used to highlight certain aspects of cost-effectiveness. These tests, referred to as DSM screening tests, include the Total Resource Cost Test, the Rate Impact Measure, the Utility Cost Test, and the Participants Test. As a rule, the test selected often determined whether a program was found to be cost-effective. Given changes in the electric and gas industry and the broader range of social considerations identified by the General Assembly for energy efficiency programs, we believe the issue of cost-effectiveness should continue to be relevant with revised parameters. These parameters move away from a utility environment with avoided costs and shift towards achieving public benefits of reducing energy consumption and improving the environment and the economy.

V. STATUS OF ENERGY EFFICIENCY AND CONSERVATION PROGRAMS

A. Utility Demand-Side Management Programs

Table 4 provides a summary of the status of utility-sponsored demand-side management programs in Maryland. The information was provided by electric utilities as part of the Commission's 1999 Ten-Year Plan data request, and reflects the status of programs as of December 31, 1998. Most utility conservation and efficiency programs were closed to new participants as of

this date. The table shows that most utilities in Maryland, regardless of size, have continued to offer active load management programs.

The discontinuation of conservation and efficiency programs was the result of a number of factors. These included issues related to rate impacts, competition, equity, costs and the need for additional capacity. These issues were discussed in greater detail in Section II. Staff believes that the current level of programs does not provide the accurate depiction of the State's overall commitment to conservation and efficiency, given that the expenditures exceeded over \$500,000,000 for the period 1991 through 1998.

| Table 4 Status of Utility Demand-Side Management Programs | |
|--|--|
| <i>Utility</i> | <i>Reported DSM Activities</i> |
| A&N | In 1998 A&N had over 1,550 participants in its load management program. By 2013 it is estimated that that DSM will contribute 1.6 MW towards reducing summer peak demand, with estimated energy savings of 1.5 GWh. |
| BGE | During 1998 BGE completed its phase out of rebates for all of its conservation programs. BGE continues to offer load management programs to its residential, commercial and industrial customers. |
| Berlin | In 1999, Berlin will have approximately 68 participants in its demand-side management (DSM) programs contributing an estimated .007 MW towards meeting the projected 1999 winter peak of 9.86 MW. By the year 2013, it is estimated that DSM will contribute .28 MW towards reducing the winter peak, and the 15-year cumulative energy savings will be approximately 1.06 GWh. The growth in DSM over the next 15 years is estimated to offset almost 1.75% of the growth in native winter peak demand and .14 % of the growth in energy sales. |
| Choptank | Choptank phased out its conservation programs in 1998. Choptank continues to offer a load control switch program to its residential customers. Choptank has introduced experimental residential, commercial and industrial rates to encourage the efficient use of electricity. |
| DPL | The Company discontinued all of its conservation programs in 1998. DPL continues to offer load management programs to its Maryland customers. |

Table 4
Status of Utility
Demand-Side Management Programs

| <i>Utility</i> | <i>Reported DSM Activities</i> |
|----------------|---|
| Easton | Easton Utilities has no demand-side (DSM) programs in effect at this time. Studies that were performed indicated that the programs that are presently available are not cost effective for Easton Utilities' customers, or its system. Easton Utilities will continue to evaluate new programs as they become available and will implement them if they are in the best interests of its customers. |
| Hagerstown | No new program offerings are planned in 1999, existing measures were expected to continue to have a .03 MW impact through the year 2013. By the year 2013, it is estimated that DSM will continue to contribute .014 MW towards reducing the summer peak, and the 15-year cumulative energy savings will be over 1,909 GWh. The growth in DSM over the next 15 years is estimated to offset almost 0.2 % of the growth in native peak demand and 0.2 % of the growth in energy sales. |
| Potomac Edison | Through an agreement with the Maryland Public Service Commission, Potomac Edison has terminated the Residential Comfort Home Program and the Commercial/Industrial Lighting Program. Potomac Edison will continue the collaboratively developed Residential Heat Pump Replacement Program until April 1, 2000. |
| Pepco | Programs that were in operation in Maryland at the end of 1998 for the Residential sector included High-Efficiency Air Conditioner and Energy Saver Home. Both of these programs will be discontinued in 1999 because they no longer are cost-effective. Pepco continues to offer load management and Time-of-Use rates for residential customers. Pepco continues to offer curtailable load and time-of-use rates for its commercial customers |
| Somerset | During 1998, Somerset continued to offer its load management program to its Maryland customers. As of December 31, 1998, 260 Maryland customers were participating in this program, contributing peak reductions of 193 kW per month. |
| SMECO | In the future, through SMECO's customer services, customers will continue to receive individual assistance with reducing their energy usage. SMECO has developed the Energy Star program for new homes, has begun promoting a group of Select HVAC contractors to improve residential heating and cooling systems, and continues the PowerWise weatherization program. SMECO has phased-out rebates for its DSM programs. |
| Thurmont | No demand-side resources are included in the Town of Thurmont's 1999 Long-Range Plan. |
| Williamsport | The Town of Williamsport's Long-Range Plan does not include any demand-side management resources |

B. Other Government Programs

1. Federal Government

The U.S. Department of Energy (“DOE”) operates a number of conservation and energy efficiency programs. Many of these programs are provided in partnership with the private sector, state and local government, DOE national laboratories, and universities. These programs provide research and development, demonstration projects, and information. The full list of DOE programs is too extensive to describe in detail. There are three programs that have direct impacts in Maryland.

a. ENERGY STAR[®] Equipment and Appliances

The ENERGY STAR[®] Program is a voluntary partnership between the DOE, U.S. Environmental Protection Agency (“EPA”), manufacturers of products, local utilities, and retailers. ENERGY STAR[®] partners promote efficient products by designating them as ENERGY STAR[®] products and awarding ENERGY STAR[®] Labels to products that exceed national efficiency standards. The ENERGY STAR[®] label distinguishes specific products endorsed by ENERGY STAR[®] Partners and aids in customer recognition of energy efficient products. Agencies help to promote these products in retail stores and through volume purchases. Products include clothes washers, refrigerators, dishwashers, and room air conditioners. ENERGY STAR[®] products are produced by all major manufacturers and are carried in 900 retail stores nationwide. Although the ENERGY STAR[®] products may require a larger initial investment, these costs can often be recouped with savings on utility bills. Additional incentives in the form of rebates from electricity service providers may be available. Partner utilities promote these products in their bills to inform the consumer of energy efficiency and conservation opportunities.

The program offers retailers the incentive of becoming recognized as providing information about energy efficiency choices and high-efficiency appliances and equipment. To participate, a retailer must agree to affix ENERGY STAR[®] labels to the products as they reach the showroom. The retailer provides the point of purchase materials and brochures in their stores. The retailer also agrees to offer promotions on products and to advertise the ENERGY STAR[®] products in sales fliers. In return, the retailer receives free advertisement by being listed on the ENERGY STAR[®] retailer and federal government's consumer information hotlines, receives referrals from utilities' and manufacturers' promotions, and leverage from national brand awareness campaigns.

b. ENERGY STAR[®] Homes/ ENERGY STAR[®] Buildings

The ENERGY STAR[®] Homes Program engages homebuilders in projects that are designed to construct highly energy-efficient new homes. An ENERGY STAR[®] Home has lower utility bills, which adds to the value of a home. ENERGY STAR[®] Buildings act as a catalyst to investment in energy efficient building technologies. Efficient lighting, ventilation, and heating and cooling technologies have lowered many companies' total energy bill by 30% or more. The use of energy efficient lighting has spread nationwide as a direct result of this program.

The Home Energy Saver ("HES") is another component of the ENERGY STAR[®] Program. The HES is a web-based system, administered by the Lawrence Berkeley National Laboratory designed to promote ENERGY STAR[®] by allowing prospective customers to quantify potential energy savings and environmental benefits associated with the ENERGY STAR[®] Program. Using data provided by the use, the HES provides recommendations for improving the energy efficiency of existing homes. The recommendations supplied by the HES involve modifications to the existing building shell, HVAC equipment, appliances, and lighting.

c. Federal-State Partnerships

The Oak Ridge National Laboratory's ("ORNL") State Partnership Program ("SPP") was initiated in 1996 to create and enhance federal-state research and development collaborative activity in the area of sustainable energy technologies. Through the SPP, ORNL collaborates with state agencies to accelerate the development and deployment of sustainable energy technologies. The SPP is administered by ORNL's Energy Efficiency and Renewable Energy Program and is intended to provide laboratory expertise to state agencies and their customers. Joint projects enable ORNL scientists and engineers to work closely with state energy agencies to increase the probability of successful market penetration of sustainable energy technologies, fostering meaningful impacts on the marketplace.

d. Federal Tax Incentives

Currently, federal law allows tax credits and tax deductions for certain energy efficient technology measures. In this case, "energy conservation measure" refers to the installation/modification designed to reduce consumption of electricity or to improve the management of energy demand with respect to a dwelling unit.

2. State Programs

a. MEA Community Energy Loan Program

The Maryland Energy Administration manages the Community Energy Loan Program ("CELP"), which enables eligible nonprofit organizations and local governments to negotiate loans at below market rates for energy efficient projects in buildings owned or leased by the applicant.

b. MEA Community Based Energy Showcase Program

MEA coordinates demonstration projects and energy efficiency programs utilizing state-of-the-art technologies in various Maryland communities.

c. Tax Incentives

Tax incentives are offered by the State to encourage energy efficiency and conservation. To date at least nine states have sales tax exemption programs, including Maryland. Eleven have adopted a form of income tax credits for clean energy products. During the 2000 legislative session, the Maryland Clean Energy Incentive Act (SB 670) was signed into law. Beginning July 1, 2000, consumers receive exemptions from sales and use taxes on ENERGY STAR[®] Labeled clothes washers purchased between July 1, 2000 and July 1, 2003. The exemptions also apply to ENERGY STAR[®] labeled room air conditioners and refrigerators purchased for the period beginning July 1, 2000 and ending July 1, 2004. Legislative analysis indicated that during 1998, ENERGY STAR[®] appliance sales in Maryland captured a lower market share than was achieved nationwide.

d. Low-Income Weatherization Assistance Program

This program provides weatherization services to qualified low-income household in Maryland. The program is funded in large part by the federal government and is administered by the Maryland Department of Housing and Community Development.

e. Universal Service Weatherization Program

This 3-year program began on July 1, 2000 and provides weatherization services to qualified low-income household in Maryland. This program is funded by a universal service charge from all electricity customers and is administered by the Maryland Department of Human Resources.

VI. COMMISSION'S PROGRAM PROPOSAL

Information was recognized by almost all parties to the DSM Roundtable as a critical element to developing competitive energy efficiency markets. As we noted above, lack of information is a barrier confronting consumers when making choices about energy efficiency and conservation. One of the primary functions of any DSM or conservation program should be customer education and outreach. It is imperative that customers, especially residential customers, understand the link between conservation and personal long-term cost savings. We therefore recommend that \$3 million per year be allocated for customer education and outreach.¹⁵

The Commission utilized information submitted by participants to its DSM Roundtable and gained through discussions with MEA to formulate this Report. Various parties to the DSM Roundtable, including the Commission's Staff, submitted DSM Program Proposals for the Commission's consideration. A summary of the proposals that were submitted is included in Attachment B to this Report. After reviewing the various programs, the Commission believes that the Staff DSM Proposal, contained in Attachment A, offers a comprehensive program that would fulfill the objectives identified within this Report. Staff's DSM Proposal, as were all proposals submitted for the Commission consideration, is structured to operate within the former utility-sponsored DSM environment and contemplates the creation of a Maryland ENERGY STAR[®] program. However, as the Commission has explained at length, the utility-sponsored DSM program is no longer the optimum choice given the ongoing changes that have occurred within the energy industry. As such, the Commission adopts the elements of the Staff's proposal modified to be consistent with the framework enunciated by the Commission in this Report, i.e.,

funding provided through general fund revenues and general obligation bonds.

ENERGY STAR[®] is a voluntary partnership program between the private sector, EPA and DOE. There is a great deal of variability among states in terms of how ENERGY STAR[®] Programs have been designed and implemented nationwide. States have the flexibility to design the program to meet their particular needs. In many cases these programs are administered by utilities, such as in California and New Jersey. In other areas, such as in the Pacific Northwest and Wisconsin, the program is administered by nonprofits. In the case of New York, it is administered by a government agency. For Maryland, Staff recommended that a program should be implemented which combines private and public resources and educates and informs residential customers about energy conservation and we believe it should be administered by MEA. The federal ENERGY STAR[®] Program is an example of such a program that when tailored to Maryland would not only begin to educate residential consumers, but would also gradually implement conservation measures. The Maryland ENERGY STAR[®] Program would initially focus on residential appliances, residential HVAC, and residential construction.

A. Maryland ENERGY STAR[®] Residential Electric HVAC Replacement and Installation Program

This program aims to improve the efficiency of new central air conditioners and heat pumps. It promotes both the sale of high efficiency equipment and improvements in sizing and installation practices that affect operating efficiency. The long-term goal is to transform the market to one in which quality installations of high efficiency equipment are commonplace.

To achieve this goal, the program must overcome a number of important market barriers. Key among these are: (1) split incentives (between builders and homebuyers and between

¹⁵ The recommended amount is based upon the Commission's experience with its electric restructuring consumer education program.

owners and renters); (2) consumers lack of information on the benefits (both energy and non-energy) of efficient equipment and quality installations; (3) lack of training for HVAC contractors on key installation issues and approaches to “selling” efficiency; and (4) consumers inability to differentiate between good work and poor work or between quality contractors/technicians and those less skilled. The program employs several key strategies to overcome these barriers:

- Aggressive consumer marketing campaign on key elements & benefits of efficiency;
- Direct marketing to HVAC distributors and contractors through “circuit riders”;
- Training of HVAC contractors on key elements of quality installations;
- ENERGY STAR[®] sales training for contractors (i.e., on how to sell efficiency);
- Promotion of HVAC technician certification (including mechanism for consumer referrals); and,
- Promotion of significant increases in minimum federal efficiency standards.

The Maryland program will be directly coordinated with the regional program and other related national efforts. This program will be closely coordinated with Maryland’s sales tax credit for ENERGY STAR[®] program.

B. Maryland ENERGY STAR[®] Residential Appliance & Consumer Products Program

The program will promote the sale and purchase of ENERGY STAR[®] appliances and consumer products primarily through marketing, consumer education and related activities. The long-term goal will be to transform the appliance and consumer products market to one in which efficient products become the market standard. Experience in other parts of the country suggests that the program will have to overcome several market barriers to achieve this goal. Key among these are four barrier listed above, plus a fifth: higher first costs. The program will employ several strategies to address these barriers:

- Consumer education on the benefits of ENERGY STAR[®] appliances and consumer products;
- Marketing to raise the market visibility of these products, focusing particularly on promotion of the ENERGY STAR[®] brand – integrated with ENERGY STAR[®] marketing in other product areas (e.g., Lighting, Windows and New Homes) to the extent appropriate;
- Retail sales training and point of sale materials to help sales people more easily and effectively identify and market the benefits of efficient products; and
- Support (as appropriate) for up grading minimum federal appliance efficiency standards.

C. Maryland ENERGY STAR[®] New Residential Construction Program

This program is designed to increase the efficiency of residential new construction, with the long-term goal of transforming the market to one in which all new homes in Maryland are built at least as efficiently as the current ENERGY STAR[®] homes standard.

There are a number of market barriers to efficiency investments in new construction. Key among these are: (1) split incentives (i.e., builders who make design decisions will not pay the energy bills associated with those decisions); (2) lack of information on the benefits of efficiency (on the part of consumers, builders, lenders, appraisers, realtors and others); (3) limited technical skills to address key elements of efficiency; and, (4) inability of consumers, lenders, appraisers and others to differentiate between efficient and standard homes. The program will employ several key strategies to overcome these barriers:

- Marketing assistance to builders of efficient homes (promoting ENERGY STAR[®] label);
- Technical assistance and training to builders and their subcontractors;
- Home energy ratings and ENERGY STAR[®] certification to qualified homes;
- Incentives to builders to construct homes to program standards;

- Outreach to other key market actors – e.g., lenders, realtors, inspectors, appraisers – to educate them on the benefits of efficiency and encourage them to support the program;
- Support to foster the development of market-based mechanisms to facilitate market transformation, including a uniform statewide energy rating system, accreditation of independent (e.g., private market) raters, development of preferential mortgage products for efficient homes; and
- Technical support/training on residential energy code updates and, implementation.

The Maryland program will be directly coordinated with related regional and national programs (e.g., EPA’s ENERGY STAR[®] Home and consumer products programs, the regional ENERGY STAR[®] Lighting and Appliance programs). The program also will be coordinated with the other residential energy efficiency programs and designed to work with Maryland’s sales tax credit for ENERGY STAR[®] products. This program will provide no direct incentives to customers. The cost of providing inspections and other service-related materials (estimated to be approximately \$300), will be partially subsidized by this program.

D. Program Administration

The program would be administered by the Maryland Energy Administration and funded from general fund revenues and general obligation bonds.

Table 5 below summarizes the budgets for each of the proposed programs. The details of the budgets can be found in the full version of Staff’s Proposal in Attachment A. These budgets are based on a philosophy of limited incentives for customers. The budgets for New Home Construction and Residential HVAC replacement were provided by the Northeast Energy Efficiency Partnerships, Inc. (“NEEP”) and adjusted by Staff, by eliminating the customer incentives.¹⁶ The total spending for residential programs under this scenario is approximately

¹⁶ For the total NEEP program proposal (commercial, industrial and residential programs), customer incentives are approximately 68 percent of the estimated program costs. The NEEP proposal calls for \$264,025,250 of spending

\$21.5 million over a three-year period. The total budget for the three-year period, including funds for DBED’s commercial and industrial economic development program and customer education and outreach, is approximately \$36.5 million.

| Table 5 | | | | |
|--|---------------------|---------------------|---------------------|---------------------|
| PROPOSED 3 YEAR BUDGET FOR | | | | |
| ENERGY-EFFICIENCY PROGRAMS IN MARYLAND | | | | |
| (By Program) | | | | |
| ENERGY-EFFICIENCY PROGRAMS | Year 1 | Year 2 | Year 3 | Total |
| MEA Residential Program (ENERGY STAR [®]) | | | | |
| Appliances | \$2,286,108 | \$1,942,084 | \$1,760,552 | \$5,988,744 |
| Residential New Construction | \$1,606,344 | \$2,428,988 | \$3,062,280 | \$7,097,612 |
| Residential HVAC | \$2,829,120 | \$2,752,244 | \$2,850,686 | \$8,432,050 |
| <i>ENERGY STAR[®] Total</i> | \$6,721,572 | \$7,123,316 | \$7,673,518 | \$21,518,406 |
| Customer Education/Outreach | \$3,000,000 | \$3,000,000 | \$3,000,000 | \$9,000,000 |
| <i>MEA PROGRAM Total</i> | \$9,721,572 | \$10,123,316 | \$10,673,518 | \$30,518,406 |
| DBED Economic Development | \$2,000,000 | \$2,000,000 | \$2,000,000 | \$6,000,000 |
| <i>Total</i> | \$11,721,572 | \$12,123,316 | \$12,673,518 | \$36,518,406 |

VII. CONCLUSION

The Commission recommends that DSM conservation programs should exist. These programs should be administered primarily by the Maryland Energy Administration. The Department of Budget and Economic Development should institute a program for energy audits and some purchase programs for energy efficient motors and other devices. Programs should be comprised of both loans and grants and funded through the general fund or general obligation bonds. Initial funding for MEA’s residential and customer education and outreach programs should be approximately \$10 million per year, while initial funding for DBED’s commercial and industrial economic development program should be \$2 million per year. In addition, the

over a three-year period, of which \$178,322,993 would be customer incentives. The appliance portion of Staff’s

Commission estimates that MEA will undertake a consumer education and outreach program to alert Maryland energy consumers of the new DSM program. The Commission envisions that the consumer education and outreach program will be similar in nature, if not in scale and scope, to the consumer education program sponsored by the Commission for electric restructuring. The General Assembly allocated \$6 million for the first year of the Commission electric restructuring consumer education campaign. The DSM campaign would not need to be as massive as the one for electric restructuring. For this reason the Commission estimates that the costs associated with the MEA customer education and outreach program should be \$3 million per year. The Commission further recommends that the Maryland Department of the Environment be directed to study the feasibility of linking conservation to the NOx offset/trading program. The Commission recommends that the initial program for residential users should include education outreach and a Maryland ENERGY STAR[®] Program. When determining the cost-effectiveness of future DSM programs, the equation should include the value of continued reliability, consumer education, benefits to the economy and benefits to the environment.

proposal was adopted directly from the NEEP proposal.