Navigating Market Transformation through New England's Minefield of Deregulation

Scott Albert, Boston Edison Company, Boston, MA

ABSTRACT

Massachusetts is now six months into its first year of implementing a number of regional market transformation initiatives in a restructured electric utility industry environment. Recently, the future of utility-subsidized energy efficiency programs has been one of many issues addressed by key parties to the ongoing industry restructuring debates. Straight from the front-lines of the scarred Massachusetts deregulation battlegrounds, this paper provides a retrospective on Boston Edison Company's efforts to design and deliver some innovative new energy efficiency initiatives. Although *veteran* readers may be able to relate and share war stories, it is our hope that this paper will provide a small glimpse of the future to *new recruits* so that they are better prepared to recognize and navigate their energy efficiency program soldiers through the restructuring landmines laid before them.

This paper first provides a short introduction to set the stage regarding the evolving situation on various fronts (i.e. the status of industry restructuring in Massachusetts, potential directions for energy efficiency, key parties engaged in the debate). Readers will then be guided through some major issues encountered and how they were addressed to procure regional support and regulatory approval (i.e. market transformation definitions, collaboration, exit strategies, etc.). A sampling of some innovative and regional energy efficiency initiatives follows along with discussion of their market barriers, evaluation metrics, delivery mechanisms, and any unique administrative approaches. Finally, the paper ends with some thoughts on what worked, what didn't, and how things could have been done better or differently.

Introduction

Before beginning, it's important to present the following disclaimer:

> Boston Edison Company is one of an ever increasing number of electric utilities that are experiencing, 1st hand, the chaos underway regarding the complete restructuring of the electric utility industry. Within this forum, as Principal planner in the Company's Energy Conservation Services Group, I am directly involved in ongoing efforts to redefine the role that utility-subsidized energy efficiency should play in the region's evolving restructured environment. Many of the issues and positions surrounding these efforts are still being developed or are otherwise unresolved. Until such time as they are finally nailed down, the ideas and comments presented within this paper must be considered preliminary, and do not necessarily represent the final official opinions or positions of Boston Edison Company.

Historical Changes. The years 1997 and 1998 have been watershed years for electric utilities in the State of Massachusetts and the entire New England region. Changes of historic proportion have been occurring here and elsewhere, that will affect the way that utilities do business well into the 21st century.

At the forefront of these changes is the complete elimination of the traditional electric utility's identity as the industry's main power plant owners and operators. In one fell swoop, the picture of brick buildings and smokestacks as the heart of a utility's business has been replaced with a vision of wires, pipes, and question marks. Change is good, however. With change comes opportunity, increased choices via free market competition, and a revitalized movement toward technological innovation.

As the territorial borders change, generals from the old regime and other emerging leaders have been redefining their strategic objectives and identifying new targets to aim for (i.e. stranded investment recovery, generation divestiture, ISO structures and responsibilities, standard offer and default service requirements, wires company refocus and redefinition, mergers and acquisitions, etc.). The area of energy efficiency, the topic of this paper, provides only one small example of this altering landscape.

Key Parties. During the past two years, many parties have participated in the debate over the future course of utility-subsidized energy efficiency. In Massachusetts, these parties have included:

⇒ Regulators and other key policy officials (i.e. the MA Department of Telecommunications and Energy, the Office of the Attorney General, the MA Division of Energy Resources, the Massachusetts State Legislature, etc.);
⇒ The Conservation Law Foundation;
⇒ Key Customer Groups (the Associated Industries of Massachusetts, the Energy Consortium, etc.);
⇒ Low Income Advocates (the National Consumer Law Center, local Community Action and Weatherization Assistance Programs, etc.);
⇒ Representatives of the Energy Service Companies Industry (the Northeast Energy Efficiency Council - NEEC, individual ESCo's, etc.);
⇒ Regional/National Facilitators (i.e. the Northeast Energy Efficiency Partnership - NEEP, the Consortium for Energy Efficiency - CEE, the EPA/DOE, etc.);
⇒ Electric Utilities (investor-owned state & regional companies); and
⇒ New Market Entrants & Electric Power Providers.

Various Party Positions on Energy Efficiency. Depending on who you speak with in the region, you can find a number of different opinions regarding future obligations and potential for energy efficiency. Viewed from the perspective of continuing the practice of utility subsidies of energy efficiency as a strategic objective, these opinions can be grouped into three distinct positions: 1) pro-subsidy; 2) anti-subsidy; or 3) status quo.

⇒ Pro-Subsidy: Advocates for this position argue that continued utility subsidies are vital. These subsidies help to build social awareness, promote evolution of more efficient products and services, and develop a strong competitive infrastructure that may eventually be able to deliver energy efficiency services effectively on their own. Utility subsidies should continue well into the future for

the purpose of funding R&D and early promotional activities associated with new and emerging technologies.

⇒ Anti-Subsidy: Proponents of this position spout many justifications for ending the subsidies. A few are listed below:

1) They are no longer needed - efforts over the past ten years have effectively increased awareness and built a strong competitive infrastructure able to survive on its own. Funding for new energy efficient technologies and services should come directly from the R&D budgets of manufacturers and industries developing those products.
2) New price signals will drive customers to make energy efficient choices when, on their own merits, they are deemed by the consumer to strike an acceptable balance between cost-effectiveness and convenience.
3) The burden for funding of social programs should be shared equitably across the entire region (i.e. tax). It should not be placed selectively on the shoulders of a convenient/regulated industry.

⇒ Status Quo: Supporters of this direction enjoy things the way they are. In many cases this means that subsidies will continue, but not necessarily for the purpose of market transformation and building social awareness and a stronger competitive infrastructure. Instead, utilities and energy service companies work to maintain the current staffing levels, delivery mechanisms and energy efficiency program objectives (i.e. achieve kw and kwh savings via individual utility controlled or subcontracted initiatives).

Interestingly, not only are there differing opinions *between* parties, but trying to reach consensus *among* any one particular group can be challenging at times.

Some Major Issues/Guiding Principles

As you can well imagine, when presented with such a diverse group of impacted parties and potential strategic positions, a number of issues have arisen for debate over the past two years. Some of the more significant issues we have addressed in Massachusetts include:

- Market Transformation - exactly what does it mean and is it truly supported?
- Education - a cornerstone of market transformation?
- Collaboration/Regional Cooperation - do the benefits outweigh the costs?
- Streamlined Administration - a feasible idea?
- Exit Strategies - when do utility subsidies stop?
- Project Screening, Prioritization & Cost Effectiveness - which programs go forward first, what benefit/cost models, inputs and time periods are used?
- Customer Friendly - can we introduce new programs & eliminate confusion?
- Budgets - how much spending is enough spending?

Boston Edison has been working hard and swiftly in the development of its new identity as a successful pipes and wires company. One part of this effort has been the assessment of roles that energy efficiency could play in supporting some of the Company's restructured corporate objectives. During

this time, in addition to the issues listed above, a number of regulatory, legislative, and political minefields were laid before the Company[i]. In many ways, these minefields helped to define the energy efficiency landscape for the next five years. With a clearer picture of the terrain, early on, the Company was able to develop a number of Guiding Principles that have been critical to our success in navigating energy efficiency soldiers safely through the bigger industry restructuring battles. These Guiding Principles, many of which are embraced by a diverse number of non-utility and utility parties, have been incorporated into Boston Edison's official five year strategic plan for energy efficiency program design and spending covering the period 1998 through 2002[ii].

Following is a brief overview of each issue and our resulting Guiding Principle:

Market Transformation. In Massachusetts, the definition of Market Transformation often remains an item ripe for debate. However, in a 1996 MDPU Rulemaking[iii], our regulators took a stab at a definition: "Market Transformation Initiatives shall mean strategic efforts to offset market failures and to induce lasting structural or behavioral changes that result in increases in the adoption or penetration of energy efficient technologies or practices."

- To some, this meant that the days of traditional utility subsidies would soon be over: spending on pure rebate programs would be replaced with targeted spending on programs carefully designed to overcome specific market barriers. When the barriers were proven to be overcome (via documented analysis or support), that specific market would be deemed transformed and the subsidies would end.
- To others, this meant the elimination of direct customer rebates in return for spending on more nebulous programs targeted at consumer education, retailer/manufacturer training, and new product development.
- Others viewed this as a continuation of the status quo: after all, traditional utility rebates have resulted in the transformation of many markets for energy efficient products and services.
- Still, others viewed this as a premature cutting of the umbilical cord that has been providing critical sustenance to the infant Energy Service Company (ESCo) infrastructure.

As a Guiding Principle within our own strategic energy efficiency planning, Boston Edison fully embraced the regulator's definition of Market Transformation. The Company is committed to identifying and promoting energy efficiency initiatives targeted at permanently altering the buying patterns of customers, improving the energy efficiency ethic of manufacturers, vendors and service providers, as well as our State's citizenry as a whole, and strengthening the existing energy services industry infrastructure. In this effort, we are working closely with key stakeholders to review the ability of our programs to contribute to the development of a sustainable competitive retail energy efficiency market and energy services industry (i.e. regional TumbleWash - horizontal axis washing machine - program with focus on increasing customer awareness, overcoming "first cost" barriers, increasing manufacturer and vendor participation, etc.).

Education. Many parties have had difficulty finding the value in spending DSM dollars on general energy efficiency education initiatives. Targeted spending on programs that will yield measurable kw and kwh savings have been identified by some as the preferred approach. We believe however, that the next generation of energy efficiency sensitive producers and consumers will enter the marketplace within the next five to ten years. White goods, electronics, new homes and many other products and

services which should have energy efficient features will be produced and purchased in high volumes by this group of new entrants.

As a Guiding Principle, in addition to targeted kw/kwh programs, Boston Edison is committed to ensuring that its customers, and the public at large, receive useful information about energy efficiency for informed decision making regarding products and services. We want to encourage and foster an ethic of energy efficiency among all customers and other stakeholders through motivational education, which will affect purchasing and behavioral decisions now and in the future. In this way we hope to advance energy efficiency market transformation efforts both within our own service territory and throughout the region.

Collaboration/Regional Cooperation. The effective design and implementation of Market Transformation programs cannot be done in isolation. It requires input and participation from numerous parties across the state, region and even broader national perspectives. This concept, of sharing program design ideas, assumptions, and implementation resources across utility service territories and with non-utility parties, has been quite difficult within the industry in years past. The potential for conflicting objectives, micromanagement, and general loss of control has been a significant issue and cause for lengthy debate.

In this brave new world of Market Transformation however, Boston Edison has been an active participant in numerous design meetings and detailed policy issue discussions to promote cooperation and to facilitate development of cost-effective and practical regional initiatives. As a Guiding Principle, it has been extremely important in all of our collaborative efforts, that shared assumptions, methods and designs be agreed upon in advance such that cost-effective implementation can occur with minimal confusion and total consistency.

Streamlined Administration. Opportunities for streamlining the way that energy efficiency programs are delivered and administered abound. However, as many of us have experienced in recent years, the concept of change causes resistance and paralysis in many individuals and organizations. Although it was difficult at first to procure the necessary internal buy-in, we were ultimately victorious in developing a Guiding Principle around the concept of streamlining. As a result, we are now marching forward with a clear focus on working with others to minimize the implementation costs of all of our energy efficiency initiatives. To achieve our objective, we have been working hard identifying reliable, reasonable, and reviewable approaches to the administration, evaluation and reporting functions associated with each of our new programs. To the greatest extent possible, we are designing these programs to take full advantage of shared resources across the region for items like data collection, advertising, delivery, training, measurement and evaluation, etc. Additionally, we have been working collaboratively with a number of key stakeholders to review, prioritize, merge, eliminate and recluster programs to maximize administrative efficiencies. By identifying and taking advantage of administrative streamlining opportunities, we are maximizing the dollars directly available for energy efficiency without jeopardizing the ability to adequately assess the effectiveness of our individual programs.

Exit Strategies. The term "exit strategies" has been extremely difficult for some parties to accept. Visions of an immediate end to utility energy efficiency subsidies typically come to mind. One of the key attractions of market transformation programs however, is their promise that improved markets for energy-efficiency products and services created by utility programs to eliminate or reduce relevant

barriers will be sustained once utility subsidized external interventions are removed. For this reason, both we and others have discussed at some length the following issues:

- What strategies and tactics are most likely to ensure the sustainability of markets for energy-efficient products and services?
- What indicators should be monitored to determine whether observed market effects will survive the modification or removal of intervention programs?
- When should utility-subsidized intervention programs be modified or removed?

Although others might choose to refer to these concepts as "success" or "ramp-down" strategies, regardless of what you call it, an important point to note is that the decision to exit a particular market cannot be made in isolation. This is especially true in regards to regional and national energy efficiency initiatives. Collaboration with other key stakeholders is vital to the formulation of any such decisions.

As a Guiding Principle for Boston Edison, the discussion of exit strategies relates to our concern with seeing that energy efficiency program designs and implementation tactics are keyed to ensuring that markets are stabilized (i.e. when disturbed from a targeted condition of equilibrium or steady motion, the markets must be capable of developing responses to restore said condition) *before* utility-subsidized intervention programs are ramped down and that gains achieved can be sustained over time in the absence of our market interventions. We gain nothing by exiting a market that reverts to the status quo that existed before the program. Thus, our emphasis is not on how quickly and with what tactics we can exit. Rather, it is on how we can ensure the existence and effectiveness of intra-market providers of market functions[iv] whose presence will guarantee the continuation and sustainability of the gains we hope to have achieved.

Development of an effective exit strategy requires the careful selection and tracking of appropriate success indicators. The emerging era of market transformation has brought on a need for new measurement and evaluation techniques. In many cases, traditional monitoring and evaluation approaches are not sufficient in this new environment. Unlike earlier utility initiatives which focused mainly on kw and kwh savings metrics, several researchers in the market transformation field have noted the need to measure "proximate indicators" of market change (i.e. saturation rates, # of training sessions held, # of manufacturers engaged, etc.) rather than the final acquisition decision, or resulting kw/kwh saved, in order to measure market transformation effects[v]. The Company is committed to using proximate indicators, not only because of the difficulty in measuring final purchase behavior[vi], but also because changing these market elements is the key objective for which market transformation programs are designed.

Project Screening, Prioritization & Cost Effectiveness. Balancing the special, and often competing interests of many stakeholders can be a big challenge (especially when you are considering the implementation of a large number of new energy efficiency programs targeted to various end-users). To stay in front of this issue, Boston Edison made a conscious effort to identify a universe of energy efficient technologies and services and then put them through a structured screening and prioritization process. Through our participation at state and regional meetings, our direct experience with DSM, and the expertise provided by members of our knowledgeable consulting team, over 50 potential measures were identified. Individual program descriptions were then prepared to gather critical information on more than 20 of the most appropriate candidates. Afterwhich, each initiative was put through a

structured screening and prioritization process[vii]. By sharing our program descriptions, screening methodology, and prioritization results with all stakeholders, the Company was able to raise all parties' awareness of critical issues and program opportunities. In turn, this improved our ability to reach consensus on an ultimate list of market transformation programs to move forward with.

Concerning cost effectiveness, this issue takes on a different meaning when looking at market transformation. No longer can traditional benefit/cost tests tell the whole story regarding breakeven and payback. Unlike earlier utility energy efficiency initiatives, which yielded direct kw and kwh savings immediately following program implementation, the benefits from many market transformation efforts may not be recognized until two to three years out. This concept of a planting and long nurturing period prior to harvest is a tough sell on many fronts. It also reinforces a previous point, see "Exit Strategies" above, regarding the need for proximate indicators (including baseline study metrics and measures of initial efforts to overcome market barriers) to track movement toward program success.

As a Guiding Principle, the Company has committed to working with other parties across the region to develop a consistent cost-effectiveness assessment model. In this effort, we are currently working to identify and utilize state-accepted values for key variables to the greatest extent possible. Additionally, we support the use of "market effects" (i.e. benefits that continue to flow beyond the utility's program intervention period) as part of this model, provided they are reasonable, realistic, measurable and defensible.

It is important to recognize that cost-effectiveness model results can be used by various parties for multiple purposes. Our commitment to the development of a single benefit/cost model based on shared assumptions, is conditioned on the understanding that this model will be used solely for the purpose of assessing relative cost-effectiveness, ranking and prioritizing programs within a preset budget. The Massachusetts Department of Telecommunications and Energy plans to open a generic investigation on cost effectiveness tests this summer, 1998.

Customer Friendly. The success of a utility's market transformation efforts is directly linked to their ability to interest the various stakeholders to participate in their energy efficiency offerings. Programs must be carefully designed and packaged to minimize confusion and maximize understanding and ease of access and delivery. Given the significant number of new programs and their shifted focus toward market transformation, the room for confusion and competition with existing initiatives was huge. As a Guiding Principle, we committed to working collaboratively with key stakeholders to review all of our proposed initiatives and regrouped, adjusted or otherwise eliminated them to minimize customer confusion and maximize individual project success. Additionally, we have attempted to balance the targeting of our new market transformation programs equitably across all customer classes.

Budgets. The topic of budgets has been a most difficult one to deal with here at Boston Edison. As a Guiding Principle, the Company has committed to delivering programs in a cost-effective and responsible manner to ensure that budget levels are achieved. This assumes, however, that budget levels have already been set (certainly the preferred scenario). In the Company's case, as part of our larger Industry Restructuring Settlement Agreement, overall budget levels for Energy Efficiency programs were initially agreed upon along with spending allocations for "existing" and "new" initiatives (although not at the individual program level). Under this situation, the development of individual budgets for "new" programs was still a difficult, yet achievable task. With much give and take, program

redesign or elimination, we were able to work successfully with numerous key stakeholders toward budget consensus.

As a result of the Commonwealth of Massachusetts' November, 1997 Industry Restructuring Act[viii], among other things, the carefully constructed budget landscape for energy efficiency was significantly disrupted for approximately four months in early 1998. During that period, previous agreements and budget commitments were reviewed by all parties in light of the Act. When the dust finally settled, numerous modifications to the budget had been made. The Company's focus has now returned to working collaboratively across the region to deliver its programs in a cost-effective and responsible manner and to ensure that budget levels and market transformation objectives are achieved.

Key Market Transformation Initiatives

In parallel with collaborative discussions leading to resolution of some of these and other issues, significant time and resources have been spent during the past two years on conceptual design and detailed development fronts for a number of regional market transformation and other energy efficiency initiatives. The make-up of stakeholders engaged in these efforts has been quite noteworthy. As the banner of market transformation rolls forward, soldiers from previously warring factions have been rallying their strength behind this common flag. Some of the best minds in the field have been working cooperatively with federal and state agencies, regional energy efficiency working groups, and multiple cross-purpose entities, ignoring significant previous differences. This host of strange bedfellows, historic in its own right, has put in countless hours and commitment dedicated to the creation of some innovative new market transformation programs. Following is a brief sampling:

Education - *EnergySmart Software.*

- Program Description: A computerized home energy audit tool designed for operation in both a Web environment and on a personal computer via CD-ROM. This highly interactive software allows customers to model their home's entire energy usage. It recommends potential energy efficient improvements, shows dollar saving impacts, and provides valuable information on a number of general energy efficiency topics. An important feature is the customer's ability to directly access and utilize their actual electric energy billing history in all analyses.
- Market Barriers: *EnergySmart* has been designed as an educational tool to affect purchasing and behavioral decisions now and in the future.
- Delivery Mechanisms: The software is being distributed directly to customers and will soon be available for use and download on the Company's web site.
- Evaluation Metrics: Proximate indicators (i.e. # of users, hits on the web site, etc.) will need to be used initially to assess program success
- Administrative Approach: This program is being administered directly with Company personnel, however, technical support is being provided under contract by NeXus Energy Software, Inc., developer of the *EnergySmart* software. Additionally, as other utilities begin offering this software, efforts will be made to ensure regional assumptions and consistent information.

Residential - *Regional StarLights and TumbleWash Programs*

- Program Descriptions: *StarLights* promotes utilization of high efficiency, *EnergyStar* rated fixtures, and light bulbs via a regional marketing and installation initiative which includes incentives

and the involvement of key market players. *TumbleWash* similarly promotes increased utilization of high efficiency horizontal-axis washing machines.

- Market Barriers: For *StarLights*, lack of consumer awareness, lack of retailer awareness, lack of builder/contractor awareness, high first cost, limited product availability, uneven product quality. For *TumbleWash*, add lack of vendor familiarity, new technology reliability, and limited supply.
- Delivery Mechanisms: Instant rebates to be given through retailer locations for EnergyStar qualifying fixtures and efficient bulbs. For washers add marketing and retailer support programs. Emphasis of these programs is on retailer training, recruitment and the Energy Star label.
- Evaluation Metrics: Joint baseline studies completed, # of rebates provided. For washers, add finalization of various regional programs.
- Administrative Approach: For both *StarLights* and *TumbleWash*, most marketing and communications will be done jointly with other member utilities (i.e. rebate levels & coupons to be developed cooperatively with marketing/contractor costs being shared).

Commercial/Industrial - *Premium Efficiency Motors Program.*

- Program Descriptions: Regional market transformation initiative for high efficiency motors via regional and local retailer efforts.
- Market Barriers: Lack of clear definition of a "premium efficient motor", limited availability of CEE-qualified premium motors, limited vendor interest, limited customer interest, rapid turn-around requirements when motors fail, vendor uncertainty about long-term commitment to a motors initiative, differing regulatory approval schedules, criteria, cost-effectiveness tests, as well as varying approaches and schedules for industry restructuring across various states in the region.
- Delivery Mechanisms: Influence stocking of motors at the distributor/retailer level utilizing regional circuit rider and joint utility rebate forms at vendor/retailer locations.
- Evaluation Metrics: Successful coordination with other utilities, # of motors rebated.
- Administrative Approach: Jointly implemented program with one lead member handling invoicing and management of the regional circuit rider.

Conclusion

In Massachusetts, significant funds (approximately $200M from Boston Edison alone) are targeted over the next five years for spending on energy efficiency programs. By developing and adhering to the Guiding Principles discussed above, we believe that our ability to truly achieve market transformation objectives will be maximized. The role of key stakeholders regarding the design and delivery of energy efficiency programs beyond the year 2000 is not clearly defined. There are many issues left to be addressed. In nearly all cases however, experience has taught us that conflicts are better resolved through negotiation not confrontation.

Next to the necessity for up-front agreement on budget caps (which, in Massachusetts, is now being set by the Legislature), we have found the key to development of successful market transformation initiatives is collaboration. In this effort, during the last few years, we have been actively engaged in the design of programs to be implemented in such a way as to build upon the existing energy

service company infrastructure to maximize the motivation and ability of manufacturers, suppliers, and end-users of energy-consuming technologies to make, sell, and use the most efficient and cost-effective equipment and practices available. By working together with local, regional, and national stakeholders these programs have been cost-effectively designed and implemented to overcome critical market barriers. During the next 5 years, we plan to continue working with our customers and other market actors, both within our service territory and beyond, to transform the energy efficiency marketplace and to develop improved, sustainable natural markets for energy efficient products and services.

Navigating through the minefields has not been an easy task. We have learned many lessons, regained trust and built new relationships that will carry us well into this brave new world of the restructured electric utility. It is our hope that by mapping the fields and defusing some of the landmines, a clearer path has been blazed for others.

Acknowledgments

Boston Edison Company is committed to assisting its customers become as energy efficient as is economically feasible, and the Company proposes to do so in a manner that will be sustainable over time. Our 5 Year Plan was designed for use as a roadmap to help us reach these objectives. It was prepared with the input and assistance of many parties.

In addition to the support and cooperation provided through collaboration with our Non-Utility Parties (NUPs), recognition must be given to the Northeast Energy Efficiency Partnership (NEEP) and the Consortium for Energy Efficiency (CEE) for their efforts in facilitating the identification of regional and national market transformation initiatives. Numerous meetings were also held with other Massachusetts utilities and these proved to be invaluable in recognizing common areas of interest.

Special thanks must also be extended to our team of consultants at GDS Associates, Inc. for helping us develop a comprehensive, forward thinking energy efficiency plan.

Finally, we thank the Massachusetts Department of Telecommunications and Energy, the Division of Energy Resources, and the Massachusetts State Legislature for their oversight and diligence in scoping out many of the key elements that needed to be addressed in the achievement of market transformation.

We appreciate the significant efforts and cooperative input provided by numerous key stakeholders thus far, and look forward to continuing collaboration going forward.

References

[i] Commonwealth of Massachusetts Department of Public Utilities, Electric Industry Restructuring Plan: Model Rules and Legislative Proposal, D.P.U. 96-100, dated 12/30/96, et.al.; Boston Edison Company Restructuring Settlement Agreement, dated July, 1997; Commonwealth of Massachusetts Act relative to restructuring the electric utility industry in the Commonwealth, regulating the provision of electricity and other services, and promoting enhanced consumer protections therein, enacted November, 1997.

[ii] Boston Edison Company, Five Year Energy Efficiency Plan, dated September 2, 1997

[iii] MA D.P.U. 96-100 Model Rules and Legislative Proposal (pp. A-17)

[iv] See Feldman, S., (1997), Apre's Nous, le De'luge? What will happen to Energy Efficiency Markets in a Restructured Industry? In Proceedings of the International Energy Program Evaluation Conference. Author: Chicago, and Goldstone, S. (1997), Implementing CEC's New Strategic Plan Thru Market Transformation. California Energy Commission: Sacramento, CA.

[v] A few of these include: Feldman, Shel. 1995, "Measuring Market Effects: Sales Data Are the Last Thing You Should Look At," *Proceedings of the 1995 AESP Annual Meeting, Competition: Dealing With Change*, Boca Raton, FL: pp. 83-90; Feldman, Shel. 1995. "How Do We Measure the Invisible Hand?" *Proceedings of the 1995 International Energy Program Evaluation Conference*, Chicago, IL: pp. 3-8; Prahl, Ralph. and Jeff Schlegel, "Evaluating Market Transformation", *Proceedings of the 1993 Energy Program Evaluation Conference*, Chicago: August, 1993, pp. 469-477; Rosenberg, Mitchell. 1995, "Strategies to Quantify Market Transformation and Spillover Effects of DSM Programs," *The Energy Services Journal*, Vol. 1, No. 2, pp. 143-157; and Reed, John, and Nicholas Hall. 1997. "Methods for Measuring Market Transformation," *Proceedings of the 1997 Energy Program Evaluation Conference*, Chicago: August, 1997, forthcoming.

[vi] There are many papers that cite the difficulty in obtaining sales data from dealers, distributors, retailers, and manufacturers. These include: Prahl, R. and J. Schlegel, "Evaluating Market Transformation", *Proceedings of the 1993 Energy Program Evaluation Conference*, Chicago: August, 1993, pp. 469-477; and Weisbrod, G. Hub, A., and Kelleher, M. 1994. "Separating DSM program impacts from technology trends: A comparison of national and state surveys of manufacturers and distributors", *Proceedings of the ACEEE 1994 Summer Study on Energy Efficiency in Buildings, Vol. 8*, pp. 253-262; and Van Liere, K., Winch, R., Standen, K., Feldman, S. and Brugger, D. "The Design and Structure of a Statewide Sales Tracking System for Residential Appliances," *Proceedings of the 1993 Energy Program Evaluation Conference*, Chicago: August, 1993, pp. 458-464.

[vii] Elsewhere during this ACEEE Summer Study, Steve Nadel is presenting a paper on Boston Edison Company's and other screening processes used for this purpose.

[viii] Commonwealth of Massachusetts Act relative to restructuring the electric utility industry in the Commonwealth, regulating the provision of electricity and other services, and promoting enhanced consumer protections therein, enacted November, 1997.