

COMMENTS ON THE DAVIES ASSOCIATES FINAL REPORT AND RECOMMENDATIONS ON COMPREHENSIVE RESOURCE ANALYSIS PROGRAMS

Prepared by Dr. David Nichols on Behalf of the
New Jersey Division of the Ratepayer Advocate

1. OVERVIEW

1.1 Introduction. I have been asked by the Ratepayer Advocate to review the Davies Associates Incorporated (DAI) Report of April 2002, *Recommendations on the Administration of Energy Efficiency and Renewable Energy For New Jersey Board of Public Utilities Docket No. EX01070447* (the Report). To prepare the present comments, I reviewed the Davies Report and its Appendices, the transcripts of the four public hearings on that Report held by the Board in May, the utilities' Quarterly Comprehensive Resource Analysis (CRA) Reports to the Board, and related material.¹

I have served as consultant to the Ratepayer Advocate on rate design, energy efficiency, and renewable energy issues for several years. I have prepared studies, provided strategic consulting, and testified before the Board of Public Utilities (the Board). I testified in several aspects of the Comprehensive Resource Analysis (CRA) proceeding. The attached biography summarizes my background and experience.

1.2 Overall comment. The DAI Report is valuable in some areas and less helpful in others. On the one hand, a thorough analysis of the administration of the CRA programs appears to have been done. While I have some critical comments on the Report's findings on administration, on the whole I believe they offer many solid recommendations on administration that the Board can profitably consider.

Further, DAI seems to have gained a good understanding of the customer-sited renewable energy program, resulting in its recommendation to remove natural gas fuel cells from the program. This would leave funds for truly renewable technologies such as solar photovoltaic cells, small-scale windpower, and hydrogen fuel cells using renewable feedstocks.

On the other hand, the Report's understanding of CRA energy efficiency (EE) programs suffers from two flaws: insufficient understanding of the programs and their operation, and a mis-reading of the Electric Discount and Energy Competition Act (EDECA) goals and objectives relating to CRA EE programs. In these comments I explain why I believe the directions on EE programs offered by DAI are wrong, and I offer my own recommendations in this area.

¹ Page citations to the DAI Report in these Comments refer to the original printed ("hard") copy of the Report.

1.3 DAI analysis and recommendations on administration. In my CRA analyses and testimonies for the Ratepayer Advocate, I have pointed out the need for strong oversight of CRA programs, suggested that the Board consider an independent statewide administrator (ISA) for them, and proposed development of appropriate new regulations for them. I was therefore pleased to see that the DAI Report reflects a substantial professional review of matters relating to the administration of ratepayer funded energy efficiency and renewable energy programs in New Jersey. The Report's analysis and recommendations on administration appear to be well grounded and to provide useful information for the Board to consider and act upon. For reasons I discuss in these comments, I believe the Board should consider accepting and implementing the recommendations of the DAI Report to:

- Expand Board management and staff resources to increase the effectiveness of overall CRA program oversight and administration.
- Establish a Board Fund to receive and disburse CRA monies.
- Increase Board monitoring of the incurrence of administrative and other costs by CRA program operators, and of program performance.
- Assume direct Board responsibility for administration of renewable energy (RE) programs, eliminate natural gas fuel cells from the RE programs, and strengthen the effectiveness of net metering.
- Reorganize the New Jersey Clean Energy Collaborative (NJCEC or the Collaborative) to administer just EE programs, *provided*, however, that the Collaborative process include the Ratepayer Advocate and other non-utility parties (NUPs).
- Create performance metrics and a system of performance-based reward/penalty incentives² for achievement of EE goals by utilities.
- Transfer the low-income EE program to a state agency, provided this can be done without disrupting it.

The recommendations cited above are based on the considerable field research conducted by DAI. I would augment them in two ways, however.

1. I believe there is a stronger case for an independent non-utility statewide administrator (ISA) for New Jersey's EE programs than is reflected in the Report's recommendations, as I explain further in these comments.
2. The Report failed to comment on the issue of how the utilities track CRA energy savings as the basis for the claims to recover "lost revenues" which they have indicated they intend to file with the Board. I reviewed the utilities' methods and data for computing program-induced lost sales, and found that they incorporate a systematic bias toward over-stating savings and lost revenues. Detailed

² While the Report eschews the word penalty, it does suggest a scheme whereby utilities would receive less than full cost recovery if performance goals are not met, and more than full recovery if they are.

documentation of my technical concerns was presented to the NJCEC in October, 2001. There has been no response to these concerns from the NJCEC.³

1.4 DAI analysis and recommendations on programs. The Report raises important concerns about the design and performance of CRA programs. The Report usefully comments on the customer-sited RE program, which DAI seems to have studied closely and understood. However, the Report's directions on EE programs would do more harm than good. By this I mean:

- The Report ignores or casts doubt on good EE programs that are performing, delivering energy savings while increasing the market share of efficiency technologies and practices.
- At the same time, the Report fails to point out areas where there are significant gaps in the EE programs, such as the need for non-residential programs to encourage business customers to pursue cost-effective energy efficiency retrofits at their facilities.
- The Report seems to call for disruptively halting existing programs without offering concrete directions for redesigning them.
- The Report seems to propose new programs that do not advance CRA objectives.

At the May 1, 2002, public hearing on the Davies Report, Commissioners Fox and Murphy asked the Ratepayer Advocate to compare current EE programs to prior programs and to comment on their performance (TR. pp. 114-5). Table 1 below presents summary comments on CRA program performance and coverage. Program performance issues are discussed further in Section 3 of my Comments.

1.5 Goals for EE programs. The Report's EE program findings and recommendations reflect a misreading of the goals and objectives expressed in the EDECA. DAI proposes to force all CRA programs into the confining, yet troublingly ill-defined, ideological mold of "market transformation."

In its Order Acknowledging Receipt of Audit Report, the Board suspended further action on several Collaborative RFPs affecting EE programs and their evaluation. To avoid undue program disruptions and move forward promptly with EE improvements, it is necessary to have a clearer view of the objectives of EDECA than DAI provides. There are several EDECA objectives relevant to CRA programs. These are:

1. Lower the costs of energy services to New Jerseyans.
2. Secure environmental benefits above and beyond those from prior programs.
3. Transform markets for renewable energy and energy efficient products and services.
4. Capture opportunities for energy efficiency that would otherwise be lost.
5. Make energy services more affordable for low income customers.

³ While I do not address the problem of estimating lost revenue further in these comments, I do "flag" this important concern for the Board.

6. Eliminate subsidies from electric or gas customers for market-ready programs.

Of these six objectives, DAI focuses virtually all its attention on the third, market transformation (“MT”), without recognizing the independent validity of the others, let alone the fact that prospects for MT itself are enhanced when the multiple objectives are pursued in concert. Davies ignores several objectives, including the objective of more affordable energy services for low-income customers. In Section 3 below, I review *all* of the objectives.

1.6 The balance of these Comments. In Section 2 of these Comments I address issues relating primarily to administration. In Section 3 I address program-related issues.

Table 1
EE Programs -- Design & Performance Issues

Collaborative Program	Comment
Residential AC Cycling	Successful load management programs that should be maintained. Consistent with basic State energy policy of load management. DAI's complaint that they are not "market transformation" is irrelevant. It may be possible to shift the cost basis for the programs from CRA to the basic generation services. Electric distribution utilities should assess the potential for additional load management programs to help trim their costs for power to meet summer peak demands.
Residential HVAC (electric)	Saves energy and peak demand in the near term while changing the cooling market over the longer run. It is a model approach being replicated and studied in other states. The program should be continued. DAI fails to mention this important program in its assessment of "performance."
Residential HVAC (gas)	Saves energy in the near term while changing the heating market over the longer run. The programs should be continued. DAI fails to mention this important program in its assessment of "performance."
Energy Star Program	A promising MT program. As DAI note, market impact information needs to be developed immediately.
Comfort Partners	This low-income efficiency/education program is finally operating effectively, and it is critical that it continue to be, whether through a State agency or the Collaborative. DAI's comment that this program isn't market transformation is irrelevant.
Residential New Construction	This is a promising new program that can help to develop a basis for eventual upgrades to the State's new construction code.
Residential Retrofit	This program is a poor substitute for the HESP programs it replaces. The latter provided on-site audits that helped raise householders' awareness of energy use, was received with high marks by customers, and produced incremental energy savings actions by residential customers. The RR program has low activity levels and a design that cannot succeed. Consideration should be given instead to crafting a second generation HESP program. DAI's comment that the RR program isn't market transformation is irrelevant.
School Education Program	Evolution of programs at several utilities. A well-conceived program that helps to develop energy awareness among students and teachers. It should be continued.
Commercial/Institutional/Industrial (C&I) Construction	This is a promising new program that is increasing the market share of premium efficiency motors and other efficiency measures and can help to develop a basis for eventual upgrades to the State's new construction code. The program should be continued.
C&I Building Operation & Maintenance	These programs are useful as far as their targeted objectives go, but they are not intended to fill the need for well-designed retrofit initiatives in the C/I market. The portfolio of EE programs should be expanded as soon as feasible to include programs to incent C&I customers to pursue cost-effective energy efficiency retrofits at their facilities.
Compressed Air Optimization	

2. ADMINISTRATION OF CRA PROGRAMS

2.1 Strengthening the Board’s management resources for oversight. The Davies Report recommends that the Board’s Manager of Conservation and Societal Programs have “more time available to devote to the CRA” (page 77). This recommendation is critical in view of the size and complexity of RE & EE programs. It is well supported in the Report. The Report’s idea that the BPU Manager should have authority to make short-term changes in CRA budgets and to determine that performance milestones have been met is worthy of consideration, provided that there are adequate opportunities for the Ratepayer Advocate and other parties to review these determinations, as discussed further below.

2.2 Strengthening the Board’s staff resources for oversight. The Report recommends strengthening Board staff resources in different ways for the customer-sited RE program, which it proposes be transferred to the Board, and for the balance of programs, which are all EE programs.

1. The Report recommends that the Board hire several additional staff to help manage the customer-sited RE program, and deposit up to 5 percent of the RE monies to fund program operations (page 83 and Appendix E, page 30). These are reasonable and timely proposals.
2. The Report suggests that the Board contract out for experienced staff to assist in providing active, quality oversight of the Collaborative. This evidently refers to the Collaborative, net of the customer-sited RE program that would be transferred from the Collaborative. If the Board decides not to recruit additional staff with deep experience in EE implementation, it should pursue the Report’s recommendation to retain management consultants. However, in retaining such consultants, it is critical that *an RFP be issued to solicit proposals from competing entities with proven track records in EE management and oversight*. The Ratepayer Advocate could assist in reviewing the RFP draft.

2.3 Deposit of SBC monies in a trust fund. The Report does the Board and the ratepayers a service by reviving an earlier proposal for a separate Fund to hold CRA monies for both RE and EE. Control of the “purse strings” is an important management tool in assuring that CRA programs are performed efficiently and in the public interest. Because it is a straightforward matter of sound regulatory policy, implementation of this recommendation need not require an extensive public hearing with competing testimony. I urge the Board to implement this recommendation quickly. Under the current arrangement, the CRA revenues automatically accrue to individual utilities’ CRA accounts. There is no inherent incentive for them to apply the funds, let alone apply them productively. With a trust fund arrangement, funds are released based on verified expenditures on approved programs. Having monies deposited in a separate fund is a logical complement to the transfer of RE from utility administration. A trust fund also

affords the Board a way to enforce the enhanced administrative cost reporting standards that DAI recommends.

2.4 Supporting Board oversight of administrative and other costs and of CRA program performance. The Report points out that in order to track administrative costs meaningfully, a redefinition of these costs is needed. Administrative costs are greater than are now being reported. In Appendix E, the Report notes and rightly criticizes the utilities' "practice of reporting outsourced administrative costs as a contractor cost, excluded completely from the administrative cost" (page 28). Regular monitoring of these costs by the utilities and by the Board, as recommended, is obviously required.

The Report urges that performance indicators to track program timeliness, efficiency, and market impacts be established. I would note that in discussing performance indicators the DAI Report unfortunately downplays the importance of energy savings from the EE programs. I support the Report's recommendation, while urging that improved measures of energy savings be included among performance indicators, too.

Quarterly CRA reports to the Board are being filed by the utilities. The reports compare actual versus budgeted activity on a current and cumulative basis. Three activity reports are now presented: expenditures, participation, and energy savings. To monitor program performance, the Board needs better indicators of program activity or effects, as follows:

- Expenditure reports should include cost categories, including consistently defined administrative costs, as the DAI Report notes.
- Participation reports should be based on measures implemented, not expressions of initial intent by customers or market actors.
- Though energy savings estimates are necessarily preliminary, the estimates of energy savings from EE programs need to be better than they are. Estimates are currently based on protocols submitted with the utilities' CRA Compliance Filing Supplement, July, 2001. The Board has not acted on this filing. I reviewed the protocols for the Ratepayer Advocate and found many sources of overestimates of energy savings.
- The DAI Report notes that many programs are or should be designed to increase the *market share* of EE technologies or practices, yet little market share information is being collected, and that is not reported at present. Indicators of market penetration should be added as a major element of reports to the Board.

2.5 Board assumption of responsibility for the customer sited RE program. The DAI Report deals explicitly with conflict of interest issues affecting utility administration of RE programs. The recommendation to transfer customer-sited RE to the Board addresses this issue and is well supported in the Report. There are several reasons why the Board should move to statewide non-utility administration for this RE program as soon as feasible:

- The perception of a conflict of interest between utilities as RE program managers, on the one hand, and as businesses whose earnings increase as throughput grows, on the other, is addressed by a transfer of administration.
- Statewide administration is more efficient in the market place, since market actors will deal with one entity, not several utilities.
 - Budgets will not need to be reallocated among utilities when there is one statewide program and budget.
 - Having a statewide non-utility program helps underscore the urgency of developing technical interconnection standards applied equally in all service areas as soon as possible. In this context, the Report wisely recommends enforcement of “clear interconnect and net metering regulations that facilitate RE utilization” (page 82).

2.6 Transfer of the low-income EE programs to a state agency. The Report proposes to transfer low-income EE programs to a state agency with expertise in delivering services to low-income consumers. The major statewide low-income CRA program, “Comfort Partners,” is currently being operated by the NJCEC. Beginning in the late 1990s, several of my testimonies and comments by the Ratepayer Advocate pointed out that the Comfort Partners program (then called E-Team partners) was getting off to an unacceptably slow start, and showed evidence of being poorly managed. After years of delays and performance problems, however, there are indications that Comfort Partners is running smoothly now. The Report’s proposal to transfer low-income EE programs to a state agency is well founded. However, the Board should take care to assure that the transfer takes place with a minimum of disruption. I understand that the Board is also considering the establishment of a statewide universal service program to be administered by a state agency. The transfer of the EE programs should be coordinated with the establishment of an administrative structure for the universal service program.

2.7 Reorganizing the Collaborative to administer EE programs. The DAI Report discusses the advantages and disadvantages of administration of EE programs by a non-utility entity. Its information about the experience in other states clearly shows that *a non-utility ISA --a state agency or a non-governmental organization-- can be used to deliver EE programs successfully*. Ultimately, DAI concluded that a reorganization of the existing utility-dominated Collaborative is the more practical path for New Jersey at present. If the Board accepts this conclusion, it should not rule out consideration of a non-utility ISA in the future. To the contrary, the Board should consider opening a docket to investigate developing a non-utility ISA for the latter part of the CRA period and beyond. Such a docket might be opened in 2004. Meanwhile the Board should actively monitor the effectiveness of EE administration, enhanced along the lines recommended in the Report. If the utilities’ performance lags in the future, for example based on indicators discussed in 2.4 above, an ISA docket might be opened sooner.

Instead of an ISA, the DAI Report proposes a “Collaborative” consisting only of the present informal Collaborative -- the utilities and the Natural Resources Defense Council -- with participation by the BPU Manager. The DAI Report proposes that management of

the Collaborative be tightened, with a chairperson and smaller executive management committee appointed from amongst present participants. The Collaborative should also be staffed by personnel from one of the utilities (page 81). I agree that if the Collaborative is retained, Board oversight and Collaborative management must be substantially tightened, along with the Collaborative's ability to make executive decisions rather than have many details extensively negotiated among all members, as at present. At the same time, however, the question of how to open the Collaborative up to broader participation must be raised and addressed.

2.8 Advantages of an ISA for EE. DAI considers the advantages of an overall ISA for EE, but states that there is no existing entity with a strong capability to assume this role. While there may be some truth to the capability argument, this is to some extent a “chicken and egg” problem. To develop capabilities, an entity must have responsibilities. The state of Vermont, whose approach to an ISA for EE is reported on favorably by DAI, used an RFP approach, where three competitive solicitations were employed to select an administrative agent, a financial agent, and an entity to play the critical role of delivering energy efficiency statewide. The DAI Report asserts that just implementing its trust fund recommendation would make an ISA for EE unnecessary. But while the establishment of a trust fund is a necessary step to tighten public control of CRA programs, there are significant additional advantages of an ISA approach, including:

- An institutional mission to focus on EE program success.
- A statewide (rather than utility-specific) point of entry for information about and access to programs.⁴
- The ability to work directly with a range of market actors, channels, and vendors without going through the utility as intermediary.
- The lack of conflicting business objectives such as increasing throughput (sales).

2.9 Ratepayer Advocate participation in the Collaborative. The Ratepayer Advocate has statutory responsibilities to protect ratepayer interests, as well as a long history of active interest in EE. Indeed, the original impetus for EE in New Jersey came from the predecessor agency, the Division of Rate Counsel, twenty years ago. The reorganization of the Collaborative should include the Ratepayer Advocate. By participating in the Collaborative, this agency will be better equipped to play a pro-active and constructive role in the application and evolution of CRA programs. In its proposals for an Oversight Committee for the customer-sited RE program, DAI explicitly calls for participation by the Ratepayer Advocate. When it comes to EE, the Report is silent on this issue.

2.10 Better input from relevant stakeholders. In discussing factors bearing on options for administering CRA programs, the Report advocates, as an explicit objective, to “provide opportunities for input and feedback from stakeholders, market participants, industry experts, and customers” (Appendix D, table 2, page 12). The Report recognizes the importance of providing opportunities for participation in the administration of RE. It

⁴ The Collaborative has achieved statewide consistency of design for several programs. But in most cases ratepayers and trade allies still deal with several utility entities.

suggests that representatives from the renewable energy industry and the RE installation industry, the utilities, academia, RE customers, and state agencies (the Ratepayer Advocate, the Commerce and Economic Growth Commission) be included in an oversight committee that would set policy for this program (page 83). I support this critical recommendation, and note that similar RE and EE programs elsewhere that are recognized as effective almost universally include similar methods for stakeholder participation. Providing for input at timely stages in program development is better than waiting for reactions from stakeholders at a later time.

When it comes to EE, however, the Report is completely silent on the question of how non-utility parties can participate in the process of EE program development and operation. As the Report's RE proposals show, effective management and effective stakeholder participation are complementary processes. The asymmetry of including utility participation in the RE Oversight Committee, while on the other hand including no additional NUP participation in the utility-dominated EE Collaborative, is glaringly obvious. NUPs either need to be members of the Collaborative, or there needs to be an active Oversight Committee analogous to that for RE. Furthermore, the Board should develop specific processes to assure that that input from the Committee is influential and timely. We assume that an effective process for assuring such input is contemplated for the RE programs. The process established for the EE programs should be similarly robust. There is no sound regulatory policy rationale for continuing the "closed shop" approach to EE administration in New Jersey. In addition, research on effective DSM processes around the country has demonstrated that *inclusive participatory processes enhance both the acceptance of EE programs and their performance*. In strengthening EE administration, it is essential that the Board address this issue.

2.11 Formation of a separate legal entity. The DAI Report does not explain how formation of a separate legal entity would improve the Collaborative's effectiveness. If the purpose of the recommendation is to provide a measure of independence to the Collaborative's management, it is questionable whether this objective could be achieved with the utilities constituting a majority of the Collaborative's membership. It would be particularly unfortunate to create a distinct legal entity and characterize it as an "ISA," as the Report does. A utility-dominated Collaborative which delivers programs in distinct service areas (not truly statewide) simply is not an ISA.

2.12 Performance metrics and performance-based incentives for achievement of goals by utilities. The Report argues persuasively that establishing an independent Fund is a foundational step for an effective system of performance incentives. The Report then provides a "straw man" scheme for incentives, which would have elements of symmetry (page 79). Specifically, the utilities would receive less than their budget if performance goals were not attained, and more than their budget if they were. I note that this pay-for-performance incentive approach could be applied to non-utility administration of EE as well. The Report is to be commended for broadening the issue of incentives from the one-sided reward-only schemes advanced in the utilities' CRA Compliance Filing. The issue of performance incentives obviously requires additional study and thorough airing by the

BPU. The two critical issues are the basis of the incentives, and the amount of the incentives. The Ratepayer Advocate needs to be centrally involved in the consideration of incentives.

The Report's recommendation to establish incentives that include both rewards and penalties appears inconsistent with a recommendation elsewhere (e.g., page 50) that the utilities not be penalized for a well-designed program that fails. The basis for the latter suggestion is not clear. The basic emphasis, as DAI seems to say at most places in the Report, must be on measuring *performance*, based on indicators which predict and then confirm changes in the market share of energy-efficient products and practices. Rewards and penalties will be more effective if tied to measurable indicators than to more subjective evaluations of how "well designed" a program is claimed to be.

3. PROGRAM DESIGN AND IMPLEMENTATION

3.1 The renewable energy program and fuel cells using gas. In the area of natural gas fuel cells, the Report observes that this is not a renewable technology and therefore should not be supported from RE funds. Gas fuel cells do not burn gas, but rather consume it as a feedstock to produce hydrogen for the electricity production process. Most of the spokespeople from the renewable energy industry who addressed the Board during its public hearings on the Davies Report in May objected to the inclusion of this technology in the customer sited RE program. The Report itself observed that “the Collaborative has already committed substantial portions of blocks one and two, which involve the most substantial subsidies, to natural gas fuel cells. These are not renewable energy technologies (natural gas is a fossil fuel) and they will provide no incentive for the development of a renewable energy industry in New Jersey -- one of the major goals of the program.” (Report, Appendix C, p. 15.)

In commentaries on CRA programs in the past, the Ratepayer Advocate provided an additional reason for not supporting gas fuel cells with CRA dollars. The Ratepayer Advocate observed that natural gas fuel cells would increase the revenues of gas utilities, meaning that it is already in their direct business interest to provide marketing support for the technology. For example, NUI Elizabethtown Gas will deliver gas to the 250 KW fuel cell being installed in Edison Township.⁵ I would also point out that the utilities’ base rates include the costs of marketing personnel.

At page 46 of the Report, DAI appears to suggest that natural gas fuel cells could be funded as part of the EE programs because they produce environmental benefits and shift load. There reasons do not justify shifting the natural gas fuel cell program to EE. CRA funds should be directed to technologies which are more needful of ratepayer support. In its April 17, 2002, Order Acknowledging Receipt of Audit Report, the Board suspended expenditures on gas fuel cell projects not yet filed with the utilities. The Board will review the issue of CRA funding for this technology. I suggest that this technology should not be considered for support through any portion of the CRA funds, whether the RE portion or the EE portion. One of the objectives of the EDECA is to eliminate subsidies for programs not needing them. Removing this technology from the CRA program is directly consistent with that objective.

In a May 6 letter filing on the Clean Energy Program, BPU dockets EX99050347 et al., the utilities proposed certain immediate program changes. Based on the considerations just described, I would take issue with just one change, their proposal to honor excess commitments made to fund medium-large projects in Block 1 by expanding the size of that block from 1 MW to 2.23 MW. This is largely due to gas fuel cell projects. In my view, the size of block 1 should be increased above 1 MW only to the extent necessary to honor commitments made to technologies other than gas fuel cells. The block with the highest subsidy level should not be increased to accommodate a non-renewable technology.

⁵ NUI News Release, April 19, 2002.

It may be appropriate to consider additional programmatic approaches to support customer-sited RE. For example, one approach worthy of assessment would be a credit for in-state manufacturers of photovoltaics (PVs), which would tend to reduce the cost of Jersey-made technologies in the local market (and elsewhere). I suggest the Board refer this matter for consideration by a restructured, Board-managed customer sited RE program and its new oversight committee.

3.2 Proposals that would distort the goals of the EDECA and CRA programs. If it were devoted only to the extensive and important matters discussed above, the Report would put a substantial agenda of near-term CRA restructuring on the Board's plate. Unfortunately, the Report ventures beyond the extensive empirical research DAI did and includes proposals that would reorient the programmatic goals of the entire CRA undertaking in ways that appear inconsistent with EDECA mandates. I have already mentioned DAI's overemphasis on MT.

One of the Report's recommendations is to "align BPU regulation and activities" to achieve "CRA objectives." DAI recommendations to strengthen net metering and interconnection standards for RE do support RE objectives. Unfortunately, DAI's other regulatory suggestions are not well linked to CRA objectives. They propose that the utilities develop and market real time pricing and time of use (TOU) rates (page 76). The Report proposes market research and initiatives to improve utility load factors, "thereby lowering the fixed cost per unit of energy," by these and other means, such as economic development (presumably through incentives) to attract "high load factor customers" (page 46). These *ex cathedra* proposals have no evident grounding in the research DAI conducted, and are not suitable matters to address within the CRA programs. Especially inappropriate would be any suggestion that CRA monies be used for research on customer load factors, customer response to time of use rates, and related subjects. The market research to support these issues should continue to be performed by the utilities as part of their normal ratemaking process, without ratepayer-funded incentives. CRA dollars are precious and are to be used to pursue public benefits that would otherwise not be pursued. Issues such as better pricing, TOU rates, and economic development rates, are continually addressed through the normal course of utility regulation, outside the CRA, and that is where they should remain.

3.3 EDECA objectives relevant to CRA programs. Because of DAI's confusion about objectives relating to CRA programs, a brief review of relevant policy and program objectives may be useful. I believe these are:

1. Lower the costs of energy services to New Jerseyans.
2. Secure environmental benefits above and beyond those from prior programs.
3. Transform markets for RE and EE products and services.
4. Capture opportunities for energy efficiency that would otherwise be lost.
5. Make energy services more affordable for low income customers.
6. Eliminate subsidies from electric or gas customers for market-ready programs.

A brief discussion of the six objectives listed above follows.

1. Lower the costs of energy through energy efficiency. At the outset of the EDECA, the legislature promulgated a 12 point policy for the State.⁶ The first policy is to *lower energy costs* while improving quality and choices in energy services. DAI states that an objective of CRA programs is to reduce utility rates by lowering the unit costs of energy (p. 46). Lowering rates is an overall objective of the EDECA and has long been a key aim of the BPU and the Ratepayer Advocate, but it is not an objective of the CRA programs as such. As far as EE programs are concerned, the objective of CRA programs is and should continue to be reducing consumers' energy costs by reducing energy *usage*.

2. Environmental improvement. EDECA's 9th policy point is to prevent adverse impacts from retail competition on environmental quality. The section of EDECA on the societal benefits charge (SBC), which deals at length with energy efficiency and renewable energy, repeatedly cites environmental benefits as a consideration in establishing CRA funding levels and programs.⁷ Obviously, a basic objective of CRA programs is to secure *environmental benefits*.⁸

3. Market transformation. One of the objectives of CRA programs is *market transformation* (MT).⁹ MT is not defined in EDECA, but is a simpler concept than the Report would suggest. All RE and EE programs are, and historically have been, designed to produce market effects. When those effects last significantly beyond the duration of the program, MT is said to have occurred. All else equal, MT effects are desirable outcomes of programs. However, it is a distortion of EDECA and unwise policy to advocate, as DAI do, that "market transformation must be made the primary, overriding focus of all of the EE and RE programs from the beginning" (Appendix C, page 19). Davies never tells the Board why, nor explains why the other objectives of EDECA are unimportant. Davies cannot tell the Board how MT can be assured, and with good reason: MT is art and luck, not science. Any effective demand-side management (DSM), EE, or RE program will result in changes in the relevant markets. DSM is not as different from MT as DAI asserts. Traditional DSM programs have been shown to transform markets, because of their cumulative effect on the purchasing patterns of consumers and the stocking patterns of equipment dealers.¹⁰ DAI also states that an MT program must exit

⁶ C.48:3-50

⁷ C.48:3-60¶12(3)

⁸ EDECA provisions for the RE portfolio standard and for CRA-funded RE programs cannot be understood absent the environmental objective, since RE resources are more costly than conventional electric generation. Energy efficiency and load management, on the other hand, tend to advance two policies, because they typically lower energy *costs* while producing *environmental* benefits.

⁹ C.48:3-60¶12(3)

¹⁰ In Canada, B.C. Hydro developed an ambitious DSM program in the late 1980s. One of its targets was the electric motors market. Using a multifaceted program design, including rebates to customers and vendors, the share of high efficiency motors in the B.C. market rose from 4

the market, yet have its effects on its market continue indefinitely thereafter. This is desirable and can be attained in some cases. However, some programs will need to develop maintenance strategies, rather than “exit” strategies, so that after their initial phase, follow-up actions are taken to consolidate the changes effected. In other markets new technologies may emerge; or the nature of the market may be such that continuing intervention is desirable. It is not necessary for all programs to be market transformation programs, nor is there only one approach to MT.

The DAI Report points out the need to measure short-term and long-term market effects from New Jersey’s CRA programs. This need exists whether or not a program is considered “market transformation.” The development of a few simple, operational performance indicators for every major program is a reasonable recommendation in its own right. However, the Report also proposes linking incentives for utility performance delivering CRA programs to “delayed market transformation impacts, since short-term energy savings frequently have little bearing on long term success” (page 62). DAI are wrong about the irrelevance of short-term energy savings, and their proposal is fraught with risk. If performance indicators were to emphasize indirect predictors of long-term market penetration, and if in addition utilities were not to be penalized for “well-designed” programs that fail, we would have a recipe for wasting CRA dollars. DAI’s enthusiasm for long-term market transformation is well-intentioned but must not be permitted to deflect attention from assuring near-term program impacts.

percent in 1988 to 64 percent in 1991. Following evaluation of the program, B.C. Hydro reported that “the High Efficiency motor program was successful at changing the market in British Columbia because a thorough analysis of the market was conducted, the technical and economic aspects were reviewed, barriers in the way of a high market share were identified and removed, and all stakeholders involved in the supply and purchase of electric motors along with utilities and government agencies worked towards a common goal.” Because local original equipment manufacturers serving timber-related industries in B.C. incorporated high efficiency motors into their products, B.C. Hydro was confident that the market effects from its program would last for many years into the future. (G. Derek Henriques, “High Efficiency Motors -- Success at Changing the Market in British Columbia,” in *Proceedings of the 1993 International Energy Efficiency & DSM Conference*, Stockholm, page 593.)

Wisconsin was an early leader in DSM, and the longer-term effects from some of its programs were evaluated after they had ceased. Some years after WI utility rebate programs for high-efficiency gas furnaces had ended, the market penetration of high-efficiency gas furnaces in Wisconsin was compared with that in Michigan, which had not had rebate programs for gas furnaces. Similar comparisons were performed for high efficiency commercial-industrial lighting programs, and for a statewide high efficiency electric motors program. The researchers found that in two of the three cases --gas furnaces and C/I lighting-- the market penetration of high-efficiency equipment continued to be significantly higher than in comparison areas that had not experienced DSM. They concluded that “customer incentive programs can have substantial, relatively long-lasting, beneficial market effects” (Ralph Prahel and Scott Pigg, “Do the Market Effects of Utility Energy Efficiency Programs Last?” in *Proceedings of the 1997 International Energy Program Evaluation Conference*, Chicago, page 528.)

4. More affordable energy services for low income customers.¹¹ Programs --or special parts of programs-- that *help low income consumers save energy costs* are legitimate ongoing functions of CRA programs, whether or not they “transform markets.” The plain meaning of this objective is reflected in a program like Comfort Partners, which provides subsidized installation of efficiency measures, as well as education of consumers in the use of energy and the management of energy bills. After listing this objective accurately on page 44, the Report goes on to redefine it as “lowering consumers’ energy bills” on page 46, and then to talk about improving the load factors of utilities, thus distorting the EDECA objective. (See also 3.2 above.)

5. Eliminating subsidies.¹² The objective of *eliminating unnecessary subsidies* emphasizes the need for continual review of evolving EE programs to assure that precious CRA dollars are applied to promote technologies and practices which, though commercially available, require ratepayer subsidies to help them become standard in the market place. Eliminating natural gas fuel cells from the CRA programs is consistent with this objective.

6. Lost opportunities.¹³ Another explicit statutory objective of the CRA programs is to *capture lost opportunities*. Market cycles, such as the construction of new buildings, or the retirement and replacement of old equipment in existing buildings, present ideal opportunities to install efficient equipment or measures. When not taken advantage of, an opportunity is “lost.” To the extent efficiency is not maximized in the construction process, for example, it becomes more difficult to “retrofit” a building for efficiency in the future, if it can be done at all. Similarly if a major piece of energy-using equipment that will last many years is installed in an existing building, an opportunity is lost if its energy efficiency is low instead of high. EE programs that target lost opportunities produce energy savings in both the near term and the longer term. Those energy savings in turn produce environmental benefits, which are also explicitly cited as an aim of CRA programs in the EDECA. Currently, there are some CRA programs which target lost opportunities. These should be developed further and their near-term and longer-term impacts on the share of efficient choices in each market should be tracked more effectively. DAI virtually ignores the objective of capturing lost opportunities.

3.4 Conclusion on objectives. One of the policies stated at the outset of the EDECA is:

Ensure that improved energy efficiency and load management practices, implemented via marketplace mechanisms or State-sponsored programs, remain part of this state’s strategy to meet the long-term needs of New Jersey consumers.¹⁴

¹¹ C.48:3-60¶12(3).

¹² Ibid.

¹³ Ibid.

¹⁴ C.48:3-50.

As the discussion of objectives in Section 3.3 demonstrates, EE programs that save energy, reducing the costs and environmental impacts of energy use, are good for New Jersey whether or not they are found to have transformed markets, which can only be determined later, after the fact. Contrary to DAI, the history of DSM and energy efficiency throughout North America demonstrates that *short-term energy savings frequently have a substantial bearing on long-term success*. It is critical that the majority of CRA dollars produce *measurable, near-term energy savings impacts in the market*.

3.5 Energy efficiency programs. My comments on the performance of new CRA EE programs is based on partial information: the design of each program, its past performance where it is a continuation program, the fourth quarter 2001 activity reports submitted to the Board by the utilities, information about the programs from Collaborative personnel, and comments on the programs in the DAI Report. Table 2 compares the new CRA programs with the major prior DSM programs. Table 3 presents my preliminary assessment of the new CRA programs.

**Table 2
EE Programs -- New and Old**

Collaborative Program	Prior Program	Note
Residential AC Cycling	Continued PSE&G and JCP&L programs	Load management to reduce summer peak demands
Residential HVAC (electric)	Evolution of program at two biggest electric utilities	Efficient central AC with proper installation and sizing
Residential HVAC (gas)	Evolution of program at PSE&G	Efficient gas furnaces and boilers with proper sizing
Energy Star Program	New	Appliances, lighting, windows
Comfort Partners	Evolution of E-Team Partners, PSE&G; other utilities had differing programs	Residential low-income efficiency measures and education
Residential New Construction	New	Energy Star Homes based program
Residential Retrofit	Replaces Home Energy Savings Program (HESP)	HESP was on-site audit, RR is remote home audit
School Education Program	Evolution of programs at several utilities	
Commercial/Institutional/Industrial (C&I) Construction	New	
C&I Building Operation and Maintenance	Partially replaces small commercial audit programs	
Compressed Air Optimization	New	Focus on industrial facilities
None	Standard Offer to incent gas and electric energy savings through retrofits, PSE&G and some other utilities	The Collaborative's EE portfolio includes no programs to incent C&I customers to pursue cost-effective energy efficiency retrofits at their facilities.
None	Commercial/industrial energy efficiency retrofits, JCP&L and some others	

**Table 3
EE Programs -- Design & Performance Issues**

CRA Program	Comment
Residential AC Cycling	Successful load management programs at PSE&G and JCP&L that should be maintained. They are consistent with basic State energy policy of load management. DAI's complaint that they are not "market driven" is irrelevant. It may be possible to shift the cost basis for the programs from CRA to the basic general rate case. distribution utilities should assess the potential for additional load management programs that are cost-effective for power to meet summer peak demands.
Residential HVAC (electric)	Saves energy and peak demand in the near term while changing the cooling market over the long term. With better equipment and improved installation standards, this model approach is being replicated and expanded. The program should be continued. DAI fails to mention this important program in its assessment.
Residential HVAC (gas)	Saves energy in the near term while changing the heating market over the longer run. The program should be continued. DAI fails to mention this important program in its assessment of "performance."
Energy Star Program	A promising MT program for appliances, lighting, windows. Market impact information needs to be developed.
Comfort Partners	This low-income efficiency/education program is finally operating effectively, and it is critical to evaluate whether through the Collaborative or a State agency. DAI's comment that this program isn't market driven is irrelevant.
Residential New Construction	This is a promising new program that can help to develop a basis for eventual upgrades to the State's energy code.
Residential Retrofit	This program is a poor substitute for the HESP programs it replaces. The latter provided on-site energy audits, increased householders' awareness of energy use, was received with high marks by customers, and produced energy saving actions by residential customers. The RR program has low activity levels and a design that cannot be scaled. Consideration should be given instead to crafting a second generation HESP program.
School Education Program	Evolution of programs at several utilities. This well-conceived program helps to develop energy efficiency awareness among students and teachers. It should be continued.
Commercial/Institutional/Industrial (C&I) Construction	This is a promising new program that is increasing the market share of premium efficiency measures and can help to develop a basis for eventual upgrades to the State's new construction code. It should be continued.
C&I Building Operation & Maintenance	These programs may be useful as far as their limited objectives go, but they simply do not fill the gap in the retrofit initiatives in the C/I market. The portfolio of EE programs should be expanded as soon as possible to incent C&I customers to pursue cost-effective energy efficiency retrofits at the building level.
Compressed Air Optimization	

I note that when the Board approved the utility parties' settlement proposal for new CRA programs, that meant the complete elimination of subsidies for commercial-industrial efficiency retrofit programs. I suggest that the Board should now reconsider whether it may have over-reacted to the high costs of the Standard Offer programs of the past, which focused on C/I retrofits. More economical types of pay-for-performance program approaches exist which can help to provide C/I facilities and the energy efficiency vendors who serve them with tools to implement EE measures that are not yet standard practice. In short, *the complete absence of C/I retrofit programs is a deficiency in the current portfolio of EE programs under the CRA.*

3.6 Evaluation of EE programs. Evaluation studies to determine the performance of EE programs are based on the objectives that guided the programs' development and implementation. Just as Davies overdraws the distinction between DSM and MT programs, so it overdraws the distinction between their evaluation. Certainly the scope of impact evaluation analysis should be broadened somewhat so that market share impacts are investigated, and not just the impacts on energy use of program activity to the date of the evaluation. However, DAI are wrong to dismiss the traditional concerns of impact evaluation as they do. The concerns of "traditional" DSM and EE evaluation are relevant to all program objectives including MT. Evaluation needs to answer several questions:

- How many participants, however defined?
- What are the actual savings of efficiency measures on a measured basis?
- What portion of participation and energy impacts is due to the program?
- What are the indirect and longer-term impacts of the program in the market (spillover and market share)?
- What are the costs of the program relative to the benefits from its direct effects and its likely longer-term effects?

DAI are wrong in asserting that evaluation studies have consumed "many resources in the past" (Appendix C, page 22). Except for the year 1993, when statewide impact evaluation was undertaken by the New Jersey Conservation Analysis Team, the amount of impact evaluation done in this state has been inadequate. Too few resources have been devoted to evaluation, under one percent of total EE expenditures. In prior comments and testimonies, the Ratepayer Advocate has called for more evaluation than has been done. The Collaborative's evaluation RFPs suspended by the Board would, of course, lead to evaluation studies that could provide essential information on performance. I have not reviewed those RFPs, but I did review the evaluation framework the Collaborative proposed in its CRA Compliance Filing in July, 2001. Attachment 3, the Evaluation Plan, sets forth basic methods for market, process, and impact evaluation. The NJCEC evaluation plans are generally reasonable and are well-matched to the nature of each CRA program. I agree with Davies, however, that there is insufficient commitment to *market assessments* designed to reveal changes in the share of high-efficiency products and practices in the market over time. I can only urge that any problems with evaluation RFPs be addressed immediately so that the commissioning of evaluation studies done by third parties with recognized expertise can be resumed as soon as possible.