

## MEMORANDUM

**To:** Energy Efficiency Advisory Council

**From:** EEAC Consultants

Date : April 17, 2009

**Subject:** Proposed Administrative and Management Construct for Program Evaluation,  
Measurement, and Verification

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Enclosed below is a memo developed at DOER's request which responds to concerns about the current framework within which the program administrators determine, develop, implement, and oversee third party evaluation studies of their efficiency programs.

Encl.

**ADMINISTRATION OF EVALUATION, MEASUREMENT AND  
VERIFICATION (EM&V) IN MASSACHUSETTS:  
RECOMMENDATIONS FROM EEAC CONSULTANTS**

**EXECUTIVE SUMMARY**

We recommend that administration of EM&V projects in Massachusetts be reorganized in the following manner:

- All impact evaluations, and virtually all other studies, should be performed at a statewide rather than an individual program administrator level.
- The range of evaluation activities should be divided into 5-7 semi-permanent statewide research areas oriented primarily to specific target markets (e.g., residential retrofit, large C&I), each with a long-term contract manager, a long-term evaluation contractor, and an assigned liaison from the EEAC Consultant Evaluation Team.
- The program administrators should remain the main mechanism for contracting with the independent evaluation contractors, but the locus of control of evaluations should move away from the program administrators to DOER and the EEAC.
- There must be increased control of EM&V by DOER and the EEAC to ensure consistency, objectivity, timeliness, and credibility.
- Electric and gas evaluation efforts should be fully integrated. Electricity vs. gas should not be an organizing principle in the system of statewide research areas, as target markets are generally not organized by fuel type. Each of the statewide research areas should cover both electric and gas evaluation efforts.
- If the PAs continue to be involved in EM&V contracting as recommended, there need to be clear mechanisms to encourage them to move needed evaluations forward and perform them effectively, even when they do not perceive this to be in their interest. A variety of approaches are possible, including the following:
  - Increased level of active monitoring and intervention by DOER and the EEAC.
  - Reliance on program administrator pride in accomplishment as evaluators.
  - Financial penalties for not meeting EM&V responsibilities.
- The M&V sections of the three year plans should reflect the administrative approach recommended here, as well as proposing a specific set of statewide research areas and project managers, and a three-year schedule for evaluation activities in each research area.

## BACKGROUND

Evaluation, Measurement and Verification (EM&V) refers to the systematic collection and analysis of information to document the impacts of energy efficiency programs and improve the effectiveness of these programs. EM&V includes the following types of studies:

- *Measurement and Verification*, the measurement of gross savings achieved in individual buildings.
- *Impact Evaluation*, the measurement of net or gross savings achieved within overall program populations.
- *Market Evaluation*, the measurement of the effects programs have on the structure and functioning of their target markets.
- *Process Evaluation*, the systematic assessment of programs for the purpose of documenting their operations and developing recommendations to improve their effectiveness.
- *Market Characterization*, the systematic assessment of energy efficiency markets for the purpose of improving the effectiveness of programs targeting those markets.

Until now, EM&V in Massachusetts has been performed under the program administrators' oversight, subject to high-level regulatory direction by DOER and the DPU, with the studies conducted by independent evaluation contractors. The EEAC Consultants (both in our current form and in our previous incarnation as the NUPs Advisors) have been deeply involved in EM&V efforts in an advisory capacity, providing advice to DOER and other parties on evaluation planning and policy issues, reviewing draft components of individual studies as they were being developed and carried out, reviewing draft reports, and monitoring and commenting on the performance of both overall research programs and individual studies.

Before roughly 2001, most EM&V studies in Massachusetts were performed at a utility-specific level. In the residential sector, the state gravitated over the past eight years to a system in which virtually all studies are performed on a statewide level, with each statewide contract being administered by an individual program administrator. However, most non-residential studies are still being performed at an individual program administrator level.<sup>1</sup> In both customer sectors, Massachusetts is increasingly active in performing some studies collaboratively with other states in New England and the Northeast more broadly (regional studies).

Historically, the Massachusetts electric utilities have been national leaders in EM&V, generating a significant portion of the nation's important methodological innovations,

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<sup>1</sup> We have been recommending for several years that non-residential studies, too, move toward being performed at a statewide level. However, the program administrators have generally opposed these recommendations, in part due to remaining differences among the efficiency programs across the PAs. With the increased focus on delivery of common programs across the Commonwealth this should be less of a barrier.

and accounting for a disproportionate share of refereed papers and other common indicators of influence.<sup>2</sup>

Recent policy developments are likely to greatly increase the demands placed on EM&V efforts in Massachusetts. Augmented program spending and savings goals driven by the Green Communities Act and Global Warming Solutions Act are likely to increase demands for accountability and demonstrated independence in the derivation of claimed savings. Inter-state mechanisms such as the New England ISO's Forward Capacity Market and the Regional Greenhouse Gas Initiative are likely to continue increasing the demand for rigorous savings estimates. The concerted effort to go deeper and broader is likely to increase the need for market characterization and process evaluation studies to help develop and test new program designs. Accordingly, we believe this is a good time for DOER to be taking a fresh look at how EM&V is administered.

## RECOMMENDATIONS

We recommend that administration of EM&V in Massachusetts be reorganized along the following lines.<sup>3</sup>

1. *There must be increased control of EM&V by DOER and the EEAC to ensure consistency, objectivity, timeliness, and credibility.* Whatever new administrative arrangements are made, the sharp increases in program spending that are coming clearly necessitate increased visibility of public control over evaluation activities.
2. *Going forward, all impact evaluation efforts, and most other evaluation efforts, should be performed at the statewide level.* As noted above, in recent years, virtually all residential studies have been statewide, but most non-residential studies are still being conducted at an individual utility level. The program administrators have argued that this is necessary because of differences in their customer bases and in the measures being installed. We believe these arguments have little merit and that a continuation of individual utility-level non-residential EM&V efforts would be inconsistent with the broader trend towards uniform statewide programming (and would cost more and require more evaluation resources). Statewide studies also provide benefits of ensuring consistent approaches and directly comparable savings values, as well as reducing any appearance of conflict of interest. For these reasons, we recommend that there be no further utility-level impact evaluation efforts allowed after January 1, 2010. Statewide studies should include statistically valid results that individual program administrators can use to support regulatory or other (e.g., FCM) filings.

The issue is marginally more complicated for other EM&V functions such as process evaluation and market characterization. Here the argument is often made that the program administrator is in the best position to know what kind of information it

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<sup>2</sup> We believe the level of EM&V activity at the gas only utilities has historically been much more limited.

<sup>3</sup> Please note that these recommendations are organized in such a manner as to facilitate exposition, rather than in order of substantive importance.

needs to design new programs and improve the effectiveness of existing ones. However, this argument would appear to have decreasing force in a policy environment in which program designs are expected to converge across administrators, and even with process evaluation and market characterization there can be conflicts of interest in program administrators administering their own EM&V. For these reasons, we believe that with few exceptions, most process evaluation and market characterization studies should also be performed at the statewide level.

A key exception to the increasing convergence of program designs across administrators is likely to be pilot programs, which administrators are being allowed and encouraged to develop at a sub-state level. However, even here we believe that administering studies at a statewide level would offer the advantages of ensuring that pilots are evaluated in a consistent manner and guarding against any incentive that a program administrator might have to find its own program ideas to be effective.

3. *The program administrators should remain the main mechanism for EM&V contracting, but the locus of control of evaluations should move to DOER and the EEAC.*

We believe there are some good reasons for DOER not to become the contract procurement entity or to manage the EM&V studies themselves. First, as noted earlier, there is a critical labor shortage in the energy efficiency evaluation industry, which would likely make it difficult for DOER to obtain and retain the staff needed to oversee such an effort.<sup>4</sup> Second, in other states that have adopted this approach, there have often been complications involving state procurement restrictions. While these challenges could probably ultimately be overcome, we are concerned that they could lead to delays in the performance of needed studies. Third, moving contract and project management to DOER and the Council would waste the skills of the experienced evaluation project managers at the program administrators, at a time when such experience is in extremely short supply. Fourth, from the perspective of ensuring that EM&V results are used to improve program design and implementation, there is arguably some value in having program administrator staff directly involved in the administration of the contracted EM&V studies.

This leaves the program administrators as the likely primary mechanism for evaluation contracting and project management. However, it seems clear that significant changes in the current system are needed in order to provide for the increased degree of public oversight advocated in point #1 above. We believe what is needed is a system that keeps the program administrators responsible for the bulk of contract management and day-to-day project management activities, but moves the

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<sup>4</sup> While the EEAC Consultants have the necessary skills, we do not currently have nearly enough assigned hours to directly manage all needed studies in Massachusetts. We estimate that there are perhaps 5-6 full-time equivalent (FTE) positions at the program administrators involved in administering evaluation contracts. The EEAC Consultants Evaluation Team's proposed first-year budget calls for approximately 0.6 FTE.

locus of control over major substantive evaluation planning and implementation decisions toward DOER and the EEAC.

We envision the following approach toward this end. Each study would be managed on a day-to-day basis by a project manager from one of the program administrators, but authority for making major research planning and implementation decisions regarding the study would be delegated to one of the EEAC Consultants, on behalf of DOER and the EEAC. The PAs would have an active collaborative role in planning and scoping the studies as they do have expertise that will add to the value of the studies. This would be similar to the approach currently being used in Connecticut.

4. *The range of EM&V activities should be divided into a number of semi-permanent statewide research areas, each with a long-term contract manager, a long-term evaluation contractor, and an assigned liaison from the EEAC Consultant Team.* We have several reasons for suggesting such an arrangement. First, current conditions in the evaluation industry are such that we believe relatively broad-based, long-term contracts are the best way to get high-quality work done in a timely manner. Shorter-term and more limited evaluation contracts tend to draw a spotty response from bidders, can result in the need to constantly bring new evaluation contractors up to speed on the policy and programming environment, and invariably create additional administrative costs. Second, we believe it would be wisest not to put all of our eggs in one basket or even a small number of baskets, suggesting that a single statewide contract or even two or three such contracts would not be the best option. Third, dividing the EM&V activities into 5-7 contract areas would correspond roughly with the number of experienced project managers at the program administrators, thereby making efficient and productive use of existing resources.

We would argue that the best approach to organizing the standing research areas might be to structure them largely by target market/key market segment (e.g., residential retrofit, residential new construction, large C&I). This would result in the clearest boundaries among areas, and would correspond fairly closely to the way programs are structured. Other organizing principles might also be employed; for example, it might make sense to have a statewide evaluation area dedicated to the evaluation of pilot programs.<sup>5</sup>

In order to ensure that DOER and the EEAC truly have control over the course of the evaluations, we recommend two steps. First, DOER and the EEAC should have the authority to approve the project managers proposed for each research area, as well as the authority to remove assigned project managers if they do not perform effectively. Second, all evaluation procurements that are done by the PAs should make it clear that the evaluations are being performed in fulfillment of the PA responsibility to ensure independent EM&V, and should specifically recognize the oversight authority of DOER, the EEAC, and the EEAC Consultants.

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<sup>5</sup> One possible overall system of statewide research areas might be as follows: (1) residential retrofit; (2) residential retail products; (3) residential new construction; (4) small C&I retrofit; (5) large C&I retrofit; (6) non-residential new construction; and (7) evaluation of pilot programs.

5. *Electric and Gas EM&V efforts should be integrated.* We believe that both electric and gas EM&V efforts should be covered by the set of statewide research areas recommended above, and that gas vs. electric should not be an organizing principle within this system. (For example, there should be a statewide evaluation area for the evaluation of large C&I programs, and this area should encompass both electric and gas programs.) There is no substantive rationale for separating electric and gas EM&V efforts, and also, given the current state of the evaluation industry, little point in trying to build EM&V infrastructure at those gas-only utilities where it currently does not exist.
6. *If the PAs continue to be involved in EM&V contracting as recommended, there need to be clear mechanisms to encourage them to move needed evaluations forward and perform them effectively, even when they do not perceive this to be in their interest.* A variety of approaches are possible, including the following:
  - *Increased level of active monitoring and intervention by DOER and the EEAC.* An increased level of intervention by DOER management and/or EEAC action, as necessary, would help to ensure good performance by the program administrators. At a minimum a process to ensure early warning on any disruptions in project timelines will need to be established. This can be done through regular reporting by the PA evaluation managers to DOER and the EEAC, or its consultant.
  - *Reliance on program administrator pride in accomplishment as evaluators.* Massachusetts has a corps of experienced evaluation personnel who take pride in their work and the Commonwealth's national status as leading evaluation practices. Their continued participation in a system that uses their established expertise with DOER/Council oversight will maintain the independence of the studies while continuing the PAs' personal and corporate status as leaders.
  - *Financial penalties for not meeting EM&V responsibilities.* Financial incentives tend to work just as well for EM&V activities as they do for other administrative functions. Rewards would arguably be inappropriate for such a core administrative function as EM&V contract management, but penalties for poor performance might make sense to consider.

We believe that any of these approaches could work if it is well implemented.

7. *The M&V sections of the three year plans should reflect the administrative approach recommended here, and include a proposed specific set of statewide research areas and project managers and a three-year schedule for evaluation activities in each research area.*