New York State Energy Research and Development Authority Transition Plan for Enhancing Program Evaluation

Prepared by the New York State Energy Research and Development Authority (NYSERDA) for the New York State Public Service Commission

Case 07-M-0548
Proceeding on Motion of the Commission
Regarding an Energy Efficiency Portfolio Standard

August 22, 2008

I. INTRODUCTION

Background and Purpose of the Transition Plan

The June 23, 2008 New York State Public Service Commission (Commission) Order (Order) establishing the Energy Efficiency Portfolio Standard (EEPS)[1] called for NYSERDA to file, within 60 days, a Transition Plan (Plan) identifying steps that will be taken to enhance NYSERDA's program evaluation efforts. Specifically, the Order directed NYSERDA to describe planned enhancements to evaluation, measurement, and verification, including: (a) creation of a uniform database allowing more comparable evaluation of programs; and (b) increased detachment of NYSERDA from evaluation contractors and increased involvement of DPS Staff in oversight of evaluation. The Order called for NYSERDA's Transition Plan to be developed in consultation with Department of Public Service (DPS) Staff. This Plan is being submitted by NYSERDA as required by the Order.

In an effort to promptly increase the level of involvement in NYSERDA's evaluation activities by DPS Staff and increase transparency, NYSERDA drafted this Plan to be as comprehensive as possible, providing specific ideas, proposals, and options for how all areas of NYSERDA's long-standing program evaluation function can be enhanced and made more readily accessible for DPS Staff and EEPS Evaluation Advisory Group (EAG) involvement. This Plan discusses NYSERDA's process and organizational framework for the conduct of evaluation, each specific evaluation discipline and area, and provides possible enhancements that could be considered beyond NYSERDA to include all EEPS program administrators.

Organization of the Plan

The Plan is organized into the following sections:

- Section II discusses NYSERDA's approach to conducting evaluation and lays the framework for later sections.
- Section III outlines the ways in which NYSERDA will work to increase transparency and stakeholder involvement in its evaluation process.
- Section IV discusses evaluation enhancements NYSERDA intends to implement with the additional funding provided for evaluation.
- Section V provides information on NYSERDA's enhancements to its own tracking databases as well as NYSERDA's commitment to help develop and support the overarching, consistent tracking of impacts by all program administrators through a uniform database.
- Section VI concludes the Plan with a discussion of its implementation in the near- and long-term.

Implementation of the Plan

As discussed in Section VI, full implementation of NYSERDA's Transition Plan will be a collaborative effort involving NYSERDA and its evaluation contractors, DPS Staff and their evaluation advisory consultant, and the EAG. The implementation process is expected to occur over time as program plans, evaluation protocols, uniform database requirements, and other key variables are determined. In the near term, NYSERDA has taken steps to procure the evaluation advisory consultant for DPS Staff, commenced active participation on the EAG, and begun providing detailed information and briefings to DPS Staff on ongoing evaluation activities and plans. NYSERDA expects this active communication and cooperation to continue and will transition its evaluation efforts to best meet the requirements of the EEPS Order and the ultimate programs and evaluation protocols.

[1] State of New York Public Service Commission, Case 07-M-0548, Proceeding on Motion of the Commission Regarding an Energy Efficiency Portfolio Standard, *Order Establishing Energy Efficiency Portfolio Standard and Approving Programs*, Issued and Effective June 23, 2008.

II. IMPLEMENTING EVALUATION

This section provides the basis, context, and background for the Transition Plan's later discussion of possible enhancements to NYSERDA's program evaluation efforts. NYSERDA has been responsible for conducting evaluation of the System Benefits Charge (SBC) program since 1998 and, over the past ten years, has established a highly efficient and effective evaluation process that is expected to provide a solid basis for the enhancements being sought by the Commission. This section discusses how NYSERDA's evaluation process has operated and how it will continue to operate in the future, while the following sections speak to specific enhancements that will be applied going forward.

NYSERDA aims to achieve credible evaluations that conform to industry standards and best practices, meet acceptable sampling precision levels while reducing bias, and are transparent in terms of reporting what was done and how. NYSERDA and its evaluation contractors follow the American Evaluation Association's *Guiding Principles for Evaluators* which call for: systematic inquiry, competence, integrity and honesty, respect for people, and responsibility for general and public welfare.[2]

Internal Evaluation Staff Role

Since NYSERDA was first directed to evaluate the SBC programs approximately a decade ago,[3] internal staff within its Energy Analysis unit have been assigned to conduct analysis and project management of external contractor activities related to the evaluation effort. An Energy Analysis Program Manager was assigned to oversee these staff and internal and external activities. Within NYSERDA, the Energy Analysis unit is organizationally separated from other units whose staffs perform project and program management functions related to implementation and administration of the SBC energy efficiency programs. NYSERDA's organizational units that conduct program implementation activities are Energy Efficiency Services, the Residential Energy and Affordability Program, and two Research and Development units. This separation between NYSERDA's evaluation and program staff will continue for SBC and EEPS programs.

NYSERDA's internal evaluation staff provides valuable project management and analytical tasks including:

- Conduct of work that enhances and supplements the reporting of program impacts
- Competitive selection and contract management of external, independent evaluation contractors
- Facilitation of evaluation planning with DPS Staff, NYSERDA's external evaluation contractors, and input from NYSERDA program staff
- Input into evaluation design, including identifying researchable questions of interest and value to NYSERDA
- Facilitation and management of day-to-day evaluation functions alongside NYSERDA's external evaluation contractors (*e.g.*, obtaining necessary information to feed the evaluation process, scheduling meetings, coordinating and conducting reviews of draft and final work products, and ensuring that evaluation results and recommendations are utilized in the programmatic improvement process to the greatest extent possible)
- Oversight of evaluation budgets and expenditures to ensure that available funds are spent properly and effectively
- Regular reporting, on an annual and quarterly basis, on the portfolio of SBC programs

[2] American Evaluation Association (AEA), *Guiding Principles for Evaluators*, www.eval.org. See source for a full explanation of these guiding principles.

[3] State of New York Public Service Commission, Opinion No. 98-3, Case 94-E-0952, In the Matter of Competitive Opportunities Regarding Electric Service, *Opinion and Order Concerning System Benefits Charge Issues*, Issued and Effective January 30, 1998.

External Independent Contractor Roles

NYSERDA has a long history of working closely with nationally recognized, independent contractors[4] to conduct evaluations of its programs. While the configuration of the work areas covered by these external contractor teams has changed over time, NYSERDA has relied upon these contractors to: measure and verify program savings; establish attribution, including assessing free-ridership and spillover; evaluate the efficiency and effectiveness of program processes; develop program theory and logic models; and conduct market characterization and assessment studies. NYSERDA's evaluation planning process and evaluation project selection criteria have ensured that the most important and significant metrics have been closely and regularly examined by these independent consultants. Use of independent, external consultants with a reputation for credible, high-quality, and unbiased work has served decision makers and ratepayers well and is expected to continue.

NYSERDA's external, independent contractor teams provide valuable services including:

- Portfolio- and program-level evaluation planning
- Evaluation design, including sampling plans, researchable questions, survey instruments, and analytic approaches
- Evaluation implementation, including conducting site visits, telephone surveys and interviews, data entry, and data analysis independent from NYSERDA Energy Analysis staff and consistent with industry best practices
- Detailed evaluation reporting and presentations
- Assistance with implementing evaluation recommendations
- Regular progress reporting to NYSERDA evaluation staff on ongoing and completed work efforts, issues requiring attention, and next steps

Future Plans for Evaluation Conduct

With respect to the DPS evaluation guidelines requirement that evaluation be organizationally separate from program administration, NYSERDA's organizational structure provides sufficient separation to fulfill that requirement. NYSERDA and its evaluation contactors will endeavor to comport with the new evaluation guidelines and will rely on these guidelines as the basis for all aspects of their program evaluation efforts, including contractor procurement, evaluation planning, evaluation design and implementation, and reporting. NYSERDA will also remain flexible to accommodate modifications and additional guidelines put forth by the DPS Staff and the EAG.

To provide timely evaluation of the five Fast Track programs and to provide for cost-effective integration of the enhanced SBC evaluation with the Fast Track and other program evaluations, NYSERDA plans to utilize its current group of evaluation contractors to the maximum extent possible through 2012.[5] Current evaluation contracts will be modified, as necessary, to allow for the conduct of this additional work. Draft revised work scopes will be provided to DPS Staff for review and input. Should additional external contractors need to be hired to conduct the enhanced evaluation work, NYSERDA will use its competitive procurement process. NYSERDA recognizes that the level of enhanced evaluation and DPS involvement will require more cooperation among the evaluation contractors and will therefore work to facilitate this interaction.

[4] The terms "contractor" and "consultant" are used interchangeably in this section and have the same meaning.

[5] NYSERDA's current evaluation contracts allow for annual renewal through early 2012, at NYSERDA's discretion. The end date of the last optional renewal purposefully extends beyond the conclusion of SBC3 program funding in order to allow for evaluation of impacts from projects funded in 2011.

Once the enhanced evaluation is fully operational, NYSERDA will keep DPS Staff apprised of its activities by providing drafts of key interim and final work products, including detailed evaluation plans and reports, for review and comment. NYSERDA will also provide DPS Staff with periodic reports from evaluation contractor teams on the progress of their work and next steps. NYSERDA expects that DPS Staff, or their evaluation advisor consultant, may wish to communicate directly with NYSERDA's evaluation contractors from time to time and encourages this communication as needed.

III. INCREASED TRANSPARENCY AND STAKEHOLDER INVOLVEMENT

Review and Oversight by DPS and the EAG

Over the past ten years, DPS Staff has exercised close oversight and has been a key partner and stakeholder in the System Benefits Charge programs in terms of high-level public policy goals, day-to-day programmatic direction, and program evaluation. A few ways in which DPS Staff have been involved and have played a key role in the past include: review of SBC Operating Plans, participation on NYSERDA Technical Evaluation Panels (TEPs) to review solicitations and select projects and contractors for funding; participation in SBC Advisory Group meetings; and involvement in evaluation planning and review of evaluation reports. NYSERDA expects that this relationship and involvement will continue and be increased in the future. This section discusses ways in which increased transparency and stakeholder involvement will be accomplished.

DPS Advisor Consultant

The June 23rd EEPS Order directed that a portion of the funding for enhanced evaluation shall be used to fund an acceptable consultant to advise DPS Staff on the scope and methods of evaluations and critique the evaluation activities of NYSERDA and other program administrators. This consultant will afford DPS Staff outside assistance and expertise to fully engage in and oversee the large volume of evaluation work that is expected once all program administrators' efforts commence. The consultant will assist DPS Staff in reviewing solicitations to hire evaluation contractors, commenting on draft evaluation plans and work products, and with other related oversight tasks.

NYSERDA was directed to procure said consultant and did so through a competitive Request for Qualifications (RFQ) distributed to approximately 60 individuals and posted on the NYSERDA website as well as other well-known industry websites.[6] As is typical of NYSERDA's competitive procurement process, a TEP was held, consisting of more external reviewers than internal, and DPS Staff was represented on the TEP. The TEP reviewed and ranked proposals and produced a recommendation for funding that was reviewed by NYSERDA's management prior to the contracting process.

Interest in and response to the RFQ was very good. DPS Staff had indicated that the consultant must be available to begin work by September 2, 2008, and NYSERDA compressed its typical procurement timeline and went to significant effort to meet this deadline. Selection of the contractor was completed and approved by NYSERDA's management on August 14th.

As this consultant will assist in the evaluation of the programs administered by multiple parties, NYSERDA believes that it would be appropriate to fund this activity with interest earned on SBC and EEPS funds held by NYSERDA rather than out of NYSERDA's 5% allocation for evaluation of its own programs. NYSERDA will petition the Commission to permit this funding mechanism.

Evaluation Advisory Group Participation

NYSERDA applauds the Commission's decision to have DPS Staff form and convene the EEPS EAG as early as possible. NYSERDA's Program Manager for evaluation will serve on the EAG and will commit the necessary time and resources in order fully engage in this important effort. NYSERDA believes that the EAG has appropriate representation, and is a workable size to be able to truly guide and impact the overall EEPS evaluation effort.

[6] The two other websites that advertised the RFQ were the Association of Energy Service Professionals and the International Energy Program Evaluation Conference.

Formal Compilation of Near- and Long-Term Plans

NYSERDA strongly supports DPS' effort, within the evaluation guidelines, to require that all program administrators develop and report their evaluation plans for each proposed program. While it is impossible to determine all the details of a complete evaluation plan at this early stage, many key elements and specifications can be outlined now, and several important uses of these initial evaluation plans include:

- Providing the Commission with a level of detail needed to approve programs, knowing that evaluation will be sufficient to fully examine impacts
- Providing DPS Staff and the EAG with adequate detail to understand evaluation plans and how they relate across program administrators
- Allowing DPS Staff and the EAG to identify the near- and long-term points in the process where their involvement will be needed
- Allowing DPS Staff and the EAG to identify and facilitate any possible areas of coordination and joint evaluation studies by program administrators and to address any possible areas of overlap
- Providing program administrators and evaluators with early indications whether their proposed evaluation plans are sufficient

NYSERDA recognizes the important uses of initial evaluation plans, and will aim to produce well-thought-out initial evaluation plans, modify and further develop these plans with close involvement and feedback from DPS and the EAG, and implement these plans in the most cost-effective and efficient manner using highly qualified, external evaluation contractors and internal evaluation staff. During the evaluation implementation process, NYSERDA will maintain close communication with DPS Staff and the EAG, and will notify both as to any major departures from the evaluation plans. The evaluation effort will provide ongoing feedback to NYSERDA program implementation staff, DPS, and interested parties to ensure that: the range of evaluation needs are being met; mid-course corrections can be made, as needed; and parties are aware of findings early on, rather than having to wait until reports are finalized.

IV. Enhanced Evaluation

An increase in evaluation funding from 2% to 5% of program budgets more closely aligns New York with other leading jurisdictions across the country in terms of the proportion of program funds allocated to evaluation. This section outlines the additional resources available for enhanced evaluation as well as the basis for NYSERDA's proposed evaluation enhancements and discusses specific enhancements that will be made. The section also includes a discussion of key reporting issues, including how NYSERDA will report on ongoing SBC and new EEPS funding and achievements, and steps that will be taken to provide more geographic granularity. Additionally, NYSERDA views statewide study opportunities as a key evaluation enhancement and puts forth some early ideas for possible statewide studies to be considered by DPS Staff and the EAG for funding by all program administrators.

Resources Provided for Evaluation Enhancement

Table 1 shows additional evaluation funding for NYSERDA programs authorized by the June 23, 2008 Commission Order on EEPS. Not only were the Fast Track programs provided a 5% evaluation budget but the existing SBC3 evaluation budget was also increased from 2% to 5% of program funding through 2011 to provide for the same enhanced evaluation level. Beyond the funding shown in Table 1, possible additional evaluation funds may become available for other programs NYSERDA may be selected to administer based on the 90-day program filings in the EEPS case.

Table 1. Additional Evaluation Funding for NYSERDA Programs

	2008 (Q3)	2009	2010	2011	Total
EEPS Fast Track Evaluation (5%)	$776,178	$3,224,177	$3,935,051	$3,714,181	$11,649,587
SBC3 Enhanced Evaluation (3%)	$1,312,500	$5,250,000	$5,250,000	$5,250,000	$17,062,500

NYSERDA plans to use this additional evaluation funding to significantly elevate its current level of evaluation by providing for greater rigor and reliability, among other things. In order to make this possible, NYSERDA will continue to utilize an internal evaluation staff and independent external evaluation contractors in the conduct of this work. NYSERDA's submittal of program plans will include initial evaluation plans and proposed evaluation funding allocations at the program level. Not all programs will receive an evaluation budget of exactly 5% of program funding. Each program's evaluation budget will be based on consideration of many factors, including: expected electric savings; expected spending; possible program participation levels; expected distribution of electricity savings across the population of program participants and years of program administration; nature of each program's design and intervention strategies; prior evaluation methods, results, and level of rigor/reliability attained; and remaining uncertainty. For example, very large, mature programs with homogeneous participants and measures may not require the full 5% for a robust evaluation. Furthermore, some amount of the overall evaluation funding shown in Table 1 will be used for NYSERDA's evaluation staffing, and additional funding from the 5% will likely need to be set aside for overarching studies and other multi-program evaluation activities. At this point, only initial discussions have occurred among DPS and the EAG about developing budgets for overarching studies and multi-program evaluation needs. NYSERDA will work with DPS Staff and the EAG to determine the appropriate amount for overarching study needs.

Foundation for Identifying Evaluation Enhancements

Expected Uses of Evaluation Data

NYSERDA's basis for identifying evaluation enhancements is broad and deep. A key starting point is an understanding of the expected uses of evaluation data. The EEPS represents a significant increase in energy efficiency program funding, and the ultimate goal of these programs is to help the State meet its aggressive target of reducing electricity use 15% below forecasted levels by the year 2015 (*i.e.*, 15-by-15). Energy

efficiency savings of this magnitude can play an important role in energy diversity and security and the deferral of transmission and distribution infrastructure investments. Furthermore, to ascertain whether adequate progress is being made toward these overarching goals, reliable data is needed to facilitate planning and forecasting by the New York Independent System Operator and the DPS Staff. In addition to these higher-level uses of evaluation data, NYSERDA also believes that evaluations should directly contribute to the program evolution and improvement process. Evaluation data can be a powerful tool to continually improve program efficiency and effectiveness over time. Perhaps most importantly, the Commission needs timely and accurate information on program performance to support the overall EEPS decision-making process.

NYSERDA Evaluation Experience and Lessons Learned

As stated earlier, NYSERDA has been evaluating SBC energy efficiency programs for approximately ten years. Although the funding level for SBC evaluation has historically never exceeded 2% of program budgets, NYSERDA has succeeded in allocating these resources to areas with the highest risk and uncertainty or the greatest need. After nearly a decade of working with evaluation contractor teams to accomplish all the key evaluation tasks, NYSERDA has learned a great deal about the most efficient manner in which to structure its evaluation activities, facilitate the necessary interaction between program staff and evaluation contractors, and provide the greatest overall effectiveness (*i.e.*, evaluations that meet their goals) for the dollars available.

Efficiency and consistency have been the major benefits of NYSERDA's current evaluation structure. The current team structure and work assignments will remain in place and be expanded to serve the greater EEPS evaluation needs. This structure consists of four main contractor teams providing evaluation design, data collection, analysis, reporting, and other services in the following areas:

- Impact Assessment – including evaluation of gross energy and demand savings (with the use of field measurement and verification and other approaches), attribution (*i.e.*, net-to-gross) analysis, cost-effectiveness evaluation support, non-energy impacts, and research and development impact evaluation.
- Market Characterization and Assessment – including analysis of secondary data to define target markets and studies to assess progress on key market indicators including changes in energy efficiency awareness, product availability, and practices.
- Process Assessment and Evaluation Management – including formative process evaluation studies and overall assistance with evaluation coordination activities.
- Survey Data Collection – including design of data collection and sampling approaches and large-scale survey implementation, as needed, for all of the above evaluation areas.

Evaluation Expert Input

Input from leading experts in the field of energy efficiency program evaluation was also instrumental in the development of NYSERDA's planned evaluation enhancements. Following the release of the June 23rd EEPS Order and discussions with DPS Staff, NYSERDA formulated a series of questions that were posed to independent evaluation consultants currently under contract with the Authority. Six leading, nationally recognized energy program evaluation consultants,[7] all from different firms, were asked to provide input on:

- Specific enhancements that could be considered in each evaluation area (*e.g.*, impact, markets, process),

[7] The evaluation consultants who provided input were: Brent Barkett of Summit Blue Consulting, LLC, Ben Bronfman of The Cadmus Group, Inc., David Carroll of APPRISE, Inc., Lynn Hoefgen of Nexus Market Research, Lori Megdal of Megdal & Associates, and Jane Peters of Research Into Action, Inc.

- Specific enhancements that could be considered for the range of evaluation measurements or inputs used by NYSERDA (*e.g.*, realization rates, free-ridership, spillover, customer satisfaction, project costs, etc.), and
- Specific areas where higher rigor and reliability could be achieved and areas where the 90/10 sampling precision goal may not be reasonable or cost effective.

The input received from NYSERDA's evaluation consultants was highly useful, especially as these individuals were able to bring many decades of experience working with different energy efficiency program administrators across the country. Their expert input was incorporated into this Transition Plan and was also used to develop the program-specific evaluation plans contained in NYSERDA's supplemental revision to its SBC Operating Plan, also filed with the Commission on August 22, 2008.

DPS Evaluation Guidelines

Finally, and perhaps most importantly from a forward-looking perspective, the evaluation guidance put forth by DPS Staff, and discussed with the EAG in recent weeks, has already provided solid grounding upon which to significantly increase the substance and effectiveness of NYSERDA's evaluation efforts using the increased funding provided for evaluation. The evaluation guidelines reference several excellent, national sources as supplements. NYSERDA is familiar with these other supplemental sources, and they have also provided a basis for the evaluation enhancements put forth in this Plan.

Planned Approaches to Increase Evaluation Rigor and Reliability

NYSERDA plans to improve the rigor and reliability of its evaluation efforts and results by considering both sampling precision and accuracy. In cases where it is possible, appropriate, and cost-effective to apply the 90/10 confidence/precision goal specified in the DPS Staff's evaluation guidelines, NYSERDA will aim to achieve this level for program impacts at least statewide and, where possible, on an upstate/downstate or utility territory basis. Beyond sampling precision, however, are important issues associated with accuracy. To improve accuracy, evaluation designs need to avoid, reduce, mitigate, or adjust for potential biases. This involves selecting the proper evaluation research method, designing the right questions to ask, and analyzing often challenging data sets in the proper manner.

Impact Evaluation & Attribution

NYSERDA plans to rely on a range of approaches to evaluate gross and net energy and demand savings impacts of the SBC and EEPS programs. Industry standard approaches for evaluating gross savings include using deemed savings, measurement and verification, and large-scale analysis of utility consumption/usage (utility) data.[8] Each of these approaches likely has an appropriate application within the evaluations of NYSERDA's SBC and EEPS program portfolio. As program plans are developed and submitted to the Commission for approval (*i.e.*, the 60- and 90-day EEPS filings), NYSERDA will examine proposed program efforts and develop plans that further define gross savings evaluation approaches that are most appropriate given overall evaluation priorities and available resources. NYSERDA will do so in reference to the DPS Staff guidelines and any other specific protocols put forth by DPS Staff and the EAG.

To date, NYSERDA's evaluation of gross savings has relied on deemed savings and measurement and verification (sometimes with engineering modeling). Reliance on these methods was somewhat based on the prior funding level of evaluation but was largely due to the unavailability of utility data. One highly important point related to the discussion of enhanced impact evaluation is that utility data for both program participants and non-participants must be made available to all program administrators in the utility service areas covered by their programs. If the Commission requires that all program administrators, including NYSERDA, meet the rigorous standard of a 90/10 confidence/precision and a high level of accuracy for

[8] National Action Plan for Energy Efficiency, *Model Energy Efficiency Program Impact Evaluation Guide*, 2007.

estimating gross energy savings, access to utility data is an absolute necessity. Without access to utility data, non-utility program administrators will be at a distinct disadvantage in terms of conducting rigorous impact evaluations and will also be lacking key information for targeting programs to achieve the highest possible energy savings, which may directly affect achievement of the 15-by-15 goal.

Table 2 shows the spectrum of techniques available to evaluate gross savings and the associated level of accuracy and sampling precision they can offer. Methods are ordered within Table 2 according to level of rigor/reliability (from lowest to highest). With available funding, NYSERDA will aim to achieve the highest possible degree of rigor and reliability.

Table 2. Spectrum of Gross Savings Evaluation Approaches, Accuracy, and Sampling Precision[9]

Methods (Ordered from Lowest to Highest Rigor/Reliability)	Accuracy	Sampling Precision
Outside Review	Review database and algorithms used	Not applicable
Verification - 1	Telephone	Goal for all methods will be a sample size adequate to achieve 90/10 confidence and precision
Verification - 2	On-site, verify installation	
Verification - 3	On-site, verify installed & operable	
Measurement & Verification (M&V)	Spot measurement on-site with installation & operable verification	
M&V with simple engineering model	Reliability includes on-site M&V where the greatest uncertainty parameter is measured (*e.g.*, hours of use obtained from light loggers if lighting measure)	
PRInceton Scorekeeping Method (PRISM)-simple billing analysis	Reliability approximately equal to the one above but using an alternative methodology.	
Retrofit Isolation – International Performance Measurement and Verification Protocol (IPMVP) Option B with statistical sampling for program evaluation	The methods to the left have approximately the same level of reliability. Method selection amongst these needs to be based upon program/measure type and circumstances.	
Fully specified billing analysis with statistical regression tests for issues that could result in bias.		
Calibrated and documented building simulation models with statistical sampling for program evaluation (IPMVP Option D)		
Multiple methods for triangulation and explanation of any inconsistent data	Best reliability without an experiment	
Experimental Design	Highest reliability if this method can be designed within the program itself, and is independently monitored by evaluators.	

Standard industry approaches for evaluating net savings, in order of generally-accepted reliability, include deemed net-to-gross (NTG) ratios, self-report surveys, enhanced self-report surveys, econometric methods, and triangulation based upon the use of multiple methods.[10] NYSERDA has developed and continues to improve upon state-of-the-art self-report methods. NYSERDA will continue to use the methods most appropriate and cost-effective for each SBC and EEPS program.

[9] Table 2 and portions of the accompanying text were developed with assistance from Dr. Lori Megdal, Megdal & Associates, Acton, MA. Dr. Megdal currently serves as NYSERDA's lead consultant in the area of impact evaluation.
[10] Most of these approaches are outlined in the National Action Plan for Energy Efficiency, *Model Energy Efficiency Program Impact Evaluation Guide*, 2007. Deemed net-to-gross ratios have only rarely been used by NYSERDA (*e.g.*, assuming 1.0 for some low-income programs that have not been evaluated for net-to-gross). This approach is expected to have limited use in future EEPS program evaluation.

As program plans are developed and submitted to the Commission for approval, NYSERDA will examine proposed program designs and develop evaluation plans that further define net savings approaches, including addressing free-ridership and spillover. NYSERDA will do so in reference to the DPS Staff guidelines and any other protocols put forth by DPS Staff and the EAG. As discussed earlier in the context of gross savings, NYSERDA will endeavor to use the most accurate method and attain the desired 90/10 sampling precision level in all instances where this is cost effective and necessary given the available budget.

The largest issue for reliable net-to-gross estimates is in ascertaining whether the underlying construct of "what would have occurred in the absence of the program" is being best measured. NTG analysis is measuring a hypothetical, and it can be difficult to know that the measurement is accurate.[11] NYSERDA is continuing to improve its NTG measurements to better examine and test for construct validity in its estimates. This work will be advanced with the increased evaluation efforts being proposed.

From NYSERDA's perspective, one major challenge of conducting net-to-gross evaluation in the EEPS environment is the fact that multiple program administrators will have to work together to identify spillover, and protocols or rules will have to be put into place to ascertain which administrators are responsible for the spillover that is occurring. NYSERDA has experience conducting large, multi-program spillover assessments and attributing spillover savings to multiple programs and will offer any assistance that DPS and the EAG may require in ascertaining the best way to deal with this challenge going forward. There are also other challenges associated with conducting net-to-gross analysis. Net-to-gross analyses are becoming increasingly complex due to long-standing, successful NYSERDA program efforts and the difficulties of ascertaining NYSERDA's ongoing influence on markets. Furthermore, with increased attention to environmental issues and energy supply concerns, socially acceptable responses could lead to overestimates of free-ridership in certain survey-based methods. This is where enhancements to net-to-gross analysis will be especially important.

Market Evaluation

One of the best opportunities to enhance NYSERDA's prior level of market characterization and assessment (market evaluation) work is through statewide studies funded by all program administrators. To date, NYSERDA's market evaluation efforts have largely consisted of defining target markets through secondary data and examining outcome indicators, such as changes in awareness, knowledge, and practices that are due to program efforts. Changes in these outcome indicators provide valuable information on program progress that can be used to improve program implementation and signal advancement toward longer-term market changes. Missing from NYSERDA's approach to evaluating markets, and also highly related to evaluating impacts, are large-scale measure saturation studies and baseline studies. Such efforts have not been conducted as part of NYSERDA's program evaluation activities due to a lack of available funding. Now, in the EEPS environment, multiple program administrators who are ultimately interested in pursuing the same energy efficiency goals can pool their resources to capture a much greater breadth and depth of information than was possible for NYSERDA to do on its own with limited funds. Several examples of statewide market studies are proposed at the end of Section IV under Statewide Study Opportunities.

Benefit/Cost Analysis

NYSERDA will conduct benefit/cost analysis for its programs in a manner consistent with other program administrators, as appropriate. NYSERDA has worked with its evaluation contractors over the years to conduct benefit/cost analyses on the SBC program and has knowledgeable staff and a tool in place to accomplish benefit/cost analyses for all of its SBC and EEPS programs. NYSERDA is prepared to make

[11] Construct validity is the most important issue for NTG measurement and much more significant than sampling precision.

adjustments to its current practice should DPS Staff or the EAG decide that alternative methods, tools, or inputs are superior or would foster greater consistency among program administrators.

Over the years, NYSERDA has identified several areas of the current benefit/cost method and inputs that, given more funding, could be enhanced. Obviously, once implemented, all of the enhancements discussed earlier for impact and attribution evaluation can only serve to improve the benefit/cost analyses. However, a key input, and often the most difficult to ascertain, is measure costs. Measure costs need to align properly with the energy savings benefits being claimed. Simply put, full costs need to be captured for programs that encourage early replacement, and incremental costs[12] need to be counted when programs encourage high-efficiency measure selection during standard replacement schedules. In addition to allocating additional funding to further validate the use of appropriate measure costs in each project scenario, NYSERDA also plans to enhance its benefit/cost analysis by: instituting greater validity checking of costs; corroborating New York data with external sources (*e.g.*, California's DEER database); and more completely assessing and monetizing measurable non-energy impacts offered by high-efficiency measures such as lower maintenance costs, greater throughput, and longer measure life.

Process Evaluation

NYSERDA already has a robust process evaluation approach in place for the current SBC programs. The areas of inquiry outlined in the DPS evaluation guidelines have been addressed by NYSERDA's prior process evaluation efforts and can continue to be addressed by future process evaluations. Process evaluation will be particularly useful and essential in the early stages of ramping up the EEPS Fast Track and other programs, and NYSERDA has included plans for such early process assessments in its program proposals. As with the other evaluation areas, NYSERDA will endeavor to adhere, to the greatest extent possible, with the evaluation guidelines and protocols developed by DPS Staff and the EAG. Although most process evaluations are primarily qualitative and typically focus on in-depth interviews with smaller samples, NYSERDA will ensure that these evaluations are appropriately rigorous and reliable for this area of work.

One challenge, moving forward, will be for the DPS Staff and EAG to provide appropriate guidance to all program administrators on the level of funding and emphasis that should be afforded to process evaluation. While impact evaluation activities are of the utmost importance for EEPS programs, process evaluations should still receive adequate funding and attention by all program administrators for they not only uncover what works well and what can be improved but without them one can never know if ratepayer dollars could have be more effectively spent.

Evaluation Reporting

The revised Memorandum of Understanding (MOU) between NYSERDA, DPS, and the Commission defines basic reporting requirements that will be applied. However, two key issues deserve more detailed discussion and are addressed in this section.

First, NYSERDA was specifically asked to provide regular reporting of results on a utility-territory basis. NYSERDA will endeavor to provide this level of granularity wherever possible and cost effective. NYSERDA expects to be able to provide the following metrics on a utility-territory basis for each major program, as applicable: funds committed and expended; number of participants; program-reported electricity, demand, and fuel savings; and net electricity, demand, and fuel savings.

Second, NYSERDA was asked to distinguish between achievements from EEPS and SBC3 funding in its quarterly and annual evaluation report submittals. The quarterly and annual reports will separately track or

[12] Incremental costs generally reflect the difference between the price of a new standard-efficiency measure and a comparable, new high-efficiency measure supported by a program.

allocate SBC3 and EEPS energy efficiency spending and achievements. This will be accomplished in the manner most appropriate for each specific program. For programs that receive funding from both EEPS and SBC3 to support similar projects, spending and achievements will be allocated, and a single evaluation will be conducted at the enhanced level, covering both funding sources. In some cases, where both funding sources are applied to a given program, but are supporting very different types of projects, spending and achievements will likely be tracked separately for EEPS and SBC3.

Statewide Study Opportunities

Under NYSERDA's former evaluation budget of 2%, some very necessary and important overarching statewide studies could not be conducted due to limited funding. However, now that evaluation budgets have been increased and set at 5% for the SBC3 and EEPS programs, and multiple program administrators are expected to enter the efficiency market in New York, there are not only additional funds for conducting such studies but there are also more pressing reasons for and interest in doing so, including more effectively targeting programs to achieve the greatest energy savings and more accurately counting savings that ultimately accrue from these programs. Examples of such studies are:

- Residential measure saturation study
- CFL baseline study
- Commercial/industrial measure saturation study
- Baseline of new construction practices and efficiency levels
- Numerous opportunities for joint evaluation studies on areas such as attribution

In addition to the above study opportunities, NYSERDA would also like DPS Staff and the EAG to consider having all program administrators contribute to updating and maintaining a Statewide Deemed Savings Database (DSD) for measures supported by all EEPS programs. NYSERDA and its evaluation contractors created a DSD as part of the SBC program evaluation efforts.[13] The NYSERDA DSD has since undergone twelve updates to incorporate additional measures and to update savings and cost information for measures that receive ongoing support as standards change. NYSERDA has publicly shared the DSD with numerous parties, including all utility program administrators. A Statewide DSD would be a resource that all New York program administrators would rely on, and it is NYSERDA's opinion that DPS Staff, the EAG, and all administrators should have a role in directing updates and maintenance and funding those costs.

[13] NYSERDA's DSD contains information on program-supported measures, base case assumptions, annual electricity savings, connected demand reduction, coincident peak demand reduction, coincidence and diversity factors, measure lives, incremental measure costs, and more.

V. Uniform Database Development Support

NYSERDA anticipates being able to provide uniform data as needed by the Commission, DPS Staff, and EEPS stakeholders once agreement is reached on the required fields, format of the data, and timing of the data. The data could be either uploaded to a central warehouse or sent electronically. Data could be compiled at varying levels of aggregation, such as measure level, project level, and program level.

Once the necessary fields and level of aggregation have been determined, the process could be standardized and automated to minimize duplicative data entry required to update the information. However, in the event there are changes in data or reporting requirements, adequate lead time will be required to change NYSERDA's procedures.

NYSERDA strongly supports the notion that data tracking systems must be developed not only with implementation in mind but also with evaluation in mind. Data tracking systems must be regularly maintained, and quality control/assurance must be applied. Early identification of data requirements can help ensure that data are gathered and input into systems at the most cost-effective time and that costly back-filling of data is avoided.

NYSERDA Program Database Enhancements

Commercial/Industrial (C/I) and Residential/Low-Income Programs

Currently, the C/I and residential/low-income programs each has its own database designed to track activities, as applicable, at the measure, project, and program levels. Program level data include funding by utility service territory and number of projects at different stages of completion. Project-level information includes site address, utility territory, project incentives, and project energy savings. Measure-level data include measure category and energy savings.

Beginning in early 2008, and based on recommendations from its evaluation contractors, NYSERDA embarked on a significant project to assess the "evaluability" of each of its major programs.[14] This project involved evaluation staff and program staff working together to conduct a thorough review of program databases to ensure that the most detailed, necessary information is being tracked electronically and can be extracted from these databases in an efficient and accurate manner. Several improvements have already been made to program databases as a result of this exercise, and the effort is ongoing. As the requirements of the uniform EEPS database and final EEPS evaluation protocols are developed, NYSERDA will continue to work internally to further improve program databases to meet these needs as well.

Research and Development (R&D) Programs

An R&D metrics database is in development and will track funding, activities, and outcomes for R&D projects. Data collection fields vary by project type, such as product development, demonstration, research studies, and business development. Metrics stored in the database include annual sales of new products developed through R&D funding, patent numbers and other intellectual property resulting from product development projects, businesses assisted, and energy savings from demonstration projects. NYSERDA can adapt the R&D database, as needed, to meet future needs as well.

[14] Bronfman, B., *et al.*, *Integrating Evaluability Assessment into the Program Planning, Implementation and Evaluation Process: Case studies from Southern California Edison's IDEEA Program Portfolio*, Association of Energy Services Professionals (AESP), Proceedings from the 18th National Energy Services Conference, January 28-31, 2008, Clearwater Beach, FL.

NYSERDA Financial and Contract Management Database Enhancements

Peoplesoft Enterprise System

NYSERDA has also embarked on a major effort to improve its financial accounting and project management database systems. Development of a new Peoplesoft Enterprise System is under way which will integrate NYSERDA's currently separate accounting and project management tracking systems and improve overall data integrity. The new Enterprise System will allow NYSERDA's internal project approval system to be managed electronically, which will likely result in greater efficiency. The Enterprise System is being designed to allow for maximum flexibility and future growth, as well as possible integration with NYSERDA's program tracking databases. NYSERDA's internal evaluation team will interact with the vendors and staffs that are developing this system to ensure that financial data needed for benefit/cost analysis, and any other data used as inputs to the evaluation effort, are improved and made more easily accessible wherever practical.

Tracking Progress by all EEPS Program Administrators

Importance of Consistent Metrics and Reporting

NYSERDA recognizes that it will not be an easy undertaking to consistently and regularly track progress across all EEPS program administrators. However, consistent and regular tracking is absolutely critical to the State's ability to monitor progress toward the 15-by-15 goal and to properly credit each and every program intervention contributing to that progress. Consistent metrics, definitions and, where appropriate, evaluation approaches will ensure that all administrators' energy savings values can be compiled to represent statewide achievements. For a seemingly simple metric of electricity savings, there are numerous different interpretations that could lead to completely incompatible data. For example: will the savings be reported on a cumulative annual or incremental basis; at the plug or at the generator; for anticipated or installed measures; based on program reported, gross, or net savings estimates; with or without spillover and momentum effects included? These questions, and other similar ones, are being addressed in the DPS Staff's evaluation guidelines and will need to be completely clarified in the near term. However, it will be important for all program administrators to follow those guidelines, and for DPS Staff, the EAG, the DPS evaluation advisory consultant, program administrators, and evaluation contractors to work together to ensure everyone understands what data are used for higher level reporting.

NYSERDA's Role

NYSERDA is in a unique position of having put in place an internal tracking and external reporting system that is largely consistent across the programs it administers. This has been the result of many years of effort, and lessons learned can be shared with EEPS stakeholders as this process unfolds at the statewide level.

NYSERDA has also taken initiative to investigate high-level tracking and reporting systems and databases, such as those being used by California. NYSERDA stands ready to assist DPS staff and the EAG in providing information and making decisions on what type of system might be appropriate and how to begin the process of integrating data from various program administrators into the statewide database. NYSERDA will also make every reasonable effort to integrate its own databases with the statewide database.

VI. Implementing the Transition Plan

Implementation of this Transition Plan is expected to occur over time and be a collaborative effort among NYSERDA, DPS Staff, the DPS evaluation advisor consultant, NYSERDA's evaluation contractors, and other parties. A number of key factors affecting NYSERDA's transition to an enhanced evaluation approach are currently unresolved (*e.g.*, final evaluation protocols, uniform database development, final approval of Fast Track programs and initial evaluation plans, other future program offerings, decisions on statewide studies, etc.). Therefore, while it will be advantageous for all parties to move forward expeditiously and implement this plan, the transition should be undertaken with close attention to these other developing factors and should remain flexible until the key evaluation factors are settled. Near-term and longer-term steps, as well as roles of NYSERDA, DPS Staff, and other parties, are defined in this section.

Near-Term Steps

In the very near term, even prior to the submittal of this Transition Plan, NYSERDA has begun to fulfill several responsibilities and needs related to enhanced evaluation and increased DPS Staff oversight. These include:

- NYSERDA has released a solicitation, received proposals, convened a TEP to review proposals, and entered into contract negotiations with the contractor selected to provide evaluation advisory services to DPS Staff. NYSERDA expects the evaluation advisor consultant to be under contract by September 2, 2008, a date specified by DPS Staff.

- NYSERDA has begun its active participation on the EAG and has provided both high-level and specific comments related to DPS Staff's evaluation guidance document.

- NYSERDA has begun to provide detailed information to DPS Staff in order to aid in their preparation for an increased oversight role. This has included frequent informal communications and a formal briefing on NYSERDA's evaluation efforts. At the formal briefing, NYSERDA and DPS Staff discussed goals, objectives, approach, structure of activities, coordination, status of work products, inclusion of DPS Staff in work efforts, and challenges related to the evaluation effort.

NYSERDA expects that the detailed information exchange will continue with DPS Staff and also with the DPS evaluation advisory consultant. NYSERDA will make every effort to provide necessary information in a timely manner to accommodate DPS Staff's needs related to building, defining, and acting in their oversight role.

Also in the near term, upon approval of this Transition Plan and NYSERDA's supplemental Operating Plan, NYSERDA will begin the process of modifying existing agreements with its independent external evaluation contractors in order to commence the additional, enhanced evaluation work. These contract modifications will allow for enhanced evaluation of SBC3 programs, as well as concurrent evaluation of Fast Track programs administered by NYSERDA using consistent and established evaluation approaches. Should NYSERDA deem that modification of existing contracts is not the most cost-effective and efficient way in which to meet the EEPS enhanced evaluation requirements, as they are solidified and over the longer term, NYSERDA will initiate the process of competitively procuring additional evaluation contractor support.

Longer-Term Steps

Over the longer term, NYSERDA will maintain close communication and involvement with DPS Staff and the EAG in order to ensure that evaluation plans and approaches continue to conform to the protocols that

are developed. All parties involved will have to recognize that, as programs evolve, evaluation plans often need to be modified to remain relevant and appropriate. In order to accommodate this need for flexibility, and the lack of complete information upon which to base a full evaluation plan, NYSERDA intends to provide detailed evaluation plans to DPS Staff and the EAG that will supplement the brief evaluation plans put forth in the supplemental Operating Plan or the 90-day program filing. This Transition Plan, the initial evaluation plans included in the Operating Plan and 90-day program filing, and the supplemental detailed program evaluation plans are expected to provide complete coverage of NYSERDA's efforts to enhance its overall evaluation effort with the additional funding provided.