Market Transformation Evaluation: A Tale of Four Regions

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ABSTRACT

Public benefit programs focused on market transformation are now being implemented in several states and regions. In particular, four regions of the country — the Pacific Northwest, California, New England and New York – are implementing multiple programs and have begun evaluation activities. Broadly speaking, these evaluations are being conducted to evaluate progress towards program and public policy objectives, to identify program modifications that are needed, and to provide input into decisions on whether public benefit programs should be extended beyond currently scheduled sunset dates.

While evaluation efforts in these four regions share certain broad objectives, there is also substantial variation in processes, approaches, budgets and progress to date. For example, in the Northwest, New York and, to a lessor extent California, evaluations are being coordinated by a single regional or state entity, while in New England evaluations are being prepared by individual utilities or consortiums of utilities. New York has a very small evaluation budget, California a very large one, and the Northwest and New England have medium-sized budgets. The Northwest has been publishing market transformation evaluation reports for more than a year, California and New England are still largely working on baseline and initial market progress assessments, and New York finished its broad evaluation plan in May 1999 and has yet to begin significant data collection.

This paper summarizes the market transformation evaluation efforts of these four regions, contrasts how market transformation evaluation is faring across these regions, and distills early lessons that can benefit evaluators in these and other regions.

Introduction

Public benefit programs focused on market transformation are now being implemented in several states and regions. In particular, four regions of the country — the Pacific Northwest, California, New England and New York – are implementing multiple programs and have begun evaluation activities. Broadly speaking, these evaluations are being conducted to evaluate progress towards program and public policy objectives, to identify program modifications that are needed, and to provide input into decisions that will be made over the 1999-2003 period (varying by region) on whether public benefit programs should be extended beyond currently scheduled sunset dates.

While evaluation efforts in these four regions share certain broad objectives, there is also substantial variation in specific objectives, processes, approaches, budgets and progress to date. The next section of this paper summarizes and compares the market transformation evaluation efforts of these four regions. These summaries are based on a review of published evaluation plans and studies from each region as well as interviews with evaluation managers and other key players in each region. Following these regional summaries, commonalities and differences across the four regions are assessed and early lessons are distilled that may benefit evaluators in these and other regions.

Review of Regional Market Transformation Evaluation Efforts

Northwest

The Northwest has been pursuing market transformation as an overarching goal for longer than any other region in the country; programs with a conscious market transformation thrust date back to the mid-1980s. The market transformation concept came into national prominence following a 1992 paper written by several energy efficiency leaders based in the northwest (Eckman et al. 1992).

In late 1996, the Northwest Energy Efficiency Alliance (NW Alliance) was formed with a mission to "successfully demonstrate that cost-effective electricity efficiency can be achieved through market transformation." The NW Alliance is funded by the public and private utilities in the four-state region (Washington, Oregon, Idaho and Montana) and implements regional market transformation initiatives without regard to utility service area boundaries. Approximately half the budget comes from the Bonneville Power Administration (a federally-owned generation and transmission company serving the region) and the balance comes largely from investor-owned utilities in the region. In all but Montana, utility restructuring legislation has not yet been passed, and private utility participation in the NW Alliance comes from utility funds that are subject to traditional utility commission regulation. In Montana, restructuring legislation was enacted in 1997, which among other aspects established a 2.6% charge on distribution service for energy efficiency and other public-benefit programs. Under the legislation, public benefit funds are administered by distribution utilities and subject to utility commission regulation.

NW Alliance market transformation initiatives are proposed by public agencies and private companies for review and approval by the Alliance staff and Board, often through a competitive solicitation process. All initiatives are administered by outside organizations and firms; Alliance staff are responsible for program oversight and evaluation. As of June 1999, the Alliance Board has approved 32 market transformation initiatives covering technologies and practices from residential clothes washers and lighting to duct sealing to training and certifying commercial building operators in good operations and maintenance practices. Some Alliance initiatives have been in operation for more than two years; many have already gone through first- (or even second-, third-, or fourth-) round evaluations.

In the Northwest, attention to evaluation begins with the program proposal, which includes both an outline of an evaluation plan and a projected benefit-cost analysis. The proposal also summarizes available market research and baseline market information (the current status of the market, prior to the beginning of the initiative). The next step in the evaluation process is to prepare an RFP to select an evaluation contractor for each program. The RFP essentially includes a more detailed evaluation plan.

The heart of the Alliance evaluation process is *market progress reports*. These reports are status reports that focus on changes in the market compared to the baseline. The purposes of these reports are to monitor market progress, evaluate the success of the program in addressing program barriers, identify new barriers and opportunities, and to maintain a consistent record of the transformation process (Bronfman 1998). These reports look not only at the program itself but at the broader market the program is seeking to influence. The underlying concept for this broader market focus is that the program is entering a market that previously existed, that the program is only a sliver of the whole marketplace that it is trying to influence, and that focusing on the program alone – as in a traditional evaluation – will overstate the importance of the program, and will result in missing market developments going on outside of the program that may eventually be central to the success or failure of the program (Keating 1999).

Market progress reports are prepared by evaluation consultants, with direction and oversight provided by Alliance staff. The Alliance strives to prepare market progress reports approximately every

six months on major initiatives, and at least annually on all initiatives. This frequent schedule keeps stakeholders informed about initiative progress and allows Alliance staff and program administrators to quickly identify any mid-course corrections that may be needed. To the extent the baseline is not adequately defined in an initiative proposal, the initial evaluation study is designed to provide an adequate characterization of the baseline.

To date, the Alliance has completed market progress reports on 12 programs, including five programs for which two or more market progress reports have been prepared. A list of completed baseline and market progress reports is included in Table 1. Market progress reports have generally been well received by evaluation "consumers" including regulators and other policy-makers, utilities and program operators. For example, Alliance Executive Director Margie Gardner notes (1999) that regular market progress reports have been useful for establishing the credibility of the Alliance and its initiatives and for assuring regulators and policy-makers that programs are carefully monitored and tracked. Similarly, in our interviews for this paper, several evaluation coordinators in other regions referred to the Northwest market progress reports as a model for their own evaluation efforts.

Table 1. List of Baseline and Market Progress Reports Completed by NW Alliance.

Program	Report Completion Date(s)
Building operator certification	12/97, 5/98, fall 1998, 5/99
Premium efficiency motors program	1/98
Resource-efficient clothes washers (WashWise)	1/98, 8/98, 5/99
Local government cooperative agreement	4/98
Lighting Design Lab	4/98, 4/99
Super Good Cents manufactured housing	8/98, 2/99
Energy Star residential lighting fixtures	Fall 1998, 11/98
Energy Star high efficiency residential windows	12/98
Lightwise (CFLs)	12/98
Northwest residential ducts	1/99
EZ Sim: billing simulation for small comm'l facilities	3/99
Evaporator fan VFD initiative	4/99

Source: www.nwalliance.org

Market progress reports are used to record and develop an understanding of market changes since an initiative was started and are used as a source of suggestions for program refinements and even to cancel or redirect initiatives that are not faring well. For example, these reports have led to a refocusing and rethinking of the goals for the manufactured housing initiative and to a reorganization of the building operator certification program (Bronfman 1999). And more dramatically, the initial market progress report on the Alliance's Premium Efficiency Motors program found that the program had "little influence on motor sales, stocking or promotion," in part due to changes in the national motors market and in part due to program design (NW Alliance 1998). As a result, the Alliance Board decided to abandon the original program approach and shift its focus to recruiting large industrial customers to implement a motor inventory management plan and to create a protocol for repair/replace decisions (Harris 1999).

Alliance market progress reports emphasize tracking market indicators as well as reviewing market barriers and opportunities and how these can best be addressed. Up to now, the market progress reports have not examined energy savings achieved or cost-effectiveness, but the Alliance is planning to address

these issues in 1999. Tentatively, the plan is to prepare a separate annual report on all initiatives in which energy savings achieved are compiled and the cost-effectiveness analysis for each program reexamined in light of initiative experience and progress. In addition, in 1999, Alliance staff plan to devote more attention to examining non-energy impacts of initiatives (e.g., the cleaning performance of high-efficiency clothes washers or the impacts of variable speed drying fans on lumber quality). Another issue the Alliance is just starting to consider in its evaluations is the question of attribution – what causes the observed market effects – the Alliance initiative or some other factor(s)? (Bronfman 1999).

Presently, evaluation costs are averaging approximately 5% of the total Alliance budget, or just over $1 million annually.

Northeast

All of the Northeastern states have passed restructuring legislation or binding utility commission orders. In all but New York and Vermont, following restructuring, energy-efficiency programs are run by individual utilities, each generally focusing on their own service area (New York is discussed below; Vermont is about to issue an RFP to select a single statewide program administrator). In all but New York and Vermont, each utility has its own energy-efficiency budget and its own efficiency plan filed with state regulators. In the case of market transformation programs, increasingly utilities are working together to offer region-wide programs, although several utilities offer some market transformation programs on their own. The general model for region-wide efforts is joint planning through a working group of participating utilities, development of an RFP to select a program administrator (who is generally responsible for marketing, technical assistance and processing incentives) , and oversight of the program administrator by the workgroup, with decisions largely made on the basis of consensus. Program costs are divided among participating utilities and other: each utility pays direct costs, such as incentives, that can be easily tracked by service area; other costs such as marketing are allocated on the basis of number of customers or kWh sales to the targeted sector.[1] Most of the work groups are coordinated by Northeast Energy Efficiency Partnerships (NEEP), a non-profit organization formed to foster market transformation in the Northeast, with a Board made up of regional utilities, policy-makers, and other organizations interested in energy efficiency.

Currently, seven regional programs are operating, some for as much as a year; additional programs are in the planning stages. Current programs are: (1) Tumble Wash (clothes washers) and *Energy Star* Appliances; (2) Star Lights (residential lighting); (3) Premium Motors; (4) Cool Choice (commercial unitary HVAC); (5) Design Lights (commercial lighting design); (6) residential air conditioning (only in NJ); and (7) building codes (promotes code improvements).

For the residential programs, the working groups have conducted jointly-financed baseline and market research studies as part of the program planning process. Commercial and industrial working groups are also conducting baseline studies including a lighting design baseline and baselines for forthcoming programs addressing commercial new construction, commercial operations and maintenance practices, and industrial compressed air systems. For other commercial programs, working groups have chosen to rely on available data and studies, supplemented with focused research where needed (for example, the commercial HVAC working group commissioned a field study on air- conditioner operating

[1] As discussed below, New York is implementing its own programs but is coordinating its efforts with other programs in the region. Vermont is likely to participate directly in the regional initiatives although a formal decision to this effect has yet to be made.

hours since actual operating hours is a key parameter in cost-effectiveness calculations). The end result of the planning process is a program description, which includes a projected benefit-cost analysis and a list of market indicators for evaluation.

Market transformation evaluation in the Northeast is just beginning. Following the launch of each program, NEEP intends that more detailed evaluation plans will be developed by the cognizant working group. This process is just beginning. NEEP intends to follow the Northwest model and conduct periodic market progress reports on each program, ideally every six months or so. The first three market progress reports – covering clothes washers, motors, and residential lighting – are now being prepared. Other programs are just getting off the ground and working groups are not yet ready to focus on evaluation. In the case of the motor study, since detailed baseline data was not collected during program planning, the progress report is looking at both baseline and market progress. In the Northeast, evaluation, like program design, is cooperatively managed by each working group, with each utility issuing a separate purchase order to the evaluation contractor for its share of the evaluation cost. Due to diversity of views on most working groups, the process of developing an evaluation RFP, selecting a contractor, and implementing the evaluation can be a lengthy one; for example, for the first three programs, initial market progress reports will not be completed until approximately a year after program launch. Oversight by multiple utilities (up to nine for some reports), also makes for high overhead costs.

In addition to market progress reports, NEEP is about to initiate a process to revise program descriptions, budgets, and benefit-cost analyses every six months, based on program experience to date. The intent is to make the program descriptions "living documents" and to include in them sections on the current status of each initiative. The market progress reports will feed into these semi-annual revisions (Hewitt and Coakley 1999).

Since market transformation evaluation is just beginning in the Northeast, and since costs are distributed among many parties, it is difficult to estimate an annual evaluation budget. However, a rough estimate is that market transformation evaluation expenditures will total $400,000 in 1999, increasing to perhaps $600,000-800,000 per year over the next few years once a full-set of region-wide programs are fully operating (Hewitt 1999). In 1999, funding for the regional market transformation initiatives totaled approximately $20 million (Coakley 1999) and thus market transformation evaluation costs are roughly 2% of program costs.

California

California was one of the early leaders in promoting demand-side management (DSM) programs. California utilities have run DSM programs for approximately two decades. California has also been a leader in market transformation, with several California utilities spearheading early market transformation programs including the Super Efficient Refrigerator Program and the Consortium for Energy Efficiency's Clothes Washer and High-Efficiency Commercial Air Conditioner programs. In addition, California was one of the first states to pass restructuring legislation – in 1996. Under restructuring, funding for energy-efficiency programs was committed for four years, with program administration and structure to be decided by a newly established California Board for Energy Efficiency (CBEE) appointed by and reporting to the California Public Utility Commission (CPUC). As a result of a complex process, CBEE and CPUC have decided that utilities should administer energy efficiency programs for the initial four-year period (through 2001) (CPUC 1999).

In 1997, in several decisions, the CPUC made clear that market transformation was to be a major theme of the state's energy-efficiency efforts, stating: "our focus for energy efficiency programs has

changed from trying to influence utility decision-makers, as monopoly providers of generation services, to trying to transform the market so that individual customers and suppliers in the future, competitive generation market will be making rational energy choices" (CPUC 1997).

At the same time, the CPUC told utility evaluators to study the market effects of past utility DSM programs to determine the effects of these programs on markets and their contribution towards market transformation. These "market effect" studies were initiated to help utilities gain practical experience assessing market effects since it was expected that looking for market effects would be a primary objective of market transformation evaluation in the future. As a result of this encouragement, California utilities instituted 15 different market effects studies, some on a cross-utility basis, others on individual utility programs. The studies were coordinated by the Market Effects Subcommittee of the California Demand Side Advisory Committee (CADMAC), a long-standing committee of representatives from utilities, government and other interested parties; this committee served in the coordination role while CBEE was being established. The initial market effects studies proved to be expensive, costing more than $2 million in total.

A recent review of these studies concluded that "none of the DSM programs [studied] appear to be highly effective market transformation programs. Nonetheless, market effects were observed in several markets, and the authors at times were willing and able to declare that the effects were likely to be long lasting and sustained without DSM program interventions." In particular, these studies found that utility commercial lighting programs had caused major segments of the commercial lighting market to rely on T8 lamps and electronic ballasts (Peters et al. 1998). The limited market effects found in other markets were due in part to the fact that none of the programs studied were designed as market transformation programs.

By mid-1997, CBEE was formed and operating, and utilities responded to the CPUC's 1997 directives on market transformation by focusing some new programs on market transformation, and modifying some existing DSM programs to focus more on market transformation while, in many cases, continuing to serve some of their original objectives (energy savings, customer service, etc.). While all of these programs were designed and administered by the individual utilities, in several cases utilities coordinated on certain program design features in order to make it easier for customers and trade allies to understand and participate in these programs.

At the same time, CBEE initiated eight new evaluation-related studies to better characterize the California efficiency market and approaches for undertaking and evaluating programs, understand the effectiveness of previous program strategies, and understand the effectiveness of new program designs and potential modifications. These studies are being undertaken by consultants, managed by utility evaluation staff (for each study a lead manager was selected), under the overall direction of CBEE technical consultants. Information on these studies is summarized by O'Drain et al. (1998). As of June 1999, most of these studies have completed draft final reports and many final reports have also been completed. One of these studies, the *Efficiency Market Share Tracking Study*, which explored the need for and feasibility of establishing a statewide market share tracking system for specific energy-saving measures that were being targeted by market transformation efforts, merits special mention. This study recommends a budget of approximately $2 million per year to set up and implement a tracking system to monitor the market progress of twenty high-priority energy-saving technologies and practices, ten residential and ten non-residential (RER 1999).

In 1999, CBEE asserted more control over energy-efficiency programs and "advised" the utilities to offer 14 common programs statewide. For residential appliances and lighting, California utilities chose to follow the Northeast model and develop a single statewide program to be administered by a non-utility

contractor selected through an RFP. For the other major program areas, the utilities are generally running "coordinated" programs in which the utilities developed common program features (e.g., eligibility and incentive levels and marketing materials) but each utility is administering the program in its own service territory.

At the same time, CBEE began to move towards state-level evaluation of each of these 14 programs. Part of this effort is likely to include setting up a statewide tracking system as discussed above, albeit on a somewhat smaller scale (perhaps $1.2 million per year) than originally recommended. Another part of this effort is a series of *market analysis and evaluation* studies on specific programs or program areas (e.g., residential lighting and appliances; and residential and non-residential new construction programs). As of May 1999, 10 specific state-level studies have been approved by CBEE and RFPs have either been issued or will be issued shortly. These 10 studies include a mix of market characterization work, market tracking work, and work to evaluate specific new programs. Furthermore, in May 1999, CBEE identified ten long-term evaluation areas each with its own evaluation manager. These evaluation managers have responsibility to administer state-level studies in their area and to plan additional evaluation work needed in 1999 and subsequent years. Most of the evaluation managers work for California utilities, but two of the managers work for the California Energy Commission, a government agency. Also in 1999, in addition to state-level evaluation efforts, there will be individual utility evaluation studies on utility programs not among the 14 statewide programs.

If this history of market transformation evaluation in California sounds complicated, this is because the process has been very complicated. One participant in the process we interviewed termed the process "chaotic", noting that "we've been playing it by ear." However, evaluation has been chaotic in considerable part because the broader policy and administrative framework has been chaotic including continuing uncertainties about who will be administering programs and who will be providing staff support for CBEE.

While much progress has been made, some difficulties remain. For example, currently all of the state-level evaluation studies are approved by CBEE which can be a time consuming process since CBEE is a voluntary body that has many items on its agenda, with the result that evaluation projects sometimes get deferred to subsequent meetings. To address this problem, some have suggested that CBEE authorize CADMAC to coordinate future evaluation work or that CBEE form a Measurement and Evaluation Committee and delegate significant authority to this committee. Another problem has been market research. CBEE is trying to conduct statewide market research as part of the 10 studies now under development, but program implementers who need to start programs in a few months want the results soon, not in six months or more. CBEE has allocated some evaluation funds for utility-directed evaluation studies, but utilities had to request these funds in the fall and at the time utility evaluation staff did not anticipate these market research needs. To address this problem, some utilities are using program budgets to conduct preliminary market research, while they wait for the larger statewide studies to be implemented. In the future, hopefully each of the newly appointed evaluation managers can anticipate and address near-term market research needs.

The CBEE evaluation coordinator notes that the immediate objective is to set up an evaluation structure, and to gradually reduce CBEE oversight as utility evaluation administrators become more experienced in market transformation evaluation. This year, the emphasis is on baseline and scoping reports, as programs and program evaluations begin. The current plan is to gradually move towards "real time market tracking systems intended to serve both evaluation and program planning." Such tracking systems will include the efficiency market share tracking system discussed above as well as periodic reports somewhat analogous to the market progress reports used in other regions (Prahl 1999). In addition, California plans to continue preparing *market characterization* reports to identify opportunities for new

program designs and preliminary testing of these designs to determine market acceptance (O'Drain et al. 1998).

While this is the current plan, the future is uncertain as the CPUC has indicated that it will actively pursue the development of a non-utility administrative structure for the period following 2001, possibly along the lines of the NW Alliance or the New York State Energy Research and Development Authority (CPUC 1999). A switch to an independent administrator is sure to have significant implications for market transformation evaluation.

Overall, CBEE has an annual evaluation budget of $12 million, which is roughly an order of magnitude bigger than any of the other regions examined in this paper. This budget is only about 5% of California's annual energy efficiency budget, but California's energy-efficiency budget is much larger than most of the other regions (only New England in total has a comparable budget). With such a large budget, California can do some very sophisticated studies that other regions can only dream about, such as a $1 million per year market tracking system. In fact, the California work could prove useful to other regions, as California evaluations and market research can go into much more depth than other regions, hopefully providing new and transferable insights into understanding markets and how (and whether) they can be transformed.

New York

In New York, as part of restructuring, the New York Public Service Commisison (NYPSC) established a systems benefit charge to fund public purpose programs. Among the purposes of this fund are "programs that emphasize permanently transforming the market for energy-efficient products and services or reducing market barriers, rather than achieving immediate or customer-specific savings" (NYPSC 1998). As part of the same order, the NYPSC decided that market transformation and other public purpose programs will be largely administered by the New York State Energy Research and Development Authority (NYSERDA), a quasi-public agency that has worked on energy R&D for more than a decade, and has administered some energy-saving programs since it assumed these duties when the State Energy Office was abolished in 1995.

Following the NYPSC decision, NYSERDA instituted a planning process to select the appropriate targets for market transformation and other public benefit programs. In the market transformation area, seven major programs are planned as follows: (1) residential lighting and appliances; (2) commercial new construction; (3) premium-efficiency motors; (4) commercial lighting; (5) commercial HVAC; (6) Energy $mart Loan Fund (retrofits for residential and small C&I sectors); and (7) Innovative Opportunities (RFPs seeking other program proposals, outside of areas listed above). In should also be noted that NYSERDA is a member of NEEP, and while programs are generally implemented by different contractors in New York than in other Northeastern states, there is extensive coordination between the N.Y. and NEEP efforts.

Within each program area, NYSERDA has developed an RFP that explains the proposed basic outlines of the program, and solicits ideas and proposals for detailed program design and implementation. All of the programs will be implemented by outside contractors, with oversight by NYSERDA. As of June 1999, implementing contractors have been selected for five of the major programs and the final two RFPs are scheduled to be released in late-summer 1999.

New York's public benefit program has the shortest timeframe of any state – funding has been approved for only three years. Decisions on subsequent funding will be made by the NYPSC during the third year, so evaluation results are needed early in the third year, which is approximately 1-1 ½ years into program operations (since program planning and start-up is taking 6-12 months, depending on the

program). N.Y. is also under very tight budget constraints. The NYPSC was concerned that a dollar spent on administration or evaluation is a dollar lost for implementation, with the result that NYSERDA administrative expenses are limited to 5% of the total program budget and evaluation expenses are limited to $400,000 for the three-year effort. Thus, the N.Y. evaluation budget for three years is approximately 1% of California's evaluation budget over the same period!

Due to its very limited evaluation budget, N.Y. is having to use some creative approaches to evaluate its programs. For example, N.Y. is requiring program implementation contractors to collect baseline and market indicator information (e.g. stocking practices, sales and prices), and then subjecting these data to an independent audit (by an accounting firm) prior to use in evaluations. Since program implementers are already working with retailers, manufacturers and customers, collecting this additional information is often easier for them than if a separate contractor were hired. NYSERDA has also contracted with Oak Ridge National Laboratory (ORNL) to assist in developing and implementing its evaluation plan, but NYSERDA is only paying for half of ORNL's services – the other half of the budget ORNL is raising from national sources. The remainder of N.Y's evaluation budget will be spent on outside contractors for assistance in collecting and verifying data, such as survey work, data collection, interviewing customers, etc. Given the very tight budget, NYSERDA staff expect to draft the final evaluation report themselves (DeCotis 1999).

In establishing the systems benefit charge, the NYPSC established two broad goals: (1) promoting competitive markets for energy-efficiency services; and (2) providing direct benefits to electricity ratepayers and clear economic and environmental benefits to the people of New York (NYPSC 1998). Due to PSC interest in direct benefits to ratepayers and the environment, N.Y. is devoting more attention than the other regions addressed in this paper to traditional evaluation goals such as documenting energy, energy cost, and emissions savings. But like the other regions, N.Y. is also trying to track market indicators, although the amount of tracking N.Y. can do is likely to be less than other regions due to N.Y.'s very limited evaluation budget.

Trends and Lessons

This review of market transformation evaluation across the four regions reveals many similarities between regions as well as many differences. In general, all of the regions have used market indicators as the key approach for assessing the progress of market transformation initiatives. Most of the regions are moving towards initial baseline reports followed by periodic market progress reports as their primary evaluation vehicle (New York is the exception, as they lack the budget to follow this model). In terms of baseline reports, these are sometimes prepared as part of the program planning process and sometimes in parallel with initial implementation efforts, depending on the time and previous market research available. In all of the regions, traditional energy savings and cost-effectiveness evaluation approaches are being de-emphasized in the early stages of program evaluation, since it generally takes several years before market transformation initiatives progress to the point where these analyses are meaningful. To fill the need for some energy savings and cost-effectiveness determinations, many regions are periodically developing interim estimates which use long-term projections informed by initial field experience. These projections frequently include sensitivity analyses designed to ensure that *a priori* cost-effectiveness determinations are robust. In the long-term, all regions plan to evaluate *ex post* energy savings and cost-effectiveness although estimating the savings of market transformation programs is neither a well-developed nor a precise science and thus experimentation with different approaches is likely until best approaches can be identified.

In all of the regions, the emphasis is shifting away from the narrow evaluation of programs and towards the evaluation of markets including the role of programs in helping to shape those markets. In all regions, the distinction between market research and evaluation is blurring, with market research almost always included in baseline reports and usually included to some extent in market progress reports. With this shift towards a market focus, evaluators are increasingly emphasizing market and social science research skills (e.g. focus groups and interviews), with less emphasis on billing analysis and other "number crunching" activities. As the lines between market research and evaluation blur, the lines between program planning, program implementation and program evaluation are also blurring, with planners, implementers and evaluators increasingly working together to develop and implement the most effective programs possible. While such collaboration occurred to some extent with traditional DSM programs, collaboration is generally much more pronounced with market transformation programs. Likewise, with market transformation evaluation still in its infancy, the number of practitioners is relatively small at present, allowing extensive information-sharing between regions including conversations between evaluation managers, reviewing and citing each other's reports (facilitated by posting reports on web pages), sharing survey instruments (e.g., the Northeast clothes washer program evaluation started with a survey instrument originally developed in the Northwest), and using common contractors (several evaluation contractors have worked in multiple regions).

In terms of differences, regions differ in three primary respects: administration, budget, and progress to date. In the Northwest and New York, program administration and evaluation are the responsibility of a single organization – the NW Alliance and NYSERDA, respectively. In the Northeast, market transformation administration and evaluation are primarily through large working groups involving all participating utilities and agencies. These groups are highly democratic, but tend to move slowly and can be difficult to manage. California lies in-between these two extremes – broad program and evaluation directions are set by CBEE, but programs and evaluations are largely administered by individual utilities, sometimes working closely together (as with the residential appliance and lighting program and for statewide evaluation studies), sometimes in looser coordination (as with most of the other programs). These cooperative processes have often been cumbersome in the past, but some recent efforts have gone very well (for example, the process to select a contractor for the statewide residential appliance and lighting program was implemented very quickly). The lesson here is that centralized administration and evaluation generally proceeds more smoothly, but cooperative approaches can often work as well. The verdict is still out as to whether centralized versus cooperative implementation is more effective in moving markets; there are theoretical arguments on both sides of this fence, and not enough practical experience to make judgements.

Evaluation budgets vary between regions by two orders of magnitude, with N.Y.'s annual evaluation budget (approximately $130,000) only 1% of California's annual budget (approximately $12 million). The Northwest and Northeast have intermediate annual budgets of approximately $1 million and $ ½ million respectively. However, the California budget is larger than most of the other regions, resulting in evaluation expenses as a proportion of total budgets similar to the Northwest but higher than the other regions. These figures are summarized in Table 2. The Northwest appears to be doing very well with its budget, and Northeast budgets may gradually ramp up to Northwest-like levels. While New York is still very early in its evaluation process, and is going to impressive lengths to get the most out of its limited evaluation dollars, it appears that its evaluation efforts are underfunded. Some increases to the N.Y. evaluation budgets would allow increased market tracking and process evaluations, providing a foundation for useful program refinements. California is much larger than the most of the other regions in terms of program size, and has a generous evaluation budget. In fact, California may well be a laboratory for the

nation, where new approaches can be developed and detailed research conducted that benefits not only California but possibly other regions as well.

Table 2. Regional Evaluation Budgets in Perspective.

Region	Annual Budget (million $)	Population Served (million)	Spending Per Capita	Annual Evaluation Budget (million $)	Evaluation Budget as % of Total Budget
Northwest	$22 (MT portion only)	10.4	$2.10 for MT	$1+	5%
New England	~$20 for MT, $275 total	13.4	$1.50 for MT; $20.50 total	$0.4 for MT	2%
California	$218+ total	32.3	$6.70 total	$12	5.5%
New York	$54 total	18.1	$3.00 total	$0.13	0.2%

Sources: Kushler 1998; U.S. Census 1999; regional evaluation managers.

The Northwest is the farthest advanced of the different regions in market transformation implementation and evaluation, having evaluated 12 programs to date, many several times. These studies have proven useful for making program refinements and for maintaining support from regulators. The baseline study/market progress report paradigm originated in the Northwest and is now spreading to other regions. The Northeast and California have conducted substantial market research and are just finishing their first market transformation evaluation reports. New York has just completed its evaluation plan, and needs to move quickly in order to have initial results available in mid-2000. The Northwest meanwhile is breaking new ground, with increased attention to the issues of attribution and non-energy benefits. This work may well prove a model for other regions, just as the Northwest's initial evaluation efforts have been. In part, the Northwest's leading role is due to its early start, but in part it is also due to the fact that the NW Alliance has a multi-year mandate and goals and can focus on maximizing the long-term effectiveness of its overall portfolio without having to rejustify and replan every program on an annual basis (Gordon 1999).[2]

In terms of lessons learned, it is still early to draw definitive conclusions, but based on the experience thus far, a few tentative conclusions can be drawn:

1. Evaluating market transformation programs requires looking at markets and not just direct program impacts because a program affects only part of the market and understanding market developments outside of a program can be central to the success or failure of the program.
2. The baseline/market progress report paradigm appears to be working well in the Northwest (and in early implementations in the Northeast) and is worth emulating. To conduct such studies, market and social science research skills are needed.
3. Collaboration between program planners, implementers and evaluators can improve understanding of

[2] NYSERDA has a similar mandate but is just getting started. California is gradually moving in this direction.

the market and how to best influence the market, increasing chances of program success. In particular, it is useful to have evaluators involved in baseline market research.

4. Centralized administration of evaluation (e.g. the NW Alliance model) results in smoother and quicker evaluation studies, but cooperative management may also work, albeit on a somewhat slower schedule. To the extent cooperative management is used, an experienced and focused evaluation committee, as has been proposed in California, is probably an approach worth trying.

Still, many questions face market transformation evaluation. Approaches to dealing with attribution and non-energy benefits need to be developed and refined. Alternative tracking approaches need to be developed and compared. Questions about value per evaluation dollar need to be explored: who is closer to the ideal – New York, the NW Alliance, or California?. And the proper timing for introducing some traditional evaluation measures, such as savings achieved and actual as opposed to projected cost-effectiveness, needs to be determined. Over the two years since the last National Energy Program Evaluation Conference much progress has been made on market transformation evaluation, particularly in the Northwest. As evaluation processes are firmly established in other regions, increased progress is likely.

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