Dormitory Authority
State of New York

Gail H. Gordon, Chair
David D. Brown, IV, Executive Director

January 25, 2008

Honorable Jaclyn A. Brilling
Secretary
State of New York
Public Service Commission
Three Empire State Plaza, 19th Floor
Albany, New York 12223-1350

2008 JAN 29 AM 9:33

Re: CASE 07-M-0548 - Proceeding on Motion of the Commission Regarding an Energy Efficiency Portfolio Standard.
"Ruling Establishing Comment Schedule" (issued January 15, 2008)

Dear Secretary Brilling:

The above-referenced ruling of Judges Stein and Stegemoeller in the above captioned proceeding gave parties until January 25, 2008 to comment upon a Consensus Recommendation submitted by a number of parties to this proceeding. Under this Consensus Recommendation, responsibility for the development and implementation of objectives and programs consistent with the EPS goals would largely fall on the regulated utilities.

The Dormitory Authority of the State of New York ("DASNY") is not inclined to take a position on the various governance model structures that have been suggested for the administration of the NYPSC-funded portion of the 15 x 15 initiative. DASNY, however, does want to emphasize that, regardless of which entities are assigned this responsibility, the energy efficiency goals of this proceeding will be difficult to achieve unless all parties to the proceeding acknowledge at the outset that:

- Rate-payer funded subsidies alone cannot get the job done.
- We must maximize the use of non rate-payer funds and encourage the investment of private capital to fund energy efficiency initiatives.
- NYPSC's longer-term goal of relying on private sources of capital, rather than public and ratepayer subsidies, cannot be achieved unless the EPS provides the necessary tools to accomplish this objective.
- The investment of private capital is essential at this time to help finance the costs of necessary energy efficiency projects for residential and commercial sectors;

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- The only program being considered by the PSC that will unlock the potential of private capital investment is on-bill financing.

All of the parties to this proceeding acknowledge that one of the major barriers generally preventing full utilization of energy efficiency programs is the customers' inability to raise the up-front costs needed to implement the improvements. Since utility energy costs in New York State are already amongst the highest in the country, the NYPSC and regulated utilities share a common interest in avoiding general rate increases across their ratepayer bases to cover these upgrade costs. The use of private capital to fund energy upgrades therefore must be one of the key components of any program to achieve the EPS goals.

An 18-month study by GDS Associates on a New Hampshire pilot program which covered up-front costs for energy upgrades and received repayments via utility bills, found that it was effective in attracting customers who would not otherwise install energy efficiency upgrades at their own cost.[1] The study also showed that the New Hampshire program encouraged customers to take further energy efficient actions in pursuit of additional energy saving measures[2], which benefits the State. A copy of this GDS Associates study is attached hereto.

Attracting the investment of private capital to facilitate the achievement of the goals of the EPS is attainable. Utility customers will welcome the opportunity to complete energy efficiency improvements because the projects will pay for themselves; that is, the total savings achieved by the energy efficient projects will exceed the annual cost of borrowing the money. One caveat is that the customer must have confidence that the project is well conceived and will be properly executed. Therefore, the expertise of the Consensus Parties and other parties to this Proceeding will be invaluable to the development of any program that is able to meet these expectations on the part of customers.

Private investors should likewise be willing to invest their capital provided that they are educated as to the soundness of the investment and there is a mechanism to provide for the repayment of investments made in energy efficiency upgrades. On-bill financing is a simple effective means to achieve this objective.

Under this approach, the utility acts as a collection agent and the repayment amount appears as a separate item on customers' lowered monthly utility bills rather than an additional monthly bill. From the customer's perspective, these repayments might be considered an expense rather than a debt. Another benefit is the ability to lock the repayment obligation to the utility meter. If the property benefitting from the energy retrofit is sold, the purchaser inherits the obligation to make all remaining payments, thus increasing the incentive for participation in cases where the owner or tenant may be moving in the future. NYPA effectively uses this on-bill financing tool for energy retrofits it funds with its own capital.

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[1] *Process Evaluation of the Pilot "Pay As You Save" Energy Efficiency Program*, GDS Associates, Inc., page 73.
[2] Ibid.

Customers are very unlikely to default on any obligation that could result in the loss of their essential utility service. The possibility of disconnection has been demonstrated to dramatically decrease the number of non-collecting customers, as found by the Energy Efficiency Institute and the Pace Energy Project in the attached report[3]. In the New Hampshire pilot on-bill financing program for example, customer nonpayment was zero at one utility, and less than 0.1% at the other utility[4] (*i.e.*, only one user defaulted in the $4 million pilot). NYPA reports very few repayment problems with its financings and can extend repayment schedules when necessary for troubled customers. In fact, the threat of disconnection generally enables utility companies to achieve much higher repayment rates than those realized by credit card companies or even mortgages[5]. Thus on-bill financing creates a secure revenue stream that will assure capital providers of repayment, and avoids the possibility of significant defaults.

One possible objection to on-bill financing is the new incremental administrative costs that implementation would impose upon the billing utilities. DASNY believes that utilities should be compensated for these additional costs but further believes that the benefits achieved through the use of on-billing financing will greatly exceed these costs. One option is to impose a small charge to participating customers to recover these costs. The charge could be included in the repayment calculations to ensure that the customer's participation will still result in overall savings that meet the program criteria. Alternatively, utilities could assess a separate customer charge to recover these costs from participants. Other options might also exist.

In other jurisdictions, some have objected to on-bill financing because they assert that the shut-off of utility services is not a suitable mechanism to enforce what is essentially a debt owed to a private party. It is not clear whether this objection is premised upon the belief that the private investor should bear the risk of defaulting customers regardless of the reason for non-payment or a belief that there may circumstances where the shut-off of utilities is not appropriate because the reasons for non-payment are outside the customer's control. Regardless, inasmuch as in New York on-bill financing would be in furtherance of the attainment of the State's 15 by 15 goal, it cannot be validly argued in this State that solely private interests are being furthered.

To the extent that utility service shut-offs are a concern to some, DASNY believes that there are other options to cover the expected low number of defaults. An example of one such option is the creation a special fund established to absorb losses. It could be funded through a portion of the proposed EPS surcharge or a one-time risk-mitigation add-on for participants (as instituted in the New Hampshire pilot program). This fund would be used to mitigate only some of the default risk that would otherwise be assumed by the private investors. Investors would retain the risk of default beyond amounts available through this pool. Given the reality that customer defaults are likely to be the rare

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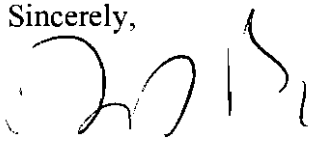
[3] *Potential for Development of PAYS in New York State*, Cillo, P. and Lachman, H. from Energy Efficiency Institute; Rosenblum, D. and Zalcman, F. from Pace Energy Project, August 2005 page 3.
[4] Ibid.
[5] Ibid.

exception if the financed retrofit projects are competently designed and properly installed, DASNY believes that a creditworthy structure can be achieved through on-bill financing without exposing the utilities or their general ratepayer base to an open-ended default risk.

On-bill financing is being adopted on trial bases in New Hampshire as well as Kansas and Hawaii.[6] Other programs are being explored in Wisconsin and Massachusetts.

New York should play its traditional role of being the nation's leader in no-nonsense financial engineering. It should be a leader and implement its own on-bill financing program to incentivize the investment of private capital in energy efficiency. Unlike other more conventional ways of raising capital, on-bill financing has the transformative power to help achieve the goals of 15x15, by unlocking the capital markets and providing the necessary up-front costs to customers without the headaches of conventional financing. Without the participation of these customers, the goals of 15x15 will be more difficult to attain and even then, only at great cost to the ratepayers.

Sincerely,



David D. Brown, IV
Executive Director

Attachment
cc: Hon. Eleanor Stein
Hon. Rudy Stegemoeller
Active Parties (via EPS List-Server)

[6] Pay As You Save Programs, October 2007.

PROCESS EVALUATION

OF THE

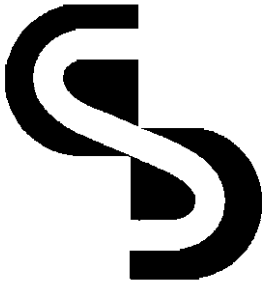
PILOT "PAY AS YOU SAVE" (PAYS) ENERGY EFFICIENCY PROGRAM

AS DELIVERED BY

The New Hampshire Electric Cooperative
and
Public Service Company of New Hampshire

DECEMBER, 2003

Prepared and Submitted by:



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I. EXECUTIVE SUMMARY

This report describes the methodologies employed and the results from an evaluation of the Pay-As-You-Save (PAYS) Pilot Energy Efficiency Program being delivered by the New Hampshire Electric Cooperative (NHEC) and Public Service Company of New Hampshire (PSNH). GDS Associates, Inc. was contracted to conduct this evaluation in an effort to assess the current pilots' effectiveness and to identify potential areas for program design improvements. Specifically, in accordance with NHEC and PSNH's RFP, "The overall objective of this evaluation is to determine if PAYS is operational from an effective delivery standpoint, and if it is an option that members/customers want." In cooperation with GDS' subcontractor for this project, RKM Research and Communications (collectively the "GDS Team"), key questions probed during this evaluation included[1]:

- Does participation in PAYS result in more members/customers accepting installation of more energy efficiency measures?
- Does PAYS overcome key market barriers?
    - Eliminating split incentives among developers/property owners/managers and building occupants
    - Reducing risk for customers uncertain of future occupancy
    - Capturing non-electric savings with electric utility programs
    - Additional barriers assessed include:
        - Lack of information - regarding specific energy efficiency technologies and their proper uses
        - High first costs associated with purchase and installation of energy efficiency measures
        - Uncertainty that the energy savings will be sufficient to pay for the investment in a reasonable amount of time
        - Difficulties for federal agencies, state and municipal building operators, non-profits, and other organizations to incur long-term debt obligations
- What are the losses associated with PAYS products and have the companies been forced to disconnect any members/customers because of PAYS bad debt?
- What comments, if any, have the companies received from PAYS participants?
- What improvements should be made to the PAYS infrastructure?

In total, four unique PAYS pilot efforts, targeting separate markets and/or measures, were assessed: three for NHEC and one for PSNH. Within this Executive Summary, highlights of NHEC and PSNH's ongoing PAYS pilots are presented, followed by a brief overview of the methodologies used in the GDS Team's evaluation. Findings and recommendations common to these pilot efforts are then presented. Detailed information on methodologies and detailed results (shown separately for NHEC and PSNH) are provided in Sections II and III of this report. Finally, Section IV summarizes findings for each of the NHEC and PSNH pilots, grouped by the key evaluation research areas noted above.

[1] Taken from Page 1 of the RFP. Note that one additional question included in the RFP – "Are there sources of capital for PAYS products?" was eliminated by the sponsoring utilities from the final work scope for this project. However, a question was still asked while doing depth interviews to gain some insights on this topic area.

A. Background and Pilot Program Overviews

In accordance with New Hampshire Public Utilities Commission Order No. 23,851, issued November 29, 2001, NHEC and PSNH were authorized to implement utility-specific PAYS pilots. These pilots were described in the utility companies' joint Pay-As-You-Save Energy Efficiency Products Pilot Program Design proposal submitted to the Commission on April 12, 2001, and modified by a Settlement Agreement[2] dated October 11, 2001.

PSNH began offering the PAYS option to customers, on a limited (pilot) basis, in January 2002. Late 2001 and early 2002 activities at PSNH included: billing system modifications, internal staff training, initial marketing, program promotions, and PAYS qualified offers with 16 PSNH municipal facility projects made before the end of the 1st Quarter of 2002. As of August 2003, over 38 PAYS projects had been completed with PSNH municipal customers.

Roll-out activities for NHEC's PAYS pilots were initiated in January, 2002 and full field implementation began in June 2002. As of August 2003, 12 NHEC residential and small commercial members had received weatherization or commercial lighting measures and 151 members had received portable lighting measures through NHEC's PAYS pilots.

The NHEC and PSNH pilots will run through December 31, 2003. Table 1.1 identifies the specific markets that have been approved and are currently being targeted through these pilots by each utility.

Table 1.1 – NHEC and PSNH PAYS Pilot Target Markets

Utility Company	Target Market for PAYS Pilot
New Hampshire Electric Cooperative[3]	Residential Members – Point of Purchase CFLs Residential Members – Weatherization (LP gas heated home and electric-heated homes) Commercial Members – Lighting Retrofits
Public Service Company of New Hampshire	Municipal Customers (including schools)

[2] The Settlement Agreement was between PSNH, NHEC, the NH Governor's Office of Energy and Community Services, the Office of Consumer Advocate, and NHPUC Staff. This Agreement endorsed key elements of the utilities' April 12, 2001 filing and provided clarification and information regarding: target markets for the pilots, PDC calculations, PAYS "portable" and "permanent" measures, disclosures, disconnections, and other implementation and reporting requirements.

[3] NHEC originally had proposed five pilot elements: residential lighting, residential weatherization - electric heat, residential weatherization - LP gas, commercial lighting, and electro-technologies (specifically promoting water heater heat pumps). However, insufficient interest was experienced from members in their Weatherization pilot targeting electrically-heated homes, due to preferences for rebates through the Company's CORE residential weatherization program. Focus of the pilot therefore shifted solely to non-electric-heat homes. The water heater heat-pump measure was also promoted through the PAYS pilot with little member interest/success. Therefore, this report focuses on three NHEC PAYS pilot elements: residential lighting, residential weatherization – LP gas, and commercial lighting.

B. Highlights of NHEC's and PSNH's PAYS Pilots

Following are some highlights of NHEC's and PSNH's PAYS pilot programs[4]:

PAYS Pilots Fund Electric and Non-electric Measures: The Pay-As-You-Save (PAYS) Program is currently being offered by NHEC and PSNH on a limited pilot basis. The pilots are being fielded to test key concepts and allow participants to purchase and install energy efficient products and equipment (or "measures"), with no up-front cost. These measures can include modifications to lighting, heating, cooling, other energy efficient electric and non-electric (LP gas) equipment and systems. Major measures promoted in the NHEC pilots include: lighting, weatherization, water saving devices and clock thermostats in both electric and non-electrically heated homes and businesses. PSNH's pilot also accepts a variety of measures (provided they pass the PAYS eligibility test) with the majority of their municipal customers using PAYS for lighting retrofits.

PAYS Delivery Charge: As noted, there is no up-front cost to participants. Instead, the utility pays all initial costs associated with the purchase and installation of approved measures. Then, a PAYS Delivery Charge (PDC) is calculated and added to the member's/customer's monthly electric bill until all costs are repaid.

Calculating the Term: PDC amounts itemized on the monthly electric bill are based on two thirds of the estimated savings that will come from the measures installed. This way, the monthly charge is designed to be less than the savings realized on each bill once the new measures are installed. If customers wish to pay off their PDC balances quicker (which in some cases they do), up to one hundred percent (100%) of the savings can be used to form the basis of their monthly PDC amount.

Payments Linked to Meter (not customer): The payments are always linked to the service location, not to the customer. So if a PAYS participant moves or sells, the new owner continues making the payments for the duration of the payment term, unless the previous owner/tenant chooses to pay off the obligation before selling or moving. Also, the payments include a small percentage risk mitigation adder (5% for PSNH, 7% for NHEC) to protect the utility from bad debt risks associated with some portion of participants' failure to pay.

To protect the utilities and their broader membership/customer base against other potential risks, three key requirements are included in the PAYS program for those that choose to participate:

- **Maintenance:** All measures must be maintained in place and in good working order during the entire repayment period – the utility will help arrange for repairs, but any associated costs will be added to the PAYS Delivery Charge, or will extend the payment term to ensure recovery of these additional charges.
- **Disconnection:** All payments must be made on time – PAYS charges are treated like other charges on the electric bill that are subject to service disconnection for non-payment.
- **Disclosure:** If the home or business is sold or rented, disclosure of the remaining monthly PAYS payment amounts must be made to the potential purchaser or tenant (since they will be taking over the remaining payment obligation), unless the current owner chooses to pay the balance off before the sale or rental.

Although critical elements of the individual PAYS pilots are generally consistent between the two utilities, there are noteworthy differences that are highlighted in Table 1.2 below:

[4] For more information, refer to the utilities' April 12, 2001 PAYS Pilot Program Design filing and numerous other PAYS concept descriptive materials identified in the document list included in Secondary Research part of this report.

Table 1.2 – Comparison of Critical PAYS Pilot Infrastructure/Delivery Elements[5]

Infrastructure Element	NHEC PAYS Pilots	PSNH PAYS Pilot
PAYS Billing and Collection	Through PAYS Delivery Charge as separate line on utility's electric bill	Through PDC as separate line on electric bill
Capital for PAYS Measures	Funds drawn for PAYS products taken from NHEC cash flow and through existing credit line with the Rural Utility Cooperative Finance Corporation (not SBC collections)	Provided through regular SBC collections as seed money for a revolving PAYS loan fund
PAYS Product Certification and Interactions with NH CORE Rebate Programs	Certification by NHEC using PAYS "two thirds of the savings over three quarters of the measure life criteria" - Lighting (CFL) pilot at 25 cents per bulb (6 bulb min/20 bulb max) - Weatherization (res. and com.) sets 5 yr max. payback period as starting cap, allows CORE Program rebates (up to the 50% max) until measure passes the PAYS test, will extend 5 year cap if still needed to pass	Certification by PSNH using PAYS "two-thirds of the savings over three-quarters of the measure life criteria" - Full amount of CORE Program rebates allowed (subject to available funding and customer need)
PDC Disclosure Requirement, Equipment Maintenance, and Service Disconnection for Non-Payment	Required as part of all NHEC PAYS pilots (residential lighting, residential weatherization, and commercial). Insufficient installed measure/billing history to assess impacts	Required as part of PSNH's pilot – although disclosure and service disconnection for non-payment is less of an issue when dealing with municipal customer targets
Marketing	Provided by NHEC included initial press releases, newsletter articles, and PAYS brochures, and other outreach: - Residential Lighting: through targeted postcard mailing - Residential Weatherization: through NHEC Energy Solutions field staff (mostly targeting non-electric heat customers, more likely to participate since electric heat customers usually choose CORE program rebate) - Commercial: through NHEC Energy Solutions field staff targeted outreach	Provided by PSNH on targeted basis, with major contributions from qualified vendors who bring potential projects to Company's attention for PAYS screening and administrative follow-through
PAYS Risk Mitigation Adder	When determining the monthly PDC, a one-time 7% adder is applied	When determining the monthly PDC, a 5% adder is applied

More information on the utility-specific pilot implementation steps is presented in Section III.

[5] Based on PSNH/NHEC PAYS Pilot Program Design filing, dated 4/12/01 – page 32, and modified to reflect noteworthy utility pilot-specific elements.

C. Overview of Methodology

This PAYS Pilot Program process evaluation project was done under an extremely tight time schedule, with the project initiation meeting being held on Friday, July 11, 2003 and all data collection performed and completed during the subsequent five weeks ending on Friday, August 15th. In order to achieve the objectives of this Process Evaluation, the GDS Team's assessment included secondary research of program related materials as well as staff and contractor in-depth interviews, telephone surveys with participants, non-participants, and rejecters, and focus groups with NHEC non-participants. Key elements of this evaluation are summarized in Table 1.3 below:

Table 1.3 – Description of Process Evaluation Research Elements

Evaluation Element	NHEC	PSNH
Secondary Research – to review relevant Pilot Program materials and identify key process flows	X	X
In-Depth Interviews – to verify process flows and gather information from utility staff and pilot implementation vendors regarding the RFP's targeted evaluation research questions	4 NHEC Staff 1 Participating Vendor (from an NHEC provided list of 1 participating vendor)	3 PSNH Staff 2 Participating Vendors (from list of 8 – capturing the two vendors that have done the most projects)
Telephone Surveys – with NHEC and PSNH PAYS Pilot participants, NHEC and PSNH "rejecters" (those that were introduced to the program but ultimately chose not to participate), and PSNH municipal pilot non-participants	Res. Weatherization: 2 participants (of 5 listed), 5 rejecters (of 28), Res. Light: 20 participants (of 151), 20 rejecters (of 15K+), Small C&I: 2 participants (7 listed), 5 rejecters (17 listed)	Municipalities: 10 participants (of 20 listed), 10 rejecters planned (9 actually completed, of 26), 20 Non-participants (of 45)
Focus Groups – based on insights gained from secondary research and depth interviews, focus groups were conducted to probe further into key evaluation research questions key and to get feedback/identify additional issues and recommendations	1 Residential Non–participant (14 attendees) 1 Small C&I Non-participant (14 attendees)	None Telephone surveys were deemed to be the most efficient way to solicit input from the Municipals groups

Secondary Research: The purpose of the secondary research was to develop a basis for understanding the goals and objectives associated with each of the utilities' pilot programs, and the scope of services and implementation approaches being used during actual field delivery. In total, over 20 documents were reviewed covering the following topic areas:

- General PAYS-Related Documents and Regulatory Filings/Orders;
- NHEC-Specific PAYS Pilot Program Related Documents and Materials;
- PSNH-Specific PAYS Pilot Program Related Documents and Materials; and
- Other Relevant Documents Reviewed for this PAYS Program Evaluation

A full listing of the actual documents reviewed is presented in Section II of this report.

Staff and Contractor In-Depth Interviews: The purpose for these in-depth interviews was to gather information from knowledgeable utility staff and PAYS pilot implementation vendors regarding key program design and implementation items. In addition, these interviews obtained their assessments on each of the critical research areas specified in the evaluation RFP. A total of ten in-depth interviews were conducted: seven with utility staff (4 NHEC and 3 PSNH), and three third-party pilot implementation vendors (1 NHEC and 2 PSNH). More information on the methodologies used to develop and implement the in-depth interviews is presented in Section II.

Telephone Surveys: The majority of information collected from NHEC and PSNH members/customers was through telephone surveys. As shown in Table 1.3 above, in total, ninety-three phone surveys were completed: NHEC Residential PAYS Weatherization Pilot - two participants (from a list of 5 total) and five rejecters (from a list of 28); NHEC's Residential Lighting pilot - twenty participants (from a list of 151) and twenty rejecters (from over 15,000); NHEC Small C&I Pilot - two participants/five rejecters (from lists of 7 and 17 members respectively). For PSNH's PAYS Pilot targeting municipal customers, ten participant surveys (from a list of 20), nine rejecter surveys (from a list of 26), and twenty non-participant telephone surveys (from a list of 45) were conducted. Statistical precision was not an objective for these phone surveys. However, given the small population sizes of participants and rejecters, survey results do represent a reasonable sample of respondents (ranging from 13% to over 40% of the available population) from each of these important member/customer groups so that anecdotal comparisons between and among key groups could be made.

The purpose for the telephone surveys varied depending on the audience being interviewed. However, a common list of researchable questions was maintained to ensure abilities to compare results across the various respondent groups. More information on the issues addressed in the various telephone surveys is presented in Section II along with discussion of population sample development and call dispositions. Drafts of the survey instruments were developed by GDS and shared with NHEC, PSNH and NHPUC staff for review, and any comments were incorporated into revised versions for testing with RKM Research and Communications (the GDS Team member responsible for implementation of the telephone surveys) prior to fielding.

Focus Groups: Two focus groups were held on August 7th, 2003 (at the Common Man Inn and Spa, located in Plymouth, NH) with non-participants of the NHEC PAYS pilots. The first session was held with NHEC commercial business members and the second was held with a group of NHEC residential members. In total, fourteen commercial and fourteen residential non-participants attended these focus groups. Drafts of the focus group scripts were developed collaboratively by GDS and RKM, and shared with NHEC, PSNH and the NHPUC for review and comment. After which, a moderator's guide was finalized and tested prior to delivery. The telephone survey instruments provided important guidance during development of these scripts to ensure consistency and comparability between the focus groups and similar data that was being collected through surveys conducted over the phone. RKM was responsible for facilitating the focus group sessions with GDS, NHEC and PSNH observers present to add clarification, and answer or ask additional questions where appropriate. Both sessions were video taped for use by the GDS Team during analysis and report development. More information on the methodologies used to prepare, recruit for and implement these focus groups is presented in Section II.

D. Summary of Key Findings and Recommendations

A number of findings and recommendations, common to NHEC and PSNH's PAYS pilots have been identified, and are summarized below (grouped by the main research areas being probed in this evaluation[6]). Section IV provides more detailed information on the NHEC and PSNH-specific pilot findings.

Before summarizing these findings, it is important to note the following PAYS pilot program implementation realities:

- PSNH's pilot intentionally targeted municipalities, a well chosen and recognized underserved market due to their significant difficulties and long lead times required to obtain approvals for financing of capital improvement projects;

- Lack of participation to-date of "renters" in the NHEC pilots (where Landlord Agreements would be needed) prevent collection of the necessary data to sufficiently address the role of PAYS in helping to address this potentially significant barrier to installing energy efficiency measures (although it is noted that the very low participation rates from rental situations may be an indication that this barrier is not being overcome by the PAYS pilots); and

- The short time frame between pilot rollout and this program evaluation, has resulted in little to no opportunities to track PAYS repayments (and associated maintenance, diseonnection, permanent vs. portable measures, and disclosure issues) over time. In fact, as of August, 2003 (18 months into the pilots), only one participant had triggered a need for early repayment.

More time and experience is needed with existing pilot participants, and a broader mix of participants (renters, property owners, and other carefully selected market sectors) may be required before more reliable insights and findings can be made on these important issues.

1. Does participation in PAYS result in more members/customers accepting installation of more energy efficiency measures?

In general, it can be concluded that the PAYS concept *is* resulting in getting those customers that participated to install more energy efficiency measures than they otherwise would have done.[7] It is important to note that many of these participants required a combination of CORE program rebate incentives (to get the recommended measure to pass the PAYS eligibility test and/or to reduce first cost for the participant) and the PAYS payment mechanism (to fund the member/customer's remaining out-of-pocket contribution) before agreeing to move ahead with the program.

[6] Concerning the question: "Are there sources of capital for PAYS products", although not included as a research element in the GDS Team's final work scope, based on responses from utility staff and program implementation depth interviews the following observation was made: "Municipalities can use lease arrangements to fund energy efficiency projects but PAYS offers more favorable terms and a more streamlined mechanism for getting work completed."

[7] In response to Participant telephone survey question: "How much energy efficient measures and equipment would participant have purchased if not for the Pilot program?" - over 91% of respondents (31 of the 34 participants interviewed) said that they would have installed none or only some of the measures without PAYS.

In the case of municipalities (PSNH's pilot), difficulties associated with getting local approvals for funding such projects nearly always eliminates the potential for energy efficiency improvements to be made in a timely manner, if they are to be made at all. During in-depth interviews with implementation vendors, it was clearly communicated that the PAYS option is an excellent additional marketing tool for them to have (*i.e.*, the PAYS mechanism helps to get municipal customers to make their decision to go ahead with an energy efficiency improvement project). Other tools, including municipal bonding or equipment leasing arrangements often take too much time or are too costly for these projects to go ahead.

For NHEC's electrically heated residential homes and commercial businesses, when given the option of participating in either the PAYS pilot or receiving a rebate through one of the company's CORE programs, in nearly every case, the rebate program was chosen. Therefore, in these cases it can be concluded that PAYS is not the sole contributor to increased measure installation. Instead, either a combination of rebate and PAYS is needed, or continued focus on targeting PAYS to non-electrically heated (*i.e.*, LP gas) homes and businesses (where an energy consumer would otherwise not have qualified for any financial support for energy efficiency improvements) appears appropriate. Similarly, for PSNH's municipal PAYS pilot, a majority of participants required both a CORE program rebate and PAYS to move their energy efficiency projects ahead.

For NHEC's lighting pilot, members were very pleased with the program and very few (just 3 of the 20 interviewees) stated that they would have purchased all or most of the new lighting without the PAYS program. In addition, the lighting retailer felt that the promotion was successful and helped to generate more business. However, NHEC staff noted that the administrative elements associated with marketing these portable lighting products, tracking the purchases, setting up the billing, communicating with participants, monitoring individual account statuses and the associated PAYS charges, have been cumbersome (due mainly to manual workarounds in the pilot vs. a more automated tracking approach). If NHEC were to continue offering lighting products (portable measures) through PAYS, in addition to more automation, it was suggested that more standardization of processes and redesign of marketing elements would be required.

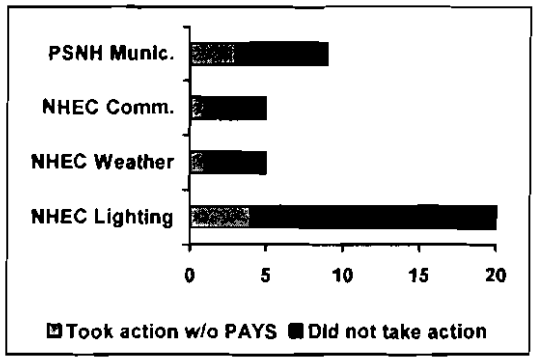
Non-participants (those that had not previously been aware of the PAYS concept) also showed a keen interest in the program and expressed that they definitely would consider participation in such a program. However, this non-participant group may also be willing to take advantage of other utility energy efficiency offerings, including one or more of the CORE (NH Saves) rebate or lighting catalogue programs.

Results from the rejecter interviews (those that were aware of the programs but chose not to participate) showed that, in total, 23% of all rejecters (9 out of 39 interviewees) purchased energy efficiency measures on their own, rather than through the PAYS program. Figure 1.1 provides a breakdown of these rejecter responses by utility pilot type (4 out of 20 NHEC residential lighting rejecters, 1 out of 5 NHEC residential weatherization rejecters, 1 out of 5 NHEC commercial rejecters, and 3 out of the 9 PSNH municipal rejecters).

Some of the reasons that were noted by these rejecters for not moving forward through PAYS included:

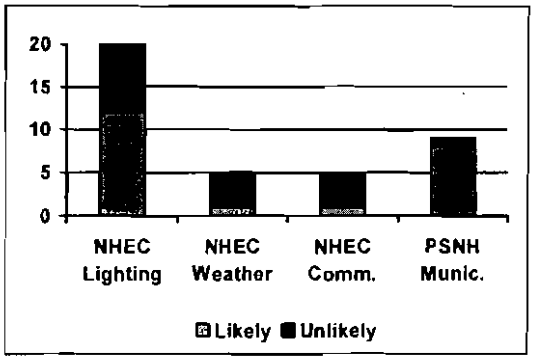
- "Already completed necessary work";
- "Not worth the effort-its easier to just pay for it"; and
- "Could do it on their own in more cost-effective way".

Figure 1.1 – Rejecters that purchased energy efficiency measures on their own (not PAYS)



It is important to note that 56% of all rejecters (22 of the 39 interviewees) stated that they definitely (15%) or probably (41%) would be likely to participate in a PAYS program if offered in the future. This percentage was highest for municipal customers, where 89% (8 out of 9) stated they definitely or probably would participate in the future. Figure 1.2 shows the breakdown of rejecter responses by utility pilot.

Figure 1.2 – Likelihood of rejecter participating in PAYS program in the future



Other items: It was noted through in-depth interviews that only the most cost-effective measures are passing the PAYS test (many of which require rebates from the CORE programs before they become eligible). As a result, although in many cases, it is being found that PAYS is resulting in the installation of more measures than would otherwise have occurred, such installations are limited to only those few high saving, quick payback measures that have been determined to be eligible (*i.e.*, lighting), as opposed to many other potential energy efficient measures with lower immediate dollar savings or longer term paybacks.

Recommendations:

- Inform vendors of PAYS usefulness as a marketing tool (but not the only tool) that can help to get customers to move ahead with purchase and installation of energy efficient measures;

- Continue offering the PAYS option, on a pilot basis, expanded to other carefully selected target markets to continue to test key pilot elements and to identify where the concept would be most beneficial;[8]

[8] Careful thought and pilot planning will be needed to properly identify appropriate markets and to design expanded pilots to specifically test important program elements – all of which is beyond the scope of this evaluation project. Potential markets and program elements for additional pilot testing might include: more municipalities (including

- Review the process for tracking all PAYS projects, especially portable (CFL) measures, with a focus on increasing automation – results may determine whether PAYS can be cost effective for CFLs and other small purchases;

- Offer the PAYS financing option in combination with CORE utility rebate-type programs to maximize likelihood of participation from otherwise non-willing consumers;

- Customers still need information to help identify potential options and to help guide decision-making. To the extent this information is being provided by lighting contractors only, in GDS' opinion, the options that are being presented will continue to be limited. Also, consistent with observations provided through utility staff and vendor in-depth interviews regarding questions associated with lost-opportunities, the motivation of specialty vendors is often to provide the most immediate value to customers with simple and quick sales/installations so they can move on to others as-soon-as possible. Utilities therefore, through the PAYS pilot, or other sources, should consider encouraging HVAC and other vendors to get involved and probe more deeply so that a more comprehensive mix of energy efficient measures are identified and recommended for installation.

2. Does PAYS overcome key market barriers?

Based on the responses to barrier questions included in all in-depth interviews, telephone surveys, and focus groups,[9] it can be concluded that PAYS is a significant contributor in overcoming the barriers of high first cost and difficulty for municipalities to incur long-term debt (PAYS contributions to overcoming these two barriers were ranked highest, where appropriate, in nearly all cases). Concerning other barriers (capturing non-electric savings and uncertainty about energy savings) PAYS was also ranked as having some influence. For barriers associated with lack of information on energy efficient technologies and use, PAYS was again identified as having some influence, but it is important to recognize that other CORE energy efficiency programs will also influence these same barriers.

To date, PAYS appears to have little to no influence on the problems of split incentives among property owners and building occupants and customer uncertainty of future occupancy. Finally, the PAYS requirements for maintenance, disclosure and disconnection do not currently appear to be a barrier to program participation. Table 1.3 provides these results in chart format.

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schools), continued non-electric heat weatherization, additional attempts at electrically-heated buildings, more landlord/tenant arrangements, non-lighting markets, markets where rebates and PAYS offers interact, portable measure markets (using increased pilot tracking automation), and specific markets to more directly test key maintenance, disclosure and relocation elements.

[9] See Section 3 – Tables 3.1 and 3.3 (In-Depth Interviews), Table 3.9 (Participant Phone Surveys), Table 3.37 (Rejecter Phone Surveys), Table 3.59 (Non-Participant Phone Surveys), and Tables 2 and 3 (separate Focus Groups Write-up).

Table 1.3 – PAYS impact on overcoming barriers

Barrier	Significant Influence	Some Influence	Little to No Influence
High first cost	X		
Long-term debt	X		
Non-electric savings		X	
Savings uncertainty		X	
Lack of information		X	
Split incentives			X
Future occupancy			X

Findings/Recommendations:

- Concerning *eliminating split incentives among developers/property owners/managers and building occupants*: A sufficient sample did not exist to properly assess PAYS contribution towards overcoming this barrier. More time and more participants involved in a landlord/tenant relationship will be needed before reliable recommendations can be made.

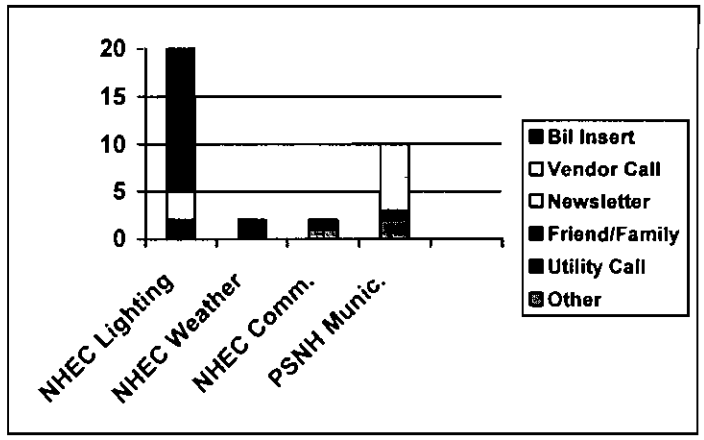
- *Reducing risk for customers uncertain of future occupancy*: Non-participants did identify this as an important barrier that would prevent them from purchasing and installing more costly energy efficient measures. The PAYS concept was ranked low by these non-participants as a means for overcoming this barrier. However, insufficient experience exists at this time to draw any valid conclusions regarding PAYS and its contributions toward overcoming this barrier. More time and more participants that are renters will be needed before reliable recommendations can be made.

- *Capturing non-electric savings with electric utility programs*: Opportunities do exist for measures being installed through the utilities' PAYS pilots to yield non-electric energy savings benefits. Specifically, NHEC's residential weatherization pilot has been fairly successful in providing energy savings to LP gas heated homes. More opportunities could be tapped however, if a more comprehensive mix of measures would pass the PAYS eligibility test, and if PAYS service providers (vendors, auditors, etc.) and interested customers broadened their knowledge, skills and focus beyond mainly lighting retrofit opportunities.

- *Lack of information barriers (regarding specific energy efficiency technologies and their proper uses)*: Audits, although not necessarily an element of PAYS, were noted to be an important source for obtaining this needed information. It is important to note that other CORE programs contain similar audit elements. As such we must be careful not to overemphasize PAYS contributions toward overcoming these information barriers. Accurate and understandable information was noted by most evaluation respondents, to be an extremely important element in promoting increased purchase and installation of energy efficient equipment, regardless of whether this information is provided through a PAYS audit, a CORE utility program vendor, a utility staff communication, web site, newsletter or press release, the State's Energy Office, the NHPUC, or other reliable sources. Telephone surveys with participants revealed that the majority of customers are receiving their information from either *utility bill inserts* (50% - 17 of the 34 respondents) or *vendor calls* (21% - 7 of the 34 respondents). Also, as noted by many of the in-depth interview and focus group respondents, utilities are typically viewed as credible sources for this type of

information. Figure 1.3 shows a breakdown of how participants first learned about PAYS, by utility pilot type.

Figure 1.3 – How participants first learn about the PAYS program



Recognizing each of these potential sources and continued tracking of the messages and where customers are receiving their information may help program administrators to more effectively design, coordinate and communicate these important messages in the future.

- *High first cost barrier (associated with purchase and installation of energy efficiency measures):* This was identified as the most significant barrier to installation of energy efficient measures, and PAYS was rated as a major contributor toward overcoming it (by all parties interviewed: participants, rejecters, and non-participants). In the case of participants, it is important to note that a majority required some level of CORE program rebate to meet PAYS eligibility requirements and reduce the monthly PAYS payment obligation before a commitment to going forward with the measure installation could be secured. This was not the case in the NHEC lighting pilot, where PAYS was the sole vehicle for purchasing CFLs (but at an already 40% discounted, $6 per bulb, price).

- *Uncertainty barrier (that the energy savings will be sufficient to pay for the investment in a reasonable amount of time)*: This was identified as a potentially important barrier, and PAYS was noted as being a good contributor toward overcoming it. However, it was noted by some that the dollar amount of savings is often too low to see within the normal fluctuations of their energy bills and therefore, even if the savings are real, they are not significant enough to justify going ahead with a project.

- *Financing difficulties barrier (for federal agencies, state and municipal building operators, non-profits, and other organizations to incur long-term debt obligations)*: For municipal and residential customers, this was identified as a major barrier, and PAYS provides major help in overcoming it. Commercial consumers rated this item somewhat less important.

- *Maintenance, Disclosure and Disconnection barriers*: Although currently these PAYS requirements do not appear to be a barrier to participation in the utilities' pilots, insufficient time has passed and too few participants are enrolled in the program to effectively assess how significant an issue this might be (*i.e.*, more time is needed before a sufficient number of these types of events can arise).

3. What are the losses associated with PAYS products and have the companies been forced to disconnect any members/customers because of PAYS bad debt?

As of August 2003, there had been no reported losses associated with PAYS bad debt due to *forced disconnections*. Three PAYS participants moved during the PAYS pilot period and took their portable measures with them to their new location within the same utility's service territory. One PAYS participant (with portable measures) moved and had their bill go to bad debt (but not due to forced disconnection).

Recommendations:

- More time is needed to properly assess the level of significance that this issue might have on the PAYS concept. Since many of the PAYS payments are being made over extended (multi year) periods, an evaluation based on activities that have occurred only over the past 18 months, many of which did not yield measure installations until recently, is an insufficient time frame to draw conclusions on this important potential issue.

4. What comments, if any, have the companies received from PAYS participants?

Overall, comments from PAYS participants have been very positive and satisfaction with quality of measures and services has been high. Following are a few examples of comments and suggestions:

- "All county buildings are efficient thanks to PAYS. As new technology comes along, I'll participate."
- "No issues, its great", "The program is fine the way it is."
- "I don't think it could be improved."
- "Program should offer more equipment and a wider variety of services."
- "Get brighter light bulbs and make sure they all work."
- "Allow smaller projects to qualify."
- "Promote the program and send out more auditors."

A sample of verbatim responses from PAYS program rejecters when asked if the program could be improved, were as follows:

- "Quicker response to inquiry."
- "More distributed information, specifically about payment options and examples of monthly savings."
- "Include oil and propane heating systems."
- "PSNH was easy to deal with when first looking into participating."
- "A graph or diagram displaying what you would save would be helpful."
- "Don't charge interest."
- "If they proved that their product would save money."
- "I would participate if they offered solar."

Recommendations:

- The PAYS concept seems to be viewed quite favorably, continuation of the PAYS offer, perhaps as an expanded, but still carefully marketed/limited, pilot seems prudent.
- Offer more PAYS-eligible products and services (not just lighting)
- Develop more informational material that describes PAYS program (with examples and testimonials).

5. What improvements should be made to the PAYS infrastructure?

A number of suggestions for improvements were made. A summary listing of the key improvements are as follows:

- "On a going forward basis, the program will need improved automation of PAYS billing, as much of the current system requires manual operations."
- "An ACCESS database (or something similar) would be needed if the program expands."
- "Administrative burden of small projects is similar to that of larger ones. One solution may be to offer prescriptive measures and streamline the PAYS process to work more like a loan with less paperwork."
- "The inability to make changes to the scope of work as the project progresses is an issue that should be addressed."
- "The PAYS incentive mechanism is small compensation for lost sales associated with operating a successful program."

Recommendations:

- If the PAYS program is expanded, the existing billing infrastructures and mechanisms for tracking of projects should be re-assessed so that administrative streamlining can occur.
- Review municipal program implementation with a focus on flexibility in order to allow more projects to join the program (changes to project scope after signing contract).

E. General PAYS Program Themes

In conclusion, the following common program themes seem to be evolving from the detailed results.

- The PAYS pilots, as currently being implemented by NHEC and PSNH are well received by the participating members/customers being targeted.

- Non-participants are expressing significant interest in the program and, in some cases, if such a program were offered to them, would likely install energy efficiency measures that they otherwise would not likely have pursued.

- Participating vendors appreciate the PAYS payment option and find it useful as an additional marketing tool to help get customers to move ahead with specific projects.

- Administrative burdens *from the vendor perspective* are quite limited, levels of paperwork are non-issues and satisfaction is high.

- Administrative burdens *from utility staff perspectives* are somewhat more of an issue, but manageable under the current limited pilot delivery basis. If the pilots were to be expanded to other markets or broader within existing markets, additional resources could be needed to ensure continued timely delivery and processing turnaround.

- The administrative efforts required for larger size projects (*i.e.*, over $1,000 in PAYS measure installations), and smaller projects (*i.e.*, a six pack of light bulbs at 25 cents /bulb on the customers electric bill, or a $500 audit-identified lighting retrofit or weatherization materials) are the same. For the smaller projects, these administrative efforts do not always

reap associated energy savings benefits to overcome the costs. The utilities should consider instituting some minimum project size requirement (*i.e.*, $1000+) prior to allowing participation in the PAYS program. In addition, or as an alternative to instituting a minimum project size, tracking systems should be automated. Such automations could help to:

- Eliminate current NHEC manual workarounds for tracking purchases of portable measures;
- Avoid the need for setting up billing for individual participants;
- Modify PSNH's current need for using their large power billing system for all PAYS participants; and
- Provide for improved monitoring of individual account statuses and the associated PAYS charges.

Mechanisms should also be put in place to help with participant communications, portable measures marketing, and payment processing, etc. These mechanisms would additionally streamline or eliminate certain burdensome utility administrative responsibilities.

- Interactions (complimentary and conflicting) between PAYS and CORE Rebate programs should be more carefully assessed leading to recommendations for more consistent approaches applied across all pilots.

- More time and experience in the field is needed to identify implications, if any, associated with maintenance, disconnection and disclosure (not enough participants and duration of payments yet to reach any conclusions).

- Continued delivery of the PAYS pilots, on a limited basis, more explicitly designed to test key PAYS conceptual elements would be useful before launching the program more broadly. Specific areas that need further time and testing include:
  - Identifying other target markets where the PAYS concept could be most effective;
  - Enrolling more vendors in the program with experience in measures beyond just lighting (motors, HVAC, process improvements, etc.);
  - Identifying a more comprehensive mix of measures that will pass the PAYS test;
  - Assessing interactions with rebate programs (identifying the complementary and conflicting issues related to PAYS interactions with rebate programs); and
  - Automating program tracking, communications, payment processing systems, and other critical PAYS delivery and administration elements.

II. METHODOLOGY

This section provides a description of the methodologies used by the GDS Team when conducting its evaluation of NHEC and PSNH's PAYS Pilot Programs. Since these methodologies were applied identically for each of the pilots, distinctions between NHEC and PSNH programs are referenced only where the methods were different.

A. Secondary Research

The purpose of the secondary research was to develop a thorough understanding of a number of critical items including: key PAYS concepts in general; NHEC and PSNH pilot-specific goals and objectives; unique implementation elements associated with the utilities' individual pilots (including marketing approaches and administrative procedures); activities and progress to date; and important reporting and regulatory filing requirements/results. Following is a list of documents that were reviewed:

General PAYS-Related Documents and Regulatory Filings/Orders:

- *Pay-As-You-Save Energy Efficiency Products, Restructuring Energy Efficiency*, December 1, 1999, P. Cillo and H. Lachman, Energy Efficiency Institute, Inc., prepared for the National Association of Regulatory Utility Commissioners Committee on Energy Resources & the Environment
- *Pay-As-You-Save Energy Efficiency Products Pilot Program Design*, April 12, 2001, Submitted by PSNH and NHEC to the NH Public Utilities Commission, prepared with the Energy Efficiency Institute
- *DE 01-080 NHEC and PSNH PAYS Energy Efficiency Program Order Implementing Pilot Program, Order No. 23,851*, dated November 29, 2001, including reference to a Settlement Agreement, dated October 11, 2001 between PSNH, NHEC, ECS, OCA and PUC Staff

NHEC-Specific PAYS Pilot Program Related Documents and Materials

- *NHEC PAYS Pilot Program Design and Operations Plan*, dated April 29, 2002 Draft, prepared by P. Cillo & H. Lachman, Energy Efficiency Institute, Inc.
- *PAYS Pilot Program for Members of the NH Electric Co-op, Program Training Manual, Launch Date: May 29, 2002*
- *PAYS Marketing Plan for 6/1/02 Launch*
- *Standard Terms and Conditions*
- NHEC PAYS field tool, various PAYS agreements, forms and Excel tracking spreadsheets
- NHEC PAYS Marketing Materials including: June 2002 newsletter article, PAYS color brochure, heat pump water heater, LP customer, and CFL "green card" marketing mailers, September 5, 2002 PAYS Kick-Off Event (Rand's Hardware) and associated press release, NHEC October 2002 and January 2003 member newsletter articles on PAYS
- Sample letters and PAYS energy audit forms
- *PAYS Quarterly Status Reports*, prepared by NHEC and PSNH and filed with the NHPUC for periods Quarter 2, 2003 through Quarter 1, 2003

PSNH-Specific PAYS Pilot Program Related Documents and Materials

- *Certification Standards, PAYS Energy Efficiency Products,* PSNH, Dated December 21, 2001, Standards for: Construction, Insulation, Windows, HVAC, Programmable Thermostats, Heat Pumps, Motors, Lighting

- Various PSNH Energy Efficiency Products Agreements including: *Payment Agreement, New Electric Customer Disclosure Form, Contractor Installation Agreement, Landlord Agreement, Customer Responsibilities, and Purchase Agreement,* prepared by the Energy Efficiency Institute in 2001, and incorporating *NHPUC Staff Comments Regarding PAYS Forms (with 8/15/01 responses from EEI noted)* and *Issues/Suggestions for PAYS Disclosure Forms Submitted by ECS and OCA August 3, 2001 (with 8/15/01 responses from EEI noted)*
- *PAYS Quarterly Status Reports*, prepared by PSNH and filed with the NH PUC for periods Quarter 1, 2003 through Quarter 1, 2003
- *PAYS Frequently Asked Questions*, prepared for PSNH, dated 10/25/02
- *Energy Efficiency Program Audit (PAYS)*, prepared by Northeast Utilities Internal Audit Department, dated January 21, 2003
- *PSNH- PAYS Final Audit Report*, prepared by NH PUC, dated June 16, 2003
- *PSNH PAYS Pilot Program Survey*, multiple completed survey forms from recent PSNH PAYS participants

Other Relevant Documents Reviewed for this PAYS Program Evaluation

- *Pilot PAYS Energy Efficiency Program Process Evaluation RFP*, issued by NHEC and PSNH, June 30, 2003
- NHEC and PSNH Web-site PAYS program information and descriptive text

B. Staff and Contractor In-Depth Interviews

One of the primary research components of the PAYS Pilot Process Evaluation involved conducting in-depth interviews with NHEC and PSNH program staff and with independent, third-party vendors/contractor implementation staff. A single interview guide was developed to obtain primary information on each of the utilities' PAYS Pilots (PSNH's Municipal Customer's Pilot, NHEC's Residential Weatherization and Lighting Pilots, and NHEC's Small Commercial Member's Pilot), to assess staff's level of knowledge of key program goals and objectives, to identify any additional program materials being used, and to obtain opinions, where appropriate and applicable, regarding the RFP's critical research areas.

The Interview Guide included a number of questions designed to gather insights and information in the following specific areas:

- Interviewee's roles and responsibilities associated with the PAYS pilot;
- Program goals and program planning;
- Pilot participant recruitment and marketing;
- Program implementation and operations;
- Special PAYS billing arrangements; program information, resources and staffing;
- Internal and external communications and administration;
- Program issues and innovations; and
- Overall program performance

In addition, the Interview Guide included the following questions of critical importance to this evaluation[10]:

[10] Although removed as a major research element in this evaluation, a question regarding potential sources of PAYS capital was also asked.

(1) Do more members/customers accept installation of more measures?

(2) Does PAYS overcome the key market barriers discussed in "PAYS Product Benefits"?

(3) What are the losses associated with PAYS products and have the companies been forced to disconnect any members/customers because of PAYS bad dept?

(4) What comments, if any, have the companies received from PAYS participants? and

(5) What improvements should be made to the PAYS infrastructure?

During this PAYS Pilot Program's process evaluation project initiation meeting, the concepts and content of what would be probed during GDS' in-depth interviews was discussed. Immediately following the kick-off meeting (later that same afternoon), the first interview was conducted. In total, GDS completed ten in-depth interviews. This included three with program staff members from PSNH, four staff members from NHEC, two program vendors from PSNH's municipal pilot program, and one program vendor from NHEC's residential lighting pilot program.

Utility program staff members were specifically chosen for these interviews based on their familiarity and responsibilities associated with their individual PAYS pilots (design, implementation and administration, municipal, residential and commercial/industrial). Selection of vendors for the in-depth interviews were based on lists provided by PSNH (where attempts were made to interview those vendors that had done the most projects through PAYS) and for NHEC (where only one vendor was involved in delivering their PAYS residential lighting pilot).

Interviews were intended to last from 45 minutes to an hour, however most took two hours or more. One reason for this longer than anticipated time per interview related to the respondents' interest and desire to offer more detailed information and feedback on PAYS' innovative pilot concepts. In many cases, these additional details have resulted in identification of issues and insights that otherwise would have been missed in a more rigidly timed interview. Probing questions, to follow-up on areas of particular knowledge of individual staff, are a normal part of these types of interviews. Therefore, there were sets of questions that were more fully explored with some individuals than others. The depth of the exploration with any particular interviewee was guided by the role that individual played in the program's design, and operation (*i.e.*, where they have significant experiences for meaningful responses). In order to refer similarly to issues across the various types of interviewees, one guide was developed.

C. Telephone Surveys

There were three separate survey instruments designed for the telephone interviews, one each for participants, non-participants, and rejecters. Non-participant interviews were only conducted for the PSNH PAYS pilot since the evaluation work plan called for NHEC non-participants to be assessed instead through focus groups. A brief description of each of the telephone survey instruments is presented below.

1. PAYS Program Participants

The purpose of the surveys with PAYS Pilot Program participants was to:

(1) Solicit ratings (on a scale of 1 to 5) from participants regarding:
   a. Overall impression of the utility's PAYS Pilot program;
   b. Overall quality of information provided through the pilot (utility representative's explanation of the PAYS Pilot, representative's follow-up to participant's questions, and printed information received);
   c. Overall quality of services provided through the pilot (including: utility program delivery staff, audit and installation or store vendors, and utility billing system arrangements);
   d. Overall ease of participation in the PAYS pilot;
   e. Level of paperwork required for participation in the pilot; and
   f. Overall performance of measures/equipment installed through the pilot (and identification of they types of measures/equipment installed – *i.e.*, lighting, insulation/weatherization, heating/cooling, other).

(2) Determine whether participating NHEC members and PSNH customers are accepting and installing more energy efficiency measures/equipment than they would have otherwise done without the PAYS pilot program;

(3) Assess how important specific market barriers are to PAYS pilot participants and to determine whether the pilot has helped respondents to overcome these barriers. The following barriers were assessed:
   a. Questions regarding the quality of energy efficiency products;
   b. Lack of information regarding the proper use/application of energy efficient equipment;
   c. High first cost for the energy efficient product;
   d. Uncertainty regarding energy savings that will result from installed measures;
   e. Measure costs exceed savings;
   f. Developers and landlords don't get the savings from their investment;
   g. Difficulties for federal agencies, state and municipal building operators, non, profits, and other organizations to incur long-term debt obligations; and
   h. Customer terminates occupancy at premises where measures were installed.

(4) Identify problems (if any) participants have experienced with the PAYS Pilot;

(5) Solicit suggestions for improving the PAYS Program;

(6) Determine if the PAYS program has met, exceeded, or fallen below participants expectations;

(7) Assess participant's likelihood of participating in a similar PAYS program if offered by the utility in the future; and

(8) Provide some demographic information, including:
   a. Residential, small business, municipality;
   b. Own or rent/lease property;
   c. If residential, primary or secondary home, style (single family, multi family, condo/townhouse), # of people living there, average household income;
   d. If small business, type of business, # of employees; and
   e. If municipality, size of town, # of town owned buildings.

A draft of the participant telephone survey instrument was developed by GDS and shared with PSNH, NHEC and the NHPUC for review and comment. Given the tight time schedule for this evaluation project, a two-business day turnaround was agreed to by all parties for review and feedback. Following incorporation of utility comments, GDS worked with RKM to finalize and test the participant phone survey instrument for fielding.

Consistent with the approved evaluation work plan, RKM conducted a total of thirty-four telephone surveys with program participants. This included twenty NHEC residential lighting participants, two NHEC residential weatherization participants, two NHEC small business participants and ten PSNH municipal program participants. Each interview was designed to last approximately 15 minutes. Lists of participants were provided directly to the GDS Team by PSNH and NHEC. These lists were then randomized for each pilot audience (where numbers were large enough to do so) prior to call attempts. Table 2.1 provides information on RKM's call dispositions for the participant telephone surveys. In total, RKM Communications made 121 attempts in order to complete 34 participant interviews. The breakdown of the major categories included in the final disposition of the participant surveys is as follows:

Table 2.1: Final Participant Survey Call Dispositions

Disposition	NHEC Lighting	NHEC Weather.	NHEC Comm.	PSNH Muni.	Total
Completed	20	2	2	10	34
Terminated	3	0	0	0	3
Appointment	5	0	0	0	5
Refusal	3	0	0	0	3
Unconfirmed	32	3	3	4	42
Bad Number	32	0	2	0	32
Total Calls	95	5	7	14	121

2. PAYS Program Rejecters

The purpose of the telephone surveys with PAYS Pilot Program rejecters (those that were aware of the program and/or had options presented, but chose not to participate) was to:

(1) Confirm interviewee's awareness and involvement in the PAYS pilot (ensure that we were speaking to the right person)
   a. Aware
   b. Level of involvement
      i. Received general program information;
      ii. Visited by utility representative (if applicable);
      iii. Visited by third party/non-utility contractor (or visited hardware store);
      iv. Received energy audit of home/business, obtained recommendations for specific energy efficient measures/services to be performed in your home/business and associated energy savings, costs and payment options (or other applicable information for point-of-purchase lighting options); and
      v. Received PAYS Customer responsibilities and purchase agreements (if applicable).

(2) Solicit ratings (on a scale of 1 to 5) from rejecters, to the extent they were aware and involved in the PAYS Pilot, regarding:
   a. Overall impression of the utility's PAYS Pilot program;
   b. Overall quality of information provided through the pilot (utility representative's explanation of the PAYS Pilot, representative's follow-up to participant's questions, and printed information received);
   c. Overall quality of services provided through the pilot (as far as they went with the program);
   d. Overall ease of participation in the PAYS pilot; and
   e. Level of paperwork required for participation in the pilot.

(3) Determine reasons for interviewee's decision not to participate in the PAYS program;

(4) Assess how important specific market barriers are to respondents regarding their willingness to install energy efficient equipment/measures, and determine to what extent a PAYS program would help to overcome these barriers. Barriers include:
   a. Questions regarding the quality of energy efficiency products;
   b. Lack of information regarding the proper use/application of energy efficient equipment;
   c. High first cost for the energy efficient product;
   d. Uncertainty regarding energy savings that will result from installed measures;
   e. Measure costs exceed savings;
   f. Developers and landlords don't get the savings from their investment;
   g. Difficulties for federal agencies, state and municipal building operators, non, profits, and other organizations to incur long-term debt obligations;
   h. Customer terminates occupancy at premises where measures were installed.

(5) Solicit suggestions for improving the PAYS Program;

(6) Determine whether respondents would accept and install more energy efficiency measures/equipment with PAYS than they might otherwise do without the PAYS pilot

program;

(7) Assess participant's likelihood of participating in a PAYS program if offered by the utility in the future; and

(8) Obtain general demographic data.

A draft of the "rejecter" telephone survey instrument was developed by GDS and shared with PSNH, NHEC and the NHPUC for review and comment. Following incorporation of utility comments, GDS worked with RKM to finalize and test the phone survey instrument for fielding. In total, RKM conducted phone surveys with 20 NHEC residential lighting rejecters, 5 NHEC residential weatherization rejecters, 5 NHEC small business rejecters, and 9 PSNH municipal rejecters (one less than the ten PSNH municipal rejecters specified in the GDS Team's final approved work plan). Each survey was designed to last approximately 15 minutes.

Lists of "rejecters" were provided directly to the GDS Team by PSNH and NHEC. These lists were randomized for each pilot audience (where numbers were large enough to do so) prior to call attempts. Table 2.2 provides information on RKM's call dispositions for the rejecter telephone surveys. As can be seen from this table, all names were exhausted and significant attempts were made to get the full ten completes (for PSNH's municipal rejecters) with no success. In total, RKM Communications made 279 attempts in order to complete 39 rejecter interviews. A breakdown of the major categories included in the final disposition of the rejecter surveys is as follows:

Table 2.2: Final Rejecter Survey Call Dispositions

Disposition	NHEC Lighting	NHEC Weather.	NHEC Comm.	PSNH Muni.	Total
Completed	20	5	5	9	39
Partial	7	0	0	11	18
Terminated	32	0	0	0	32
Appointment	14	0	1	1	16
Refusal	21	1	0	6	28
Unconfirmed	104	10	7	0	121
Bad Number	21	4	0	0	25
Total Calls	219	20	13	27	279

3. PAYS Program Non-Participants

This set of telephone surveys was limited to non-participating PSNH municipal customers[11]. The purpose of these non-participant telephone surveys was to:

(1) Assess interviewee's level of awareness regarding the PAYS pilot
   a. Aware
   b. If yes (aware), how did they become aware:
      i. Mail/newsletter/bill stuffer;

[11] Non-participants are defined as those that may or may not be aware of the program and have not made inquiries to receive information or to participate. Non-participant telephone interviews were only conducted with PSNH municipal customers, NHEC non-participants were assessed through focus groups.

ii. PSNH Web Site;
iii. Customer call-in to PSNH;
iv. Direct contract from PSNH Community Relations Manager/Account Executive/or Brad Parkhurst;
v. Vendor/Contractor marketing;
vi. Recommendations/word of mouth; or
vii. Other.

c. If no (not aware), how would they like to become aware
i. Mail/newsletter/bill stuffer;
ii. PSNH Web Site;
iii. Customer call-in to PSNH;
iv. Direct contract from PSNH Community Relations Manager/Account Executive/or Brad Parkhurst;
v. Vendor/Contractor marketing;
vi. Recommendations/word of mouth; or
vii. Other.

(2) Explain PAYS program option and assess respondent's potential level of interest;

(3) Assess how important specific market barriers are to respondents regarding their willingness to install energy efficient equipment/measures, and to determine what extent a PAYS program would help to overcome these barriers;

(4) Solicit suggestions for improving the PAYS Program to make it more attractive to them;

(5) Determine whether respondents would accept and install more energy efficiency measures/equipment with PAYS than they might otherwise do without the PAYS pilot program;

(6) Assess participant's likelihood of participating in a PAYS program if offered by the utility in the future; and

(7) Obtain general demographic information.

A draft of the non-participant telephone survey instrument was developed by GDS and shared with PSNH, NHEC and the NHPUC for review and comment. Following incorporation of utility comments, GDS worked with RKM to finalize and test the phone survey instrument for fielding. In total, RKM conducted 20 surveys with PSNH municipal non-participants. Each interview was designed to last approximately 15 minutes.

Lists of non-participants were provided directly to the GDS Team by PSNH and were randomized prior to call attempts. Table 2.3 provides information on RKM's call dispositions for these non-participant telephone surveys. In total, RKM Communications made 45 attempts in order to complete 20 non-participant interviews. A breakdown of the major categories included in the final disposition of the non-participant surveys is presented in Table 2.3.

Table 2.3: Final Non-Participant Survey Call Dispositions

Disposition	PSNH Municipal
Completed	20
Refusal	0
Appointment	5
Unconfirmed	18
Bad Number	2
Total Calls	45

D. Focus Groups

Two focus groups were held with non-participants of the NHEC PAYS Program on August 7, 2003 at the Common Man Inn and Spa, located in Plymouth, NH. One session was held with residential NHEC members and the second was held with NHEC small business members. Each session was facilitated by RKM Research and Communications and lasted one and one-half hours. GDS, NHEC, and PSNH observers were also present to add clarifications and to answer or ask additional questions where appropriate. Both sessions were video taped for use by the GDS Team during analysis and report development. There were a total of 14 residential attendees and 14 small business attendees.

The purpose of the focus groups was to understand consumer attitudes toward the PAYS pilot program among non-participants. Only NHEC PAYS pilot non-participants were recruited to attend the discussion groups. The following is a list of research objectives among non-participants:

- To identify the primary barriers to purchasing and installing energy efficient measures;
- To determine whether consumers believe that the PAYS program would eliminate these barriers;
- To explore consumer interest in the PAYS program, and to identify the Program's primary strengths (*i.e.*, what consumers like about the program) and weaknesses (*i.e.*, what consumers dislike about the program), and to solicit suggestions for improvements;
- To determine whether specific maintenance, disconnection and disclosure requirements would discourage participation; and
- To identify the level of interest in expanding, or extending, the PAYS program beyond the limited pilot program.

A draft moderator's guide for the NHEC's non-participant focus groups was developed collaboratively by GDS and RKM and shared with PSNH, NHEC, and the NHPUC for review and comment. Following incorporation of utility comments, a final guide was developed and tested prior to use.

It is important to emphasize that the focus group results among non-participants are proxies for the larger prospective populations of residential and commercial PAYS non-participants. Residential and commercial customers were randomly selected to participate in the focus groups based on NHEC-proved residential and small business member lists. All participants received an honorarium for participating in the discussion, with residential members receiving $50 and commercial members receiving $100.

1. Commercial Focus Group Participants

In order to ensure that a range of NHEC commercial customers were represented in the focus group discussion, all respondents were asked a series of screening questions prior to receiving an invitation to participate. The screening process ensured the following:

- The focus group participant is the person at the company who is most knowledgeable about the company's relationship with NHEC;
- The participant, as a representative of the company, has not participated in, and is not considering participating in, the NHEC's Pay-As-You-Save Energy Efficiency Program;
- Neither the participant, nor anyone in their household, works in public relations, advertising, market research, marketing or the utilities industry;
- The company has a total of at least 3 full- and part-time employees; and
- The discussion group represents a mix of participants in terms of company size, industry, building ownership and title.

In total, 14 participants attended the commercial discussion group, nine male and five female. Most of the commercial participants (9) own the building where their business is located, and 5 rent their current space. Titles of commercial participants include: Bookkeeper, General/Office Manager, Owner, President, Partner, Facilities Director, Financial Officer, Executive Director, and Vice President. A mix of seasonal and year-round businesses were represented from the following industries: professional services, personal services, retail, healthcare, education and manufacturing. The participants also represented businesses with as few as 3 full- and part-time employees and as many as 230 full- and part-time employees.

2. Residential Focus Group Participants

In order to ensure that a range of NHEC residential members were represented in the focus group discussion, all residential households were asked a series of screening questions prior to receiving an invitation to participate. Similar to the commercial focus group participants, the screening process ensured the following:

- The focus group participant is the person in the household who is most knowledgeable about the electric bill;
- The participant has not participated in, and is not considering participating in, NHEC's Pay-As-You-Save Energy Efficiency Program;

- Neither the participant, nor anyone in the household, works in public relations, advertising, market research, marketing or the utilities industry; and

- The discussion group represents a mix of males and females as well as a wide variety of other demographic characteristics, including age, education, income and housing ownership.

In addition, during the group meeting, participants completed a questionnaire that provided further information about their housing type, the number of years they have lived at their current residence and the primary type of fuel they use for home heating.

In total, 14 participants attended the residential discussion group, nine male and five female. The age of participants ranged from 33 to 84 years, and their educational backgrounds ranged from less than high school to graduate school. One-half of the residential focus participants (7) reported an annual income between $20,000 and $49,999. The remaining 7 participants reported annual incomes ranging from less than $20,000 to in excess of $100,000 per year. Most residential participants (13) are home-owners, while 1 was a renter. Participants reported that they have lived at their current place of residence for as few as two years and as many as 40 years. Most participants (10) use oil as their primary fuel for home heating. Five participants also mentioned that they use propane, and two mentioned wood. In addition, one respondent stated that they use electricity as their primary source of energy for home heating.

III. DETAILED RESULTS

In this section of the report, detailed results from the GDS Team's in-depth interviews, telephone surveys, and focus groups are presented. Where appropriate, individual results are shown separately for the NHEC and PSNH pilots, and are grouped into major research area categories that are identified at the beginning of each data results sub-section. These details form the basis for key findings and recommendations made elsewhere in this report for the utility-specific pilots as well as for the PAYS program concept overall (see Executive Summary and Section IV of this report for more information).

A. In-Depth Interviews – With Utility Staff and Pilot Program Vendors

This section includes a detailed assessment of the results of the in-depth interviews. All results are shown separately for the NHEC and PSNH PAYS pilots. Where appropriate, NHEC results are reported separately to show differences between their Residential Lighting, Residential Weatherization and Commercial pilots. PSNH results are solely for their municipal PAYS pilot.

In general, the in-depth interviews conducted during this evaluation proved to be very informative and offered an excellent opportunity to hear the details of program goals, operations, and issues/opportunities from multiple perspectives. The use of a single interview guide was conducive to allowing the various program staff and vendors to voice their opinions on each component of the program. Although they came at them from different angles, many of the issues were similar across all interviewees. Detailed results are broken down below into ten categories consistent with the survey question areas that were probed. These categories are:

1. Interviewee's Roles and Responsibilities;
2. Program Goals and Program Planning;
3. Participant Recruitment and Marketing;
4. Program Implementation and Operations;
5. Special PAYS Billing Arrangements;
6. Program Information, Resources, and Staffing;
7. Internal Communications and Administration;
8. Communications with Program Participants and Program Participant Service;
9. Program Issues and Innovations; and
10. Overall Program Performance.

1. NHEC Pilots

1.1 – NHEC Pilots: Interviewee's Roles and Responsibilities

Roles and backgrounds of the five NHEC interviewees were widely varied and included all aspects of the program including initial program design, conducting audits and measure installation, program management, and program reporting and tracking.

1.2 – NHEC Pilots: Program Goals and Program Planning

The interviewees' responses concerning the program goals and objectives were fairly consistent, indicating that there appears to be a common understanding of the goals. Concerning how these goals and objectives translate into what is required of the respondents, they generally felt that the requirements were somewhat reasonable but there was an overall feeling that the $1 million budget goal was high and difficult to achieve. One respondent attributed the difficulty in achieving the

one million dollar goal to the fact that customers are better served by taking a CORE program rebate rather than the PAYS financing option: "They go 99% of the time with the rebates."

There was an even mix of those that were involved in the planning process for the program and those that were not. Those that were involved had positive feelings about the process and looked forward to being involved in the next round of the PAYS Program. One of the respondents who was not involved in the initial planning process felt that it may have been a good idea to include an actual implementer in the initial planning. This respondent noted that some of the baseline assumptions (*i.e.*, R-11 in attics) used in the initial screening of measures was not based in reality. They went on to say that they hoped to be involved in the planning process for next year's program. A respondent involved in the planning of the residential lighting PAYS pilot felt that the initial planning was excellent and hoped to be involved in the planning process again next year.

1.3 – NHEC Pilots: Participant Recruitment and Marketing

Participant recruitment and marketing for the NHEC residential lighting pilot program was noted (by all applicable depth interview respondents) to be well targeted and very effective. The lighting vendor noted that the timing of the PAYS marketing and the new Energy Star® lighting instant rebate campaign worked well and that customers seemed to like the opportunity to choose their payment options. A good cross section of customers responded to the marketing: "... including little old ladies to yuppies, to landlords, to small business people..."

Concerning residential weatherization and small business customers, it was noted that the current marketing is probably not sufficient to meet the stated budget goals. For weatherization, "marketing efforts are sufficient (or would be) but it all comes back to major conflict between PAYS and the CORE residential retrofit program". For small business customers, marketing efforts were noted to be "not sufficient to reach potential members". "More marketing is needed." Dairy farms were noted to be a niche small business segment that is choosing the PAYS option over rebates because there is no money required up-front. For most other small business segments, it was noted that most of those contacted are more interested in rebates.

In-depth interview respondents noted that nearly all lighting participants have joined the program as a result of the coupons that were mailed out to targeted NHEC customers. For weatherization, customers are generally calling in and requesting PAYS although it was not noted which marketing mechanism may have prompted the calls.[12] For small businesses, it was estimated that 60% of the participants come from direct recruitment efforts and 40% are call-ins.

For lighting, it was estimated that 90% or more of the participants were property owners rather than renters. It was further noted that owners of rental properties tended to opt for the rebate rather than PAYS. Weatherization participation was noted to be 100% owner-occupied members. It was speculated that offering PAYS to either owners of rental properties or renters was a market barrier (hence, only owner-occupied members were participating). For small businesses, the ownership to renter split among participants was reported to be approximately 75% owners and 25% lease/rent.

Concerning whether the PAYS Program works with other groups or organizations in order to increase participation, only one respondent was aware of such activity. This respondent noted that for the small business program, outreach is made to chambers of commerce as well as the

[12] Going forward, utility call recipients should consider inquiring as to how the caller heard about the program so that marketing mechanisms can be tracked and assessed for effectiveness.

architectural and engineering community. This outreach was noted to be going well and it was helping somewhat on increasing program participation.

Interviewees were asked whether the PAYS Program interacts with other CORE programs and if so, is it complementary or in conflict. All respondents noted that the PAYS program interacts with other programs but the type of interaction varied by program. For the lighting program, the interaction was felt to be very complementary, as one respondent stated; "Having more choices is better for the consumer." For the residential weatherization program, it was felt that the CORE retrofit program clearly conflicts with the PAYS program because the rebate associated with the CORE program is very attractive for electrically heated homes and members are going with the rebate. In fact, it was noted that to avoid this conflict, marketing strategies had shifted away from offering PAYS to members with electrically heated homes (they'll take the rebate every time), to members who heat their homes with LP gas (and not eligible for weatherization rebates through the CORE programs).[13] For small businesses, PAYS and the CORE programs were also felt to conflict due to the availability of a CORE program rebate. However, the small business PAYS program was designed with flexibility to offer both a CORE rebate and the PAYS payment mechanism if the measure will not pass within a 5-year period without a rebate. In this case, rebate funds are added up to a 50% limit until the measure passes with a 5-year payment period. If at a 50% rebate the measure still fails to pass the PAYS test, the 5-year period can be extended.

1.4 – NHEC Pilots: Program Implementation and Operations

The step-by-step process for a participant from recruitment to completed project as described by the interviewees was consistent for the residential weatherization and small business programs but unique for the lighting program. A description of both implementation processes is included below, starting with the residential weatherization and small business program.

Residential Weatherization and Small Business Program Implementation Process

1. Lead is generated and appointments scheduled.

2. Audit completed (NHEC staff does audit, on-site 2 hours, typically within 2 to 4 weeks), information concerning program options (rebate vs. PAYS) handout and go over brochures.

3. Savings report generated (for the small business program, this may include contact with the ESCO if one was initially involved), including running PAYS calculator.

4. Proposal sent back to member (typically via mail for residential within one week and in person for small business). For residential, if member calls for PAYS audit and they have electric heat, they will be switched to CORE program instead of PAYS pilot.

5. No defined process for feedback, occasional follow-up to inquire if there are any questions.

6. Member contacts to express interest in moving ahead with recommendations.

[13] This resulted in a re-allocation of NHEC's limited PAYS marketing resources to focus on those members that might be more receptive to the PAYS concept, with hopes for increasing the number of members participating in the PAYS pilot - a laudable goal for the current pilot. However, continued outreach to electrically heated homes may still be appropriate going forward, especially if a combination of rebates and PAYS is offered to this important market sector.

7. NHEC sends PAYS contract. For small business, if rebate is involved with PAYS measure, then rebate form is sent and signed. If rebate amount form defines the proposed amount of rebate, pre-approval offer is signed (including need for pre installation inspection). A blank PAYS contract is also provided for the member's review – by then, member is pretty sure which choice they will be making (PAYS, PAYS/Rebate, or just rebate).

8. Work commences as soon as signed contract is received.

9. For small business, agreement is then worked out with contractor regarding payment arrangement (33% at beginning of projects, 33% mid-way, 33% at end). Typical measures include: lighting, motors, HVAC, refrigeration, thermostats, electric water-heaters. If small contract, set them up as a vendor in NHEC's accounting system, post inspection is done, post installation inspection form then signed stating satisfactory installation (also signed by members). Vendor/contractor bills NHEC and NHEC then pays vendor. When installation is completed, PAYS contract is signed with members. Although NHEC could and sometimes does install measures in small projects, it was noted that they prefer to contract with local vendors to develop good relationships.

   For residential, work is coordinated through a computer generated work order. NHEC has a crew in house that conducts the work (typical measures include: insulation, air sealing, duct sealing, thermostats). It was noted that a potential barrier is that the list of approved PAYS measures is not the same as the list of approved CORE program measures.

10. Paperwork is submitted to accounting and then goes into billing system. Loan is set up on NISC system and account that says it's on PAYS and whether it is a permanent measure or portable measure.

11. PAYS system is set up so that there is at least one month of savings on the bill before PAYS kicks in. It was noted that savings sometimes won't be seen due to seasonality – but noted that in office buildings, schools and dairy farms, savings can be seen more clearly.

12. Journal entries done at the end of every month to identify any PAYS activity (sets up receivable to reconcile in order to make sure all payments are coming in). It was noted that one account has failed and gone to collections and is being written off as bad debt.

13. Monthly reports are generated that show how many PAYS jobs have been done and amount of budget that has been expended.

<u>Lighting Program Implementation Proeess</u>

1. Green cards are mailed out (one per account) to both residential and commercial members (respondent believed that this was not just a residential program). Distributed on rolling basis, 2,000 to 4,000 at a time. Hit mailbox and in some cases pump has been primed by other media.

2. Members go to store and request to see the product.

3. Answer issues on the offer and the system ("too good to be true"). Others just buy but need to talk about bulb size.

4. Decision made by member – they initial the card (set up PAYS as a customer in their computer). Member signs invoice, initial card and lighting retailer bills NHEC monthly for what they accumulated.

5. NHEC pays retailer for bulbs sold.

6. Loan is set up on NISC system and account that says it's on PAYS and whether it is a permanent measure or portable measure.

The table below illustrates the responses of the four respondents as they described which market barriers were important and how each of the different PAYS programs affected these barriers. The "All" category shows the responses from a respondent that spoke generally about PAYS, with no specific reference to which PAYS program.

Table 3.1 - Market Barriers (1=major barrier, 2=somewhat barrier, 3=not a barrier)
- PAYS Assist with Barrier? (A=significantly, B=somewhat, C=no affect)

Market Barrier	Lighting	Weatherization	Small Business	All
Quality of EE products	2 – A	2 – B	3 – NA	2 – B
Lack of information	2 – A	3 – NA	3 – NA	2 – B
High first cost	1 – A	1 – A	1 – A	1 – A
Uncertainty about savings	2 – B	2 – C	2 – B	2 – B
Costs exceed savings	2 – B	2 – C	2 – B	NA
Split incentive	1 – C(landlord) 1 – A (tenant)	NA	2 – B	1 – B
Difficult for gov./non-profit to incur debt	NA	NA	1 – A	NA
Customer leaves after measures are installed	NA	NA	2 – B	2 – B

When asked about whether there were any measures that were either not offered in the program or not recommended due to obstacles, the residential and small business respondents had differing answers. For small businesses, it was stated that "everything flies as long as it passes" but that the obstacle is getting ESCO's and electricians to identify all options.[14] For residential weatherization, it was felt that the list of approved measures is too limiting and that anything that passes (heating system, windows, appliances, etc.) should be included in the program.

The quality of the work being performed in the PAYS program was consistently noted to be excellent and all respondents also stated that the quality control procedures were very comprehensive. An NHEC representative conducts a quality control site visit for each residential weatherization and small business project. It was also noted that for residential projects, it is typical for the NHEC representative to visit the project during project installation as well as upon completion to answer questions and check on satisfaction. "Member satisfaction is important."

[14] One respondent noted that there were "not a lot of multi-disciplined ESCos, focus is on lighting." Based on this anecdotal feedback, it appears that greater outreach to non-lighting vendors through the Core programs and PAYS might be required, with focus on: "what's in it for them" or "how it will help them to improve their business, get through their already overloaded typical day, make more money, or set themselves apart from their competition." If unable to reach program goals, information sessions or training (coordinated with local vocational schools or their trade associations) on how to tap this growing energy efficient measure installation business opportunity could help.

The major conflict between the PAYS program goals and its day-to-day operation was noted to be the competition that the program (except lighting) has with the CORE rebate programs.

1.5 – NHEC Pilots: Special PAYS Billing Arrangements

It was noted that NHEC utilized a loan function already in the existing billing system (LOANS) in order to accommodate the PAYS financing arrangement. The step-by-step process for modifying the billing system was described by one respondent as follows:

1. Identify necessary requirements based on criteria in filing: ability to track and pick up on arrearages, ability to track inactive accounts, conduct write-offs, mechanism for passing the unbilled PAYS charges onto next customer if a member moved, how to handle final payment, how to identify on member database that there was a PAYS measure installed, ability to stop payments and send members a statement every 6 months about what they still owe – some required manual processes developed around them.

2. Modification required to get PAYS permanent and portable measures to print on bill

3. Develop work-arounds.

4. Once the loan is set up and on the bill, the whole process is automatic. However, some manual reporting is necessary to keep track and billing final payments is a manual process.

Concerning the approach for describing the recovery of costs through monthly electric bills to the customer as part of the PAYS program, it was widely varied among the respondents depending on the program to which they were referring. For lighting, it was noted that there was very little explanation necessary, "all of the information was on the green card". However, many members did not initially understand that CFL's last ten times longer than regular bulbs.

For residential weatherization, the approach used was noted to be to offer a simple explanation, "Annual payment will be less than the annual savings, broken into 12 monthly payments." Details regarding the fact that if the weatherization primarily reduces heat loss, they will not be saving much in the summer was typically described and discussed if the member inquired about it. It was noted that generally people understood the concept.

For small business, the approach was noted to involve two items used when a member was visited with a proposal. The first was the field tool showing monthly obligation and also showing what their monthly savings will be compared to the payment to illustrate that they will get one-third of the savings until the obligation is paid. Reaction was noted to never be a disappointment, however there is thought given to whether they would rather go with the CORE program rebate. In some cases, the reaction is very favorable because they realize they can do this at the monthly payment obligations with no upfront cost.

One issue for small business was noted to be how the program charge (7%) is explained (referred to as a tariff charge). Some were noted to understand that it is just a cost of doing business, but others are more suspicious and view it as an interest charge. It was stated that the program charge is a one-time calculated amount that is spread across all monthly payments.

For small business projects, one respondent noted that after a project is complete, they check to make sure that the member is being billed. This is done by checking the NISC database and looking for the account flag (noted to be PY) that indicates that the account is on PAYS. The

respondent also noted that members are prequalified for PAYS by checking the NISC database for delinquent payments. If the database shows that the member has three or more delinquent payments, they will not qualify for PAYS.

There were no instances of members being disconnected due to PAYS-related bad debt of which the interviewees were aware.

Concerning PAYS participants that have moved, one respondent noted that there have been three accounts, all with portable PAYS measures, that have opted to take the measures with them and have the PAYS charges applied to their new account (they all moved within NHEC territory). There was also one member who had received portable measures that has gone to bad debt.

1.6 – NHEC Pilots: Program Information, Resources, and Staffing

One respondent noted that NHEC moved from individual spreadsheets to a central tracking system in order to more readily access all necessary information. It was noted that usable reports are still somewhat difficult to produce but that it was getting better.

It was consistently noted by the respondents that PAYS project-related data is entered into NHEC's tracking database by the representative responsible for the specific project. In the database, all contract data is recorded. Every file includes a field tool used for PAYS and if they declined PAYS offer, it is noted in red in the file. There were noted to be 131 small business members contacted. For small businesses, if rebates are involved in PAYS projects, it is recorded both as SCI (rebate program) and PAYS. There is another database that tracks SCI to track rebate dollars among other things. It was noted that by September, all data will be in tracked using the ENCOMPASS software. In the meantime, double records are being kept to ensure accuracy. Data included in the tracking system includes: reference number, member name, NHEC rep handling account, audit date, date proposal was mailed/presented, proposed energy and dollar savings per year, estimated project cost, date of signed contract, date work order sent to contractor (if there was a contractor), actual savings per year, actual completion date, dollar amount financed in PAYS.

NHEC field representatives were noted to be responsible for collecting and maintaining data. Data is entered as the process moves along in real time. There was noted to be a need to provide accurate monthly numbers for tracking purposes, partly because these numbers are collected and submitted to the board of directors at their monthly meetings.

For the residential lighting program, the retailer was noted as tracking the number of bulbs purchased through PAYS but flagging PAYS customers' data.

Regarding additional data, it was noted that it would be helpful to have a heading that says whether the project is a small business or residential project (currently all lumped in one database). A field to identify if offer was declined and reason for decline was also noted to be a good addition to the database.

The move from NHEC's EETracks software to the ENCOMPASS software (NHEC's new tracking database) was noted to have made data manipulation a little cumbersome but the feelings were positive toward the shift to ENCOMPASS. Information Technology (IT) problems were noted to be the biggest obstacle to data accessibility.

Staffing levels at NHEC were felt to be adequate for the PAYS Pilot but they would need to add staff if the program were to ramp up or if marketing were more aggressive. It was noted that in

order to reach the one million dollar budget goal, additional staff would be needed but that current staff is adequate for the current level of program demand.

Staffing levels, at the installation contractor level, were also noted to be adequate by all respondents. For residential, the installations were noted to be done by NHEC staff and that this staff was adequate to handle the current program demand. For small business, there were felt to be enough installation contractors available to meet program needs. For the lighting program, it was noted that there is a fair amount of training necessary for retail staff to answer questions about CFLs and PAYS and that not all trained staff are there at the right time to answer questions; "not perfect, but quite sufficient".

The mix and skills of NHEC program staff was noted to be appropriate by all respondents and they also felt that the current level of training was sufficient. It was noted that: "information sharing is ongoing."

1.7 – NHEC Pilots: Internal Communications and Administration

Both formal (paperwork proposals) and informal (via phone conversations) communications were noted to be common in the NHEC PAYS pilot programs. As stated by one respondent, the "Most powerful bit of information to give is to make sure the information is clear and understood before they [member] make a decision". Current communication channels were noted to be effective and verbal communications were said to be key, backed up with reference paperwork. Communications relating the lighting program were noted to be smooth and although some issues were encountered where members attempted to purchase through PAYS without their pre-printed "green cards", the retailer and NHEC worked through it without an issue.

Overall, day-to-day communications on the PAYS program was felt to be adequate. There was a general feeling that things were a little difficult at first with it being a new program but that it has gotten better over time. It was noted that the lighting pilot did not have a training element for retail staff developed until after the program was started. If the pilot were to ramp up, it was felt that a formal training program would be needed.

Communications concerning program policy was noted to be adequate but there was room for improvement. One area for improvement was noted to be better notification of budgets and funding changes within the program. It was also noted that good communications concerning policy changes will be important in the coming months as program changes are instituted.

For residential projects, there were no issues relating to procedures for dealing with contractors or vendors because all work is handled by NHEC in-house. For small businesses, procedures were noted to be adequate. A purchase order (PO) is set up for the contractor, with proof of insurance and federal tax ID being the necessary data for PO development. It was noted that the PO system could be more timely as the PO's sometimes get held up due to missing or misplaced information. As compared to non-PAYS projects, procedures were noted to be about the same except for one additional piece of paperwork (the PAYS contract). Feedback about the small business PAYS program was noted to be positive and that they felt it helped sell projects.

1.8 – NHEC Pilots: Communications with Program Participants and Participant Service

During the in-depth interview with NHEC's PAYS lighting pilot program vendor, it was noted that the program's participants have made very positive comments about the program.

For both the residential weatherization and small business programs, personal communication with participants (information sharing) was noted, by NHEC's program administrator respondents, to be extremely important in helping members to make sound and knowledgeable decisions. "Program success hinges on these types of communications." It was felt that direct personal communications from NHEC staff, especially on residential projects, was very beneficial for the program's success. All feedback that NHEC PAYS pilot administrative staff have received from their participating members was noted to be very positive: "If it wasn't for the PAYS program they would not have done these installations."

1.9 – NHEC Pilots: Program Issues and Innovations

One NHEC pilot administrative staff respondent noted that "the portable measures offer a higher risk for bad debt, are handled through mostly manual processes, and there is more room for problems." They further stated that "the portable measures require a lot more attention and that administratively the costs outweighed the benefits." However it was noted that the CFL promotion was very popular.

As for expanding the lighting program beyond the pilot, it was noted by the pilot implementation vendor that it may be difficult to manage on a larger scale, given the nature of the larger "big box" stores and the fact that they may not be equipped to offer the "hands-on" attention that was provided during the pilot.

The issue of the PAYS program's conflict with rebates was also noted by several respondents as a program issue. For small businesses, it was noted that combining the rebates and PAYS financing was very successful. It was also noted that since the pool of funding for rebates is limited, when it is exceeded, PAYS will be the only option.

For residential weatherization projects, the focus on non-electric savings was found to be an excellent service, but there was sensitivity noted as this may exclude electric customers. "This expands on the current CORE program delivery mechanism without having to use the same pot of dollars – this does not compete with the rebate dollars."

One respondent noted that PAYS could be financed through a revolving loan fund rather than through an NHEC line of credit.

1.10 – NHEC Pilots: Overall Program Performance

When asked to rate the PAYS program on how successful it was on achieving program goals on a scale of 1 to 10, with 10 being very successful, respondents offered a variety of ratings, as shown in the table below.

Table 3.2 – NHEC Program Performance

PAYS Pilot	Lighting	Weatherization	Small Business
Success on Achieving goals	9.6	2.5	6
Quality of program	9.6	8	8

The program's greatest strength was noted to be that it allowed members to install energy efficient measures with no upfront costs in a hassle free manner. The greatest weaknesses of the program were noted to be that it competes with the rebate programs, that it does not overcome the tenant/landlord market barrier, and/or it has not been operating for long enough to effectively test many of the key program tenets.

All respondents felt that more members accepted more measures as a result of the PAYS program, for all aspects of the program (lighting, weatherization, and small businesses). For lighting, it was felt that the program not only was successful in selling CFLs but that the program design provided a good educational component so that the CFLs were more likely to be used properly. For businesses, dairy farms projects were noted to be the best example of installations that would not have happened without the program.

For lighting, the delay in payment to the retailers for the CFLs sold through the program was noted to be an area that could be improved. It was noted that it took sixty to ninety days for the retailer to get paid in some cases. Another area of improvement was noted to be better marketing and getting the word out more effectively. It was noted that testimonials might be a good marketing tool.

For lighting, it was suggested that perhaps the lighting manufacturer could provide the CFLs on consignment for a program like PAYS and then be paid for the inventory that moves. A potential alternative funding source for PAYS products was noted to be energy efficient home improvement loans that are offered by lending institutions.

Final comments included; "It would probably do the program a whole lot of good the next time out to get input from the people that are in the field delivering the program. Not using all the resources that were available when they were developing the program initially was a mistake." It was also suggested that for a future lighting program, NHEC could allow the hardware cooperatives to negotiate their own purchasing arrangements for inventory of CFLs, which could give them more control over the program.

2. PSNH Municipal Pilot

2.1 – PSNH Pilot: Interviewee's Roles and Responsibilities

Roles and backgrounds of the five PSNH interviewees were widely varied and included all aspects of the program including initial program design, marketing, conducting audits and installations, program management, and program reporting and tracking.

2.2 – PSNH Pilot: Program Goals and Program Planning

The interviewees' responses concerning the PSNH program goals and objectives were fairly consistent, indicating that there appears to be a common understanding of the goals. One PSNH respondent stated; "...fundamental goal is to achieve energy savings in a way that overcomes natural barriers associated public institutions' inability to do things unless town council or school board directs them to." Concerning how these goals and objectives translate into what is required of the respondents, they generally felt that the requirements were reasonable. One vendor respondent felt that the requirement to provide bonds should be reconsidered because it is inappropriate for small jobs.[15]

[15] It is important to note that this respondent appears to have a misperception regarding bonding. Based on official pilot documents (*i.e.*, see sections 2.2, 2.3 and 14 of the PAYS Contractor Installation Agreement), bonding is identified as an option, not a requirement. If proof of bonding or a bank letter of credit is provided, contractor may receive fifty percent of the total project cost up front and the balance paid upon satisfactory completion of all work. As noted in Section 2.3 of the Contactor Installation Agreement, in lieu of bonding, contractor has the option of receiving 100% payment upon satisfactory completion of all work.

Two of the five respondents (both within PSNH) were involved in the planning process for the program. They both felt that the process worked well and that there were just enough parties involved (PSNH, NHEC, EEI, NH ECS and results from customer focus groups).

The one PSNH respondent who was not involved in the initial planning process felt that it may have been a good idea to include an actual implementer in the initial planning. He went on to say that he hoped to be involved in the planning process for next year's program. One of the vendor respondents also noted that they hoped to be involved in future planning. Both of these respondents noted that they are involved in future planning by participating in this interview.

2.3 – PSNH Pilot: Participant Recruitment and Marketing

Participant recruitment and marketing for the PSNH program was noted to be done primarily through PSNH staff and ESCOs/contractors. PSNH Community Relations Managers and Account Executives were charged with promoting the program to municipalities through their normal course of business. Once they received an interested customer, they would be referred to the PAYS Program administrator for further detail and scheduling. ESCOs and contractors marketed to their existing and past customers. One vendor respondent noted that PSNH sponsored an informational meeting where the vendor had a chance to present the details of the PAYS program. It was noted by this respondent that many municipalities have already completed lighting upgrades so the population for the pilot is somewhat limited.[16]

All participants were noted, by a PSNH in-depth interview respondent, to have come into the program as a result of recruitment, none were from call-ins. Also, due to the target of municipalities in this pilot, 100% of the participants owned the property where measures were to be installed. The meeting held last June with school boards, town councils, and municipal organizations was also noted by this respondent to have been quite effective.

Interviewees were asked whether the PAYS Program interacts with other CORE programs and if so, is it complementary or in conflict. All in-depth interview respondents noted that the PAYS program interacts with other programs and most felt that it did so in a complementary way. It was noted that the rebates that are offered through the CORE programs (35% for large C&I and up to 50% for small C&I) were key to allowing the PAYS projects to pass. However, one vendor respondent noted that since they were not a vendor in PSNH's 50% rebate program, they could not offer that option to their PAYS project customers and that was an issue. This respondent could offer the 35% rebate program, where applicable, and felt that this was a benefit.

2.4 – PSNH Pilot: Program Implementation and Operations

The step-by-step process for a participant from recruitment to completed project as described by the interviewees was relatively consistent and is summarized below.

Municipal PAYS Program Implementation Process

1. Customer is introduced to program by PSNH Account Executive (AE) or Community Relations Manager (CRM).
2. Energy audit completed (either hire someone to come in or PSNH has four qualified companies that do audits for small commercial) – audit is funded through the small C&I program or any of the vendors will do the audits for free in hopes that they get the job

[16] Based on the number of approved PAYS projects, this does not appear to be an issue (still are many opportunities).

(vendors typically have one week to ten days to complete audit and have one week turnaround to get results to customer which identifies savings opportunities).

3. Customer provides PSNH with cost for the job and energy savings that is estimated (AE or CRM might be called to take a look at the report and make another visit, if necessary - and then the info goes to PAYS program administrator).
4. PAYS administrator verifies savings estimates (one day from time of receipt).
5. PAYS administrator runs program through PAYS spreadsheet to see if it passes or fails (not always done the same time as verification).
6. AE or CRM communicates information back to municipal customers (passes, would you like to move forward) – average is two days, longest about a week – if additional information is required, it will take more time.
7. If project passes, then PAYS administrator produces a purchase agreement (contract) with payment schedule and terms and AE/CRM brings that back to the customer and makes presentation explaining what can be done and the terms (usually same time as evaluation and AE/CRM has copy of agreement in hand when they go back out to customer).
8. With approval from municipality, and meetings if necessary, agreement is signed making PSNH their agent for installation arrangement (this step can take time).
9. PSNH executes contract with vendor and develops purchase order for provision to vendor for billing purposes (four days to turn around contract, PO streamlined to two weeks from start date of contract agreement development).
10. Work then begins with vendor and customer (contractor must initial that he won't start work until PO has been issued) – time to complete work varies, two days for gym, whole school usually completed during vacation, two + weeks).
11. Upon completion (notified by vendor, usually two days before completion), PSNH's Energy Efficiency team representative visits site to ensure all was installed as reported (noted that because project was approved for specific cost, change orders during construction can cause significant problems – would be good to have more flexibility in PSNH's purchasing system for this).
12. Invoice is then awaiting approval and is approved typically in one day, sometimes same day (contractors note that they typically get paid in thirty to sixty days).
13. After approximately 1.5 months, a memo is sent PSNH Energy Efficiency Team Lead and they send information to Billing Department requesting that they commence billing the customer for work and payments begin (PAYS Delivery Charges - PDC).
14. Ongoing tracking of PAYS customers to track contacts, status, etc. – this information is used for tracking and monthly and quarterly reporting, expense tracking, payments to vendors, payments from customers. PAYS administrator gets monthly information report on payments from customers and updates spreadsheet. Contractor noted that because there is a continued focus on the project savings due to the ongoing billing, this reduces the chances of someone gaming the savings.
15. If project did not pass PAYS test, customer is informed that it doesn't pass, then on to next project. Sometimes the lead goes to Small CI program and the 50/50 offer might be made. (either customer buy-down or through rebate).

Project duration was noted to vary widely and was driven primarily by the decision-making process of the municipality. As one respondent stated; "one project took 354 days, another took four working days from initiation to installation – three months would be a reasonable estimate for average project duration".

Concerning forms used in the PAYS program, it was noted that a two-page addendum was added to the original customer contract in order to allow municipalities to enter into agreement – "original

agreement was troublesome". It was noted by the respondents that there was no redundant paperwork involved in the program and that only what is necessary is required. One PSNH in-depth interview respondent felt that the program required too much processing in circumstances where the project scope changes after approval and documents are signed. This respondent also felt that outside of the municipal arena, the paperwork could be too much (especially when change orders are necessary).

The range of measures installed in the PAYS program was noted to be limited to primarily lighting installations. This was noted to be because the ESCOs and contractors involved in the program are responsible for the scope of the PAYS projects and their expertise is typically lighting-focused. It was also noted that the more stringent screening for PAYS projects may limit the scope of projects.

When asked whether the PAYS program addresses lost opportunities, the responses were varied but there was general agreement that the projects to-date have focused on lighting. It was noted by two PSNH respondents that working with municipalities is a lost opportunity. One of these respondents noted that: "Energy service companies are tending to focus on the easiest and most cost effective projects and are not putting in the time or do not have the expertise needed to do more comprehensive engineering assessments." The same respondent went on to note that "PAYS by definition, is a guaranteed savings program, there is a tendency on the part of engineers and specifiers to want to stay away from the harder to quantify usage assumptions." "PSNH could put together vendors for a uniform set of audits that would allow for far more comprehensive results and that would be exciting."

Table 3.3 illustrates the responses of the five respondents that described which market barriers were important and how each of the different PAYS programs affected those barriers.

Table 3.3 - Market Barriers (1=major barrier, 2=somewhat barrier, 3=not a barrier)
- PAYS Assist with Barrier? (A=significantly, B=somewhat, C=no affect)

Market Barrier	PSNH-1	PSNH-2	PSNH-3	Vendor-1	Vendor-2
Quality of EE products	3 – NA	3 – NA	3 – NA	2 – C	3 – NA
Lack of information	2 – B	3 – NA	3 – NA	3 – NA	3 – NA
High first cost	1 – A	1 – A	1 – A	1 – A	1 – A
Uncertainty about savings	3 – NA	2 – B	3 – NA	1 – A	2 – A
Costs exceed savings	3 – NA	2 – B	3 – NA	1 – C	2 – A
Split incentive	NA	NA	3 – NA	2 – B	1 – C
Hard for gov./non-profit to incur debt	1 – A	1 – A	1 – A	2 – B	2 – A
Customer leaves after measures are installed	3 – NA	2 – C	3 – NA	1 – C	NA

When asked about whether there were any measures that were either not offered in the program or not recommended due to obstacles, one PSNH respondent noted that there were "Not a lot of multi-disciplined ESCOs, focus is on lighting. Non-lighting measures have lots of opportunities (HVAC, chillers, non electricity related measures, VFDs, and more advanced kinds of things)." Another respondent (a vendor) felt that air conditioning measures would be beneficial.

The quality of the work being performed in the PAYS program was consistently noted to be excellent and all respondents also stated that the quality control procedures were very comprehensive.

One PSNH respondent felt that the program requirement concerning two-thirds of the savings paying back the costs in three-quarters of the measure life limits the number of energy efficiency projects eligible for the PAYS program. Another potential conflict in the program (which could also be viewed as a benefit) was noted by a number of the PSNH and vendor respondents to be the use of rebates within PAYS.

2.5 – PSNH Pilot: Special PAYS Billing Arrangements

It was noted that PSNH's large power billing system for larger customers was already equipped with the necessary fields needed to add in the PAYS charge. Revenue accounts and reports for the new charges were noted as needing to be changed throughout the system to accommodate these new charges along with the bill print programs and screens to display these new charges. "If the general CIS system that is used for residential and commercial customers was modified, it could have taken two full time staff, six months to complete."

The approach for describing the recovery of costs through monthly electric bills to the customer as part of the PAYS program, was noted to be straightforward and most customers understood and were impressed. The approach was noted to offer a simple explanation through the use of a table showing what their monthly payment was and what their monthly payment would be without the energy efficiency measures – clearly showing that it would be two-thirds of the savings. One PSNH in-depth interview respondent noted:

> "They see what their savings is each month and what their payments will be, and that it is not costing them anything - they get some savings in their bill from the start. Reaction is very pleased - sounds too good to be true."

This respondent also noted that:

> "As determined through an NHPUC survey, around one third elect to apply 100% of their savings to buy down the cost sooner and keep their facility's budget line for electricity the same as it would have been without the where it was. The NHPUC survey had a 76% response rate, where 100% of the customers stated they knew exactly what they were signing and it was their election."

One of the PSNH respondents noted that he gets emails once a month identifying how much is being billed and paid through PAYS payments (but not by customer, just in lump sum). It was noted that the billing system has been audited both internally and externally (PUC) and it has been verified that billing is accurate. However, another PSNH respondent noted that the current billing process has been set up with minimal automation to allow implementation of the program. "On a going forward basis, they will need to improve the automation and make it more robust if they are dealing with a larger volume of customers."

There were no instances of customers being disconnected due to PAYS-related bad debt of which the interviewees were aware.

Concerning PAYS products that have failed, one respondent noted that there was a project where new electronic ballasts needed to be removed because they were interfering with the fire detection system. In this case, the vendor paid for the work and PSNH was not charged.

2.6 – PSNH Pilot: Program Information, Resources, and Staffing

PSNH collects the following information on every PAYS project evaluated: customer contact info, type of project, cost of project, 5% bad debt fee, monthly PDC, life of project, and status of project (tracking system). PSNH also tracks PDC return versus bad debt charge return and revolving loan information through accounting system. The PAYS administrator collects, enters, and maintains data relating to revenue of projects. Other program staff are responsible for reporting. Monthly reports on revenue are generated for the PAYS permanent and portable measures. All information is store electronically either in Excel spreadsheets, or within the accounting/revenue/customer billing system. Data entered regularly/daily (as projects come in and/or customer approves it). Vendor is responsible for monthly/annual savings numbers, typically not verified, unless they appear unreasonable. PAYS administrator conducts PAYS calculation and monthly PDC, determines pass/fail test, creates contract and sends to Energy Efficiency Team Lead, who verifies that it passes the PAYS screening and that the PDC charges and other values are correct. PSNH manager then signs the contracts with customers (manager level).

Beyond ESCO-provided estimated energy savings (which are entered and stored in database), it was noted that actual energy savings (kWh) are now also being tracked. Two respondents noted that if the PAYS program was to expand beyond the pilot, a database would "definitely" be needed as there are currently many linked spreadsheets. One respondent also stated that the current system was adequate for the pilot and that data was of good quality and reports were easily produced.

Concerning additional data, one vendor respondent noted that they would like to receive feedback on projects after they have been completed; "When the analysis is finally done, I would like to see what is going wrong, or right, so that I can learn and improve for future projects."

Staffing levels at PSNH were felt to be adequate for the PAYS Pilot but additional staff would be needed if the program were to ramp up beyond the pilot; "each project is time consuming". Similarly, there was felt to be adequate staffing at the contractor level for the pilot.

The mix and skills of PSNH program staff was noted to be appropriate by all respondents and they also felt that the current level of training was sufficient. One respondent stated, "CRM's do work nicely – good skills – and AE's were hired specifically for energy efficiency implementation so their skills are also adequate and well matched." There was a training session conducted by PSNH at the start of the pilot that was noted to be very successful and drew compliments from the original program designers, EEI.

2.7 – PSNH Pilot: Internal Communications and Administration

Program communications between PSNH and contractors was noted to be primarily informal by means of meetings at site, telephone and email. Day to day program communications were felt to be good both internally and externally, one vendor respondent commented that communications were "very fluid" and that there was a "genuine openness on the part of PSNH technical staff". Another respondent commented, "Vendors are doing a good job promoting the program, customers trust if PSNH is involved it is not a scam, adds legitimacy to the program".

Communications concerning program policy was noted to be adequate with the exception of one vendor respondent who stated that: "on the part of the ESCO, there is a lot of planning in a vacuum". This respondent felt that it would be helpful if PSNH held roundtable discussions on what is working in the program and where there is room for improvement.

The only "bottleneck" that was noted in the program was the contractor payment, it was commented that payments to contractors are often delayed.

2.8 – PSNH Pilot: Communications with Program Participants and Participant Service

Communications with program participants was unanimously felt to be excellent, the respondents stated that the personal, face-to-face communications of both the contractors and PSNH on this program are very effective. It was also noted that customers like the freedom of being able to choose their vendor. According to the in-depth interviewee respondents, all customer feedback has been very positive, including results of surveys conducted by both PSNH and the NHPUC. Also, customer response to the initial program presentations was noted to have been very positive.

2.9 – PSNH Pilot: Program Issues and Innovations

Program issues were felt to be different between the PSNH staff and the vendors. For PSNH, the major program issues related to the modifications necessary for the billing system and that the administrative burden of working with small projects may not be worthwhile. Other concerns mentioned by PSNH respondents related to the need for additional staff if the program expands and the need for a database if program continues.

One vendor felt that the PAYS program should do more promotion and also expand the program to a wider customer base, they noted a "backlog of customers that aren't moving forward because they don't have the money and PAYS would help". The other vendor raised concern that the PAYS program could potentially have a lasting impact on alternative forms of municipal leasing. They commented that "if the program goes away down the road, the current institutions that ESCOs use to finance such projects may no longer be there because of PAYS removing the need for such institutions in the near term".

Finally, the addendum to the PAYS contract that was created last Fall was felt to have had a major impact on getting more municipalities on board and to move forward with projects.[17]

[17] This addendum was developed collaboratively, to address problems that municipalities were having regarding signing earlier forms of the PAYS contract (*i.e.*, associated perceptions regarding entering into payment obligations outside of their communities' formal capital projects funding procedures).

2.10 – PSNH Pilot: Overall Program Performance

When asked to rate the PSNH PAYS program on how successful it was on achieving program goals on a scale of 1 to 10, with 10 being very successful, respondents offered a variety of ratings, as shown in table 3.4 below.

Table 3.4 – PSNH Program Performance

PAYS Pilot	PSNH-1	PSNH-2	PSNH-3	Vendor-1	Vendor-2
Success on Achieving goals	9.5	9	9.5	7-need more promotion	9.5
Quality of program	9.5	9-customer perspective 4-failed to prove/ disprove several program tenets	7-need more program staff backup	8-more PSNH program staff would be helpful	8-could use more program materials

The program's greatest strength was noted to be that it allowed municipalities to install energy efficient measures with no upfront costs. Excellent communications and positive outreach from PSNH toward municipal customers was also noted as a program strength. Also noted as strengths were the "reasonable standards to be met for projects to qualify" and "PSNH brings credibility to the table".

The greatest weaknesses of the program were noted to be that sometimes projects take too long and administrative burden is relatively high. Specific areas of concern were: 1) timeliness of payments to contractors; 2) high transaction costs; and 3) need for improvement in automation of generating PAYS projects. It was also commented that the inability to make changes in the scope of work as the project progressed is a major weakness (but also a way to motivate a vendor to do a good proposal in the first place).

All respondents felt that more municipalities accepted more measures as a result of the PAYS program.

Respondents noted that there are other sources of capital for PAYS products, such as municipal leases, but that PAYS offers much better financing terms and allows customers to complete projects much quicker than if they were using a leasing arrangement. PSNH noted that they had spoken to commercial banks about being involved in the PAYS program but that they could not lend to an electric meter so it was found to not be workable under the PAYS concept.

Final comments included: "Move this [PAYS] into the commercial sector. You could have the most successful energy efficiency program in the country." Another respondent commented that he "would like to see the program expand into the residential and small business sectors". It was also noted that the mechanism for earning recovery of a shareholder incentive on the program reduces motivation to expand.

B. Telephone Surveys

This section includes the detailed results of the telephone surveys conducted.

1.A. PAYS Pilot Participant Responses

Included in this section are the responses from all of the PAYS Pilot participants, including NHEC's residential lighting pilot (20 respondents, from a list of 151 NHEC CFL lighting pilot participants) and weatherization pilot (2 respondents from a list of 5 NHEC weatherization pilot participants), NHEC's small commercial pilot (2 respondents from a list of 7 NHEC commercial pilot participants) and PSNH's municipal buildings pilot (10 respondents from a list of 20, now 38, PSNH municipal pilot participants).

1A.1 – 1st Learned About PAYS

Table 3.5 - How did participant first learn about the PAYS program

		NHEC Residential Lighting	NHEC Residential Weatherization	NHEC Commercial	PSNH Municipal	Total
Utility bill insert	Count	15	2			17
	%	75.0%	100.0%			50.0%
Vendor called	Count				7	7
	%				70.0%	20.6%
Letter/newsletter	Count	3				3
	%	15.0%				8.8%
Friend/family member	Count	2			1	3
	%	10.0%			10.0%	8.8%
Utility called	Count			1		1
	%			50.0%		2.9%
Store sales person	Count			1		1
	%			50.0%		2.9%
Called utility	Count				1	1
	%				10.0%	2.9%
Other	Count				1	1
	%				10.0%	2.9%
Total	Count	20	2	2	10	34
	%	100.0%	100.0%	100.0%	100.0%	100.0%

1A.2 – Products Obtained

Table 3.6 - What types of energy efficient products did participant obtain

		NHEC Residential Lighting	NHEC Residential Weatherization	NHEC Commercial	PSNH Municipal	Total
Heating or cooling	Count	1	1			2
	%	5.0%	50.0%			5.9%
Lighting	Count	19		2	10	31
	%	95.0%		100.0%	100.0%	91.2%
Weatherization	Count		1			1
	%		50.0%			2.9%
Total	Count	20	2	2	10	34
	%	100.0%	100.0%	100.0%	100.0%	100.0%

1A.3 – Program Satisfaction

Across all four types of participants, twenty of the thirty-four respondents rated their overall impression the PAYS program "very favorable", while eight rated the program as "Somewhat favorable", one was neutral and only one rated the program lower than neutral at "somewhat unfavorable".

Table 3.7 – Participant Satisfaction

Mean Values Reported for Program Satisfaction (Scale: 1=Very Favorable to 5=Very unfavorable)

Program Component	NHEC Residential Lighting	NHEC Residential Weatherization	NHEC Small Commercial	PSNH Municipal	Total	PSNH Exit Survey[1]
Overall	1.5	1.5	1	1.2	1.4	1.7
Information	1.7	1	1	1.4	1.5	1.6
Follow-up	1.8	1	1	1.3	1.4	1.6
Printed Materials	2.1	1	1	1.6	1.8	2.0
Quality of Services	1.7	1	1	1.1	1.4	
Utility Staff	1.5	NA	NA	1.6	1.6	
Vendor	1.9	1	1	1.5	1.5	
Salesperson	1.6	NA	NA	2	1.6	
Billing	1.4	1.5	2	1.1	1.3	
Ease of Participation	1.3	1.5	1.5	1.6	1.4	1.9
Amount of Paperwork	1.2	1.5	1	1.8	1.4	

[1]PSNH conducted an exit survey of participants and nine completed surveys were reviewed and tallied for the questions shown.

Results reviewed from PSNH's exit survey of program participants indicated that seven of nine respondents felt that the PAYS program met expectations and two customers stated that the program exceeded expectations. In addition, the exit surveys reported that there were a few problems that participants encountered with the PAYS program. Three of the nine surveys reviewed indicated problems, including 1) required to change PSNH account numbers for PAYS program which resulted in many paperwork changes in customer's office, 2) lack of communication between PSNH and contractors and unexplained change in billing structure, and 3) some problems with wrong ballasts installed but was remedied.

The exit survey also asked if the participants had any suggestions for improving the PAYS program, one respondent stated that the program should include motors. As a final question on the PSNH exit survey, customers were asked if they would be likely to participate in a program similar to PAYS in the future. All nine participants reported that they would participate in a similar program in the future.

1A.4 – Program Barriers to Participation

Table 3.8 – Participant-identified Barriers to Program Participation

Mean Values Reported for Program Barriers (Scale: 1=Major Barrier to 3=Not a Barrier)

Barriers	NHEC Residential Lighting	NHEC Residential Weatherization	NHEC Small Commercial	PSNH Municipal	Total
Information about EE products & equipment	2.5	3.0	3.0	2.5	2.6
Information about use of EE products	2.7	3.0	2.5	2.4	2.6
High first cost	2.7	3.0	3.0	2.2	2.6
Uncertainty of savings	2.6	3.0	3.0	2.5	2.6
Split incentive (Landlord/Tenant)	2.8	3.0	3.0	3.0	2.9
Difficulty in obtaining long term debt	2.9*	3.0*	3.0	2.7*	2.8*
Risk of PAYS balance becoming lien	3.0	3.0	3.0	3.0	3.0
Risk of disconnection due to PAYS non-payment	2.9	3.0	3.0	3.0	2.9
Risk of equipment failure	3.0	3.0	3.0	3.0	3.0

* Majority of respondents reported that barrier was not applicable.

Table 3.9 - Did Program Help Participants to Overcome Barriers

Mean Values for Program Influence on Barriers (Scale: 1=Very Helpful to 3=Not Helpful)

Barriers	NHEC Residential Lighting	NHEC Residential Weatherization	NHEC Small Commercial	PSNH Municipal	Total
Information about EE products & equipment	1.4	1.0	1.0	1.4	1.4
Information about use of EE products	1.4	1.0	2.0	1.6	1.4
High first cost	1.2	1.0	1.0	1.2	1.2
Uncertainty of savings	1.4	1.0	2.0	1.5	1.5
Split incentive (Landlord/Tenant)	1.3*	NA	2.0*	NA	1.5*
Difficulty in obtaining long term debt	1.4	1.0	1.0	1.5	1.4

* Majority of respondents reported that barrier was not applicable.

1A.5 – Other Participant Steps

Table 3.10 – Participants taken any other steps to reduce the amount of energy used

		NHEC Residential Lighting	NHEC Residential Weatherization	NHEC Commercial Participant	PSNH Municipal Participant	Total
1 Yes	Count	8		2	4	14
	%	40.0%		100.0%	40.0%	41.2%
2 No	Count	12	2		6	20
	%	60.0%	100.0%		60.0%	58.8%
Total	Count	20	2	2	10	34
	%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 3.11 - What steps have participants taken to reduce the amount of energy used

		NHEC Residential Lighting	NHEC Commercial Participant	PSNH Municipal Participant	Total
Energy-efficient appliances	Count	2			2
	%	28.6%			15.4%
Reduce use	Count	4	2	3	9
	%	57.1%	100.0%	75.0%	69.2%
Other	Count	1		1	2
	%	14.3%		25.0%	15.4%
Total	Count	7	2	4	13
	%	100.0%	100.0%	100.0%	100.0%

Other participant actions included:

- Installed weather stripping
- Had an engineering study conducted

1A.6 – Purchases if not for PAYS

Table 3.12 - How much energy efficient measures and equipment would participant have purchased *if* not for the Pilot Program

		NHEC Residential Lighting	NHEC Residential Weatherization	NHEC Commercial Participant	PSNH Municipal Participant	Total
1 All measures & equipment	Count	1				1
	%	5.0%				2.9%
2 Most	Count	2				2
	%	10.0%				5.9%
3 Only some	Count	7			5	12
	%	35.0%			50.0%	35.3%
4 None	Count	10	2	2	5	19
	%	50.0%	100.0%	100.0%	50.0%	55.9%
Total	Count	20	2	2	10	34
	%	100.0%	100.0%	100.0%	100.0%	100.0%

1A.7 – Experience with PAYS

Table 3.13 - How well did the Pilot Program meet participant expectations

		NHEC Residential Lighting	NHEC Residential Weatherization	NHEC Commercial Participant	PSNH Municipal Participant	Total
Exceeds a lot	Count	1			1	2
	%	5.0%			10.0%	5.9%
Exceeds a little	Count	1	1	1	1	4
	%	5.0%	50.0%	50.0%	10.0%	11.8%
Meets	Count	17	1	1	8	27
	%	85.0%	50.0%	50.0%	80.0%	79.4%
Falls short a little	Count	1				1
	%	5.0%				2.9%
Total	Count	20	2	2	10	34
	%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 3.14 - Likelihood of participating in PAYS program if offered in the future

		NHEC Residential Lighting	NHEC Residential Weatherization	NHEC Commercial Participant	PSNH Municipal Participant	Total
1 Definitely would	Count	16	1	2	8	27
	%	80.0%	50.0%	100.0%	80.0%	79.4%
2 Probably would	Count	4	1		2	7
	%	20.0%	50.0%		20.0%	20.6%
Total	Count	20	2	2	10	34
	%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 3.15 - Experience any problems with participating in the Pilot Program

		NHEC Residential Lighting	NHEC Residential Weatherization	NHEC Commercial Participant	PSNH Municipal Participant	Total
Yes	Count				2	2
	%				22.2%	6.5%
No	Count	18	2	2	7	29
	%	100.0%	100.0%	100.0%	77.8%	93.5%
Total	Count	18	2	2	9	31
	%	100.0%	100.0%	100.0%	100.0%	100.0%

Problems identified included:

- Equipment failures
- Lack of communication, inability to get direct answers. Didn't inform about all the changes in electric bill (note – PSNH had to move customers from CIS to Large Power Billing system resulting in new bill look).

Table 3.16 - How was the problem handled

		NHEC Residential Lighting	NHEC Residential Weatherization	NHEC Commercial Participant	PSNH Municipal Participant	Total
Resolved to Satisfaction	Count				1	1
	%				50.0%	50.0%
Still working to resolve	Count				1	1
	%				50.0%	50.0%
Total	Count				2	2
	%				100.0%	100.0%

1A.8 – Suggestions for Improvements

As a final question, participants were asked, "If you could tell the people responsible for managing the Pilot Program how the program could be improved, what would you tell them?". Verbatim responses were as follows:

- Try to promote the program more.
- More promotion.
- Promote the program more and send out more auditors.
- Communication was lacking.
- To understand the municipal budget act.
- Improve communication between staff and customers.
- Put out more info about different products.
- More equipment and a wider variety of services.
- Allow smaller projects to qualify.
- Get brighter light bulbs and make sure they all work.
- Have a brighter light.
- Make the light bulbs fit all outlets and lamps or provide info on which lamps and lights they don't fit.
- Make the light bulbs better and brighter.
- I don't think they could improve.
- It's great.
- No need for improvement.
- No issues.
- Fine the way it is.

1.B Participant Telephone Survey Demographics

1B.1 – NHEC Residential Respondent Demographics

All residential participants reported that they live in single family homes and own their residence.

Table 3.17 - Age of Participants

		NHEC Residential Lighting	NHEC Residential Weatherization
18-34	Count	3	
	%	15.0%	
35-54	Count	6	
	%	30.0%	
55-64	Count	2	
	%	10.0%	
65+	Count	8	2
	%	40.0%	100.0%
No Answer	Count	1	
	%	5.0%	
Total	Count	20	2
	%	100.0%	100.0%

Table 3.18 - Number of People in Household

		NHEC Residential Lighting	NHEC Residential Weatherization
2	Count	11	2
	%	55.0%	100.0%
3	Count	3	
	%	15.0%	
4	Count	3	
	%	15.0%	
5	Count	3	2
	%	15.0%	100.0%
Total	Count	20	2
	%	100.0%	100.0%

Table 3.19 - Average Monthly Electric Bill

		NHEC Residential Lighting	NHEC Residential Weatherization
$60 - $75	Count	6	2
	%	31.5%	100.0%
$80 - $100	Count	5	
	%	26.3%	
$110 - $150	Count	5	
	%	26.3%	
$160 - $200	Count	2	
	%	10.5%	
$450	Count	1	
	%	5.3%	
Total	Count	19	2
	%	100.0%	100.0%

Table 3.20 - Level of Education

		NHEC Residential Lighting	NHEC Residential Weatherization
High School	Count	9	2
	%	45.0%	100.0%
Some College	Count	4	
	%	20.0%	
Associates Degree	Count	2	
	%	10.0%	
College Graduate	Count	3	
	%	15.0%	
Graduate Degree	Count	1	1
	%	5.0%	50.0%
No Answer	Count	1	1
	%	5.0%	50.0%
Total	Count	19	2
	%	100.0%	100.0%

Table 3.21 - Income Level

		NHEC Residential Lighting	NHEC Residential Weatherization
Less than $20K	Count	4	
	%	21.1%	
$20K - $34K	Count	3	
	%	15.8%	
$35K - $49K	Count	5	
	%	26.3%	
$50K - $64K	Count	4	
	%	21.1%	
$65K - $79K	Count		1
	%		50.0%
No Answer	Count	3	
	%	15.8%	
Total	Count	19	1
	%	100.0%	100.0%

Table 3.22 - Gender of Residential Participants

		NHEC Residential Lighting	NHEC Residential Weatherization
Male	Count	9	1
	%	45.0%	100.0%
Female	Count	11	
	%	55.0%	
Total	Count	20	1
	%	100.0%	100.0%

1B.2 – NHEC Small Commercial Participant Demographics

Commercial respondents reported to be from the resource and personal service industries. They both reported to have two or fewer full time employees and five or fewer part time employees.

1B.3 – PSNH Municipal Participant Demographics

Table 3.23 - Population of the community

		PSNH Municipal Participant
51 - 500	Count	3
	%	33.3%
1000 - 1500	Count	2
	%	22.2%
6500 – 7000	Count	2
	%	22.2%
14000 – 16000	Count	2
	%	22.2%
Total	Count	9
	%	100.0%

Table 3.24 - Number of municipal buildings

		PSNH Municipal Participant
1 – 5	Count	4
	%	40.0%
5 - 10	Count	1
	%	10.0%
11 - 15	Count	5
	%	50.0%
Total	Count	10
	%	100.0%

2. PAYS Pilot Rejector Responses

Included in this section are the responses from all of those interviewees who declined participation in the PAYS Pilot programs, including NHEC's residential lighting pilot (20 respondents from a list of over 15,000 potential rejecters) and weatherization pilot (5 respondents from a list of 28 potential rejecters), NHEC's small commercial pilot (5 respondents from a list of 17 potential rejecters) and PSNH's municipal buildings pilot (9 respondents from a list of 26 potential rejecters).

2A.1 – 1st Learned About PAYS

Table 3.25 - How did rejecter first learn about the PAYS program

		NHEC Residential Lighting	NHEC Residential Weatherization	NHEC Commercial	PSNH Municipal	Total
Other	Count			2	1	3
	%			40.0%	11.1%	7.7%
Utility bill insert	Count	20	4		1	25
	%	100.0%	80.0%		11.1%	64.1%
Program brochure	Count		1	3		4
	%		20.0%	60.0%		10.3%
Called utility	Count				1	1
	%				11.1%	2.6%
Utility called	Count				4	7
	%				44.4%	20.6%
Vendor called	Count				1	1
	%				11.1%	2.6%
Friend/family member	Count				1	1
	%				11.1%	2.6%
Total	Count	20	5	5	9	39
	%	100.0%	100.0%	100.0%	100.0%	100.0%

Other responses included:

- Through CAP.
- Work at NHEC.
- Seminar.
- Utility Company Rep.

2A.2 – Products Considered

Table 3.26 - What types of energy efficient products did rejecter consider installing

		NHEC Residential Lighting	NHEC Residential Weatherization	NHEC Commercial	PSNH Municipal	Total
Heating or cooling	Count	3	1	1	4	9
	%	15.0%	20.0%	20.0%	44.4%	23.1%
Lighting	Count	17		4	4	25
	%	85.0%		80.0%	44.4%	64.1%
Weatherization	Count		2			2
	%		40.0%			5.1%
Other	Count		2		1	3
	%		40.0%		11.1%	7.7%
Total	Count	20	5	2	9	39
	%	100.0%	100.0%	100.0%	100.0%	100.0%

Other measures included:

- Time-of-day controls.
- General energy audit.
- General audit.
- Removed a chimney.

2A.3 – How Far Through PAYS Did Rejecter Go

Table 3.27 - Did rejecter receive general information about the PAYS Pilot Program

		NHEC Residential Lighting	NHEC Residential Weatherization	NHEC Commercial Rejecter	PSNH Municipal Rejecter	Total
1 Yes	Count	13	5	5	8	31
	%	65.0%	100.0%	100.0%	88.9%	79.5%
2 No	Count	7			1	8
	%	35.0%			11.1%	20.5%
Total	Count	20	5	5	9	39
	%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 3.28 - Did rejecter visit a store to get info about specific energy efficient measures

		NHEC Residential Lighting	NHEC Residential Weatherization	NHEC Commercial Rejecter	PSNH Municipal Rejecter	Total
1 Yes	Count	6		2	NA	8
	%	30.0%		40.0%		26.7%
2 No	Count	14	5	3	NA	8
	%	70.0%	100.0%	60.0%		20.5%
Total	Count	20	5	5	NA	30
	%	100.0%	100.0%	100.0%		100.0%

Table 3.29 – Was rejecter visited by a rep from utility company

		NHEC Residential Lighting	NHEC Residential Weatherization	NHEC Commercial Rejecter	PSNH Municipal Rejecter	Total
1 Yes	Count	1	5	5	7	18
	%	5.0%	100.0%	100.0%	77.8%	46.2%
2 No	Count	19			2	21
	%	95.0%			22.2%	53.8%
Total	Count	20	5	5	9	39
	%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 3.30 – Was rejecter visited by a third party rep

		NHEC Residential Lighting	NHEC Residential Weatherization	NHEC Commercial	PSNH Municipal	Total
1 Yes	Count	2		2	1	5
	%	10.0%		40.0%	11.1%	12.8%
2 No	Count	18	5	3	8	34
	%	90.0%	100.0%	60.0%	88.9%	87.2%
Total	Count	20	5	5	9	39
	%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 3.31 – Did rejecter receive an energy audit at home or business

		NHEC Residential Lighting	NHEC Residential Weatherization	NHEC Commercial	PSNH Municipal	Total
Yes	Count	1	3	4	2	10
	%	5.0%	60.0%	80.0%	22.2%	25.6%
No	Count	19		1	7	27
	%	95.0%		20.0%	77.8%	69.2%
Don't know	Count		2			2
	%		40.0%			5.1%
Total	Count	20	5	5	9	39
	%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 3.32 - Receive any recommendations

		NHEC Residential Lighting	NHEC Residential Weatherization	NHEC Commercial	PSNH Municipal	Total
Yes	Count	3	2	5	3	13
	%	15.0%	40.0%	100.0%	33.3%	33.3%
No	Count	17	3		6	26
	%	85.0%	60.0%		66.7%	66.7%
Total	Count	20	5	5	9	39
	%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 3.33 – Rejecter receive an estimate of the savings

		NHEC Residential Lighting	NHEC Residential Weatherization	NHEC Commercial	PSNH Municipal	Total
Yes	Count		2	5	2	9
	%		40.0%	100.0%	22.2%	23.1%
No	Count	20	3		6	29
	%	100.0%	60.0%		66.7%	74.4%
Don't know	Count				1	1
	%				11.1%	2.6%
Total	Count	20	5	5	9	39
	%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 3.34 – Rejecter receive any information about payment options

		NHEC Residential Lighting	NHEC Residential Weatherization	NHEC Commercial	PSNH Municipal	Total
Yes	Count	1	3	4	4	12
	%	5.0%	60.0%	80.0%	44.4%	30.8%
No	Count	19	2	1	5	27
	%	95.0%	40.0%	20.0%	55.6%	69.2%
Total	Count	20	5	5	9	39
	%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 3.35 – Rejecter receive PAYS customer responsibilities and purchase agreement

		NHEC Residential Lighting	NHEC Residential Weatherization	NHEC Commercial	PSNH Municipal	Total
Yes	Count			2	2	4
	%			40.0%	22.2%	10.3%
No	Count	19	4	1	6	30
	%	95.0%	80.0%	20.0%	66.7%	76.9%
Don't know	Count	1	1	2	1	5
	%	5.0%	20.0%	40.0%	11.1%	12.8%
Total	Count	20	5	5	9	39
	%	100.0%	100.0%	100.0%	100.0%	100.0%

2A.4 Program Satisfaction

Ten of the thirty-five program rejecters reported that their overall impression of the program was "very favorable", sixteen rated the program as "favorable", six were neutral, two were "somewhat unfavorable" and only the remaining rejecter stated that it was "very unfavorable".

Table 3.36 – Rejecter Program Satisfaction

Mean Values Reported for Program Satisfaction (Scale: 1=Very Favorable to 5=Very unfavorable)

Program Component	NHEC Residential Lighting	NHEC Residential Weatherization	NHEC Commercial	PSNH Municipal	Total
Overall	2.7	1.5	1.4	1.6	2.1
Information	2.1	1.5	1.2	1.8	1.8
Follow-up	1.2	1.8	1.5	3	1.9
Printed Materials	2.7	1.7	1.4	1.9	2.2
Quality of Services	NA	2	1.4	2.2	1.9
Utility Staff	NA	2	NA	2	2
Vendors	NA	2	NA	2	2
Salesperson	2.5	NA	3	NA	2.7
Billing System	2.2	3	2.3	2.2	2.3
Ease of Participation	2.5	1.7	1.8	2.3	2.1
Level of Paperwork	NA	1.5	1.8	2.5	2.1

2A.5 Program Barriers to Participation

Table 3.37 – Rejecter Program Barriers

Mean Values Reported for Program Barriers (Scale: 1=Major Barrier to 3=Not a Barrier)

Barriers	NHEC Residential Lighting	NHEC Residential Weatherization	NHEC Small Commercial	PSNH Municipal	Total
Information about EE products & equipment	2.6	3.0	3.0	2.8	2.7
Information about use of EE products	2.7	3.0	3.0	2.7	2.7
High first cost	2.3	2.6	2.8	2.3	2.4
Uncertainty of savings	2.4	2.5	3.0	2.4	2.5
Split incentive (Landlord/Tenant)	2.6*	NA	3.0*	NA	2.6*
Difficulty in obtaining long term debt	2.7	3.0	3.0	2.0	2.7
Risk of PAYS balance becoming lien	2.5	3.0	3.0	2.9	2.7
Risk of disconnection due to PAYS non-payment	2.8	3.0	3.0	2.8	2.8
Risk of equipment failure	2.7	3.0	3.0	2.7	2.8

* Majority of respondents reported that barrier was not applicable.

Table 3.38 - Did Program Help Rejecter to Overcome Barriers

Mean Values for Program Influence on Barriers (Scale: 1=Very Helpful to 3=Not Helpful)

Barriers	NHEC Residential Lighting	NHEC Residential Weatherization	NHEC Small Commercial	PSNH Municipal	Total
Information about EE products & equipment	1.5*	1.3	1.3	1.6	1.4
Information about use of EE products	1.5	1.3	1.3	1.8	1.5
High first cost	1.4*	1.3	1.7	1.2	1.4
Uncertainty of savings	1.4*	1.3	1.8	1.5	1.5
Split incentive (Landlord/Tenant)	1.8*	NA	2.0*	1.0*	1.8*
Difficulty in obtaining long term debt	2.0*	1.3	2.0*	1.7	1.8

* Majority of respondents reported that barrier was not applicable.

2A.6 Reasons For Not Partieipating

Rejecters were asked, "What would you say is the most important reason why you decided not to move forward and participate in the Pays Pilot Program?". Verbatim responses were as follows:

- I don't know anything about it.
- Didn't review the information.
- Thought the flyer was junk mail.
- Not having quite enough info about the program.
- Don't know enough about it.
- Don't know enough about this specific program.
- Not enough info, heard about program from another source.

- Lack of interest.
- Don't want to.
- Do not want it.
- Didn't think about it.
- Happy with what we have.
- Happy with what he has. New home and doesn't need any improvements.
- Have new appliances that don't need replacing at this time.
- Already did his house.
- Bought items elsewhere.
- I'm beyond their knowledge.
- My sister helped get products.
- I don't see a need because I don't know the savings.
- I don't have the money to do it or the time.
- Costs too much.
- Not worth the effort. It is easier to just pay for the improvement.
- Not enough. Could do it on his own in a more cost-effective way.
- Was going to participate, but is selling the building.
- Thinks she participated, but wasn't sure what she paid for.
- Purchased light bulbs and never reimbursed for his part.
- Cost of the bulbs.
- Had an audit and didn't need to improve efficiency.
- Did one himself, didn't do the second.
- Type of heating panels not available thru program.
- Not enough time to review materials.
- Didn't have time
- Long difficult process to get board approval.
- Outside budget cycle.
- Budget season.
- Forgot about it during budget time - low on priority list.
- Didn't want to pay interest costs associated with PAYS program.
- Didn't want to pay interest.

2A.7 Purchases Made Outside of PAYS

Table 3.39 – Rejecter purchases considered in PAYS but paid for without PAYS

		NHEC Residential Lighting	NHEC Residential Weatherization	NHEC Small Commercial	PSNH Municipal	Total
Yes	Count	4	1	1	3	9
	%	20.0%	20.0%	20.0%	33.3%	23.1%
No	Count	16	4	4	6	30
	%	80.0%	80.0%	80.0%	66.7%	76.9%
Total	Count	20	5	5	9	39
	%	100.0%	100.0%	100.0%	100.0%	100.0%

When asked "Since the time when you decided not to participate in the PAYS Pilot Program, have you purchased any products, equipment or measures that you were considering paying for through

the PAYS Pilot Program using other funding sources?" Those that said Yes noted the following items:

- Bought light bulbs with cash.
- Purchased energy efficient light bulbs that are full spectrum and an energy efficient roof.
- Light bulbs.
- Lighting paid in cash up-front.
- Lighting, motors and time of day controls and VFDs.
- AC, paid in lump sum, approved for in meeting.
- Thermostats
- Replaced windows to be compatible with PAYS program.
- Doing major work in the Fall, but not with PAYS.

Table 3.40 – Rejecter taken any steps to reduce the amount of energy used?

		NHEC Residential Lighting	NHEC Residential Weatherization	NHEC Small Commercial	PSNH Municipal	Total
Yes	Count	5	3	5	3	16
	%	25.0%	60.0%	100.0%	33.3%	41.0%
No	Count	15	2		6	23
	%	75.0%	40.0%		66.7%	59.0%
Total	Count	20	5	5	9	39
	%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 3.41 - What steps has rejecter taken to reduce the amount of energy used?

		NHEC Residential Lighting	NHEC Residential Weatherization	NHEC Small Commercial	PSNH Municipal	Total
Energy-efficient light bulbs	Count	3	1	2	1	7
	%	60.0%	25.0%	40.0%	33.3%	41.2%
Energy-efficient fixtures	Count		1		1	2
	%		25.0%		33.3%	11.8%
Energy-efficient appliances	Count	1				1
	%	20.0%				5.9%
Reduce use	Count	1			1	2
	%	20.0%			33.3%	11.8%
Other	Count		2	3		5
	%		50.0%	60.0%		29.4%
Total	Count	5	4	5	3	17
	%	100.0%	100.0%	100.0%	100.0%	100.0%

Other items that were noted to have been to done to reduce the amount of energy use were as follows:

- Energy efficient out-buildings & roof.
- Heater

- Had need to do the work.
- Is selling the building.
- Project in the Fall.

2A.8 Likelihood of Participating in PAYS in the Future

Table 3.42 - Likelihood of rejecter participating in PAYS program if offered in the future?

		NHEC Residential Lighting	NHEC Residential Weatherization	NHEC Small Commercial	PSNH Municipal	Total
Definitely would	Count	3		1	2	6
	%	15.0%		20.0%	22.2%	15.4%
Probably would	Count	9	1		6	16
	%	45.0%	20.0%		66.7%	41.0%
Probably would not	Count	4	1			5
	%	20.0%	20.0%			12.8%
Definitely would not	Count	4	2	2	1	9
	%	20.0%	40.0%	40.0%	11.1%	23.1%
Don't know	Count		1	2		3
	%		20.0%	40.0%		7.7%
Total	Count	20	5	5	9	39
	%	100.0%	100.0%	100.0%	100.0%	100.0%

Those that indicated that they would not likely participate in the future noted the following reasons:

- No need for it.
- Doesn't need it.
- Happy with what we have.
- House doesn't need major energy efficient repairs or equipment.
- Just weatherized his house.
- I'm more energy efficient than they are.
- Savings don't justify it. Energy efficient house.
- Savings not enough.
- The bill is low to begin with.
- Don't want to. .
- Do not want to participate.
- Would pay all up-front.
- Didn't give it enough consideration at the time.
- I don't know anything about it.
- Wants to see what they have to offer.

Those that were likely to participate in the future noted the following reasons:

- A good friend loved the program.
- Energy savings would be great.
- Always into saving money and energy.

- Any little bit of savings is a good thing.
- Because it sounds good.
- Realized it would save money.
- Have been interested in energy efficient lighting.

2A.9 Ways to Better Meet Needs or Increase Likelihood of Participation

Finally, two open-ended questions were asked in order to get the respondents summary thoughts. The first question asked: "Can you think of any way that the program could be modified to better meet your needs?" Responses included the following:

- Not that I can think of.
- Not at this time.
- Don't know enough about it.
- I don't know anything about it.
- Need more information.
- More info distributed.
- A better attention-grabber.
- Most home owners wouldn't be interested because it is not apparent what they will save.
- More distributed info, specifically about payment options and examples of monthly savings.
- Could make the ads more condensed and concise. Maybe with a graph or diagram.
- Make it cheaper.
- They have to look at health issues.
- Oil and propane heating systems.
- PSNH was easy to deal with when first looking into participating.
- Work closer with customer.
- Quicker response to inquiry.

The second question asked, "Can you think of anything in particular that would make it more likely that you would participate in the program?" Responses included the following:

- I don't know anything about it.
- Don't know enough about this specific program.
- Send me info.
- If I could see a brochure sent to me.
- More info easier to remember.
- A graph or diagram displaying what you would save.
- If they proved that their product would save money.
- More info in a timely manner.
- Pay attention to the timing of the offer.
- If the offer was proposed to us during the beginning of the budget cycle.
- Nothing PSNH could to, capital improvement program slacking on their [customer's] end.
- If it were cheaper.
- Don't charge interest.
- If I got a separate meter for my bills installed at half the price my friend paid then I would.
- If they offered solar.
- Provide particular heating panels.
- If they looked at the toxins and health issues.

2.B. PAYS Telephone Survey Rejecter Demographics

2B.1 – NHEC Residential Rejecter Demographics

Table 3.43 - Age of Rejecters

		NHEC Residential Lighting	NHEC Residential Weatherization
25-34	Count	1	
	%	5.0%	
35-44	Count	1	1
	%	5.0%	20.0%
45-54	Count	5	
	%	25.0%	
55-64	Count	10	1
	%	50.0%	20.0%
65+	Count	3	3
	%	15.0%	60.0%
Total	Count	20	5
	%	100.0%	100.0%

Table 3.44 - Type of Housing

		NHEC Residential Lighting	NHEC Residential Weatherization
Single Family	Count	18	5
	%	90.0%	100.0%
Condo	Count	1	
	%	5.0%	
Mulit-Family	Count	1	
	%	5.0%	
Total	Count	20	5
	%	100.0%	100.0%

Table 3.45 - Ownership

		NHEC Residential Lighting	NHEC Residential Weatherization
Own	Count	19	5
	%	95.0%	100.0%
Rent	Count	1	
	%	5.0%	
Total	Count	20	5
	%	100.0%	100.0%

Table 3.46 - Number of People in Household

		NHEC Residential Lighting	NHEC Residential Weatherization
1	Count	4	2
	%	21.1%	40.0%
2	Count	13	2
	%	68.4%	40.0%
3	Count	2	1
	%	10.5%	20.0%
Total	Count	19	5
	%	100.0%	100.0%

Table 3.47 - Average Monthly Electric Bill

		NHEC Residential Lighting	NHEC Residential Weatherization
Less than $25	Count	1	
	%	5.0%	
$26 - $50	Count	2	
	%	10.0%	
$51 - $100	Count	8	3
	%	40.0%	75.0%
$101 - $200	Count	7	1
	%	35.0%	25.0%
$400	Count	1	
	%	5.0%	
Total	Count	19	5
	%	100.0%	100.0%

Table 3.48 - Level of Education

		NHEC Residential Lighting	NHEC Residential Weatherization
High School or less	Count	8	
	%	40.0%	
Some College	Count	4	
	%	20.0%	
Associates Degree	Count	2	1
	%	10.0%	20.0%
College Graduate	Count	3	4
	%	15.0%	80.0%
Graduate Degree	Count	3	
	%	15.0%	
Total	Count	19	5
	%	100.0%	100.0%

Table 3.49 - Income Level

		NHEC Residential Lighting	NHEC Residential Weatherization
$20K - $34K	Count	2	
	%	10.0%	
$35K - $49K	Count	3	2
	%	15.0%	40.0%
$50K - $64K	Count	4	1
	%	20.0%	20.0%
$65K - $79K	Count	2	1
	%	10.0%	20.0%
$80K - $95K	Count	2	
	%	10.0%	
$95K +	Count	2	
	%	10.0%	
No Answer	Count	5	1
	%	25.0%	20.0%
Total	Count	19	1
	%	100.0%	100.0%

Table 3.50 – Gender of Residential Rejecters

		NHEC Residential Lighting	NHEC Residential Weatherization
Male	Count	8	3
	%	40.0%	60.0%
Female	Count	12	2
	%	60.0%	40.0
Total	Count	20	5
	%	100.0%	100.0%

2B.2 – NHEC Small Commercial Rejecter Demographics

Table 3.51 - Type of Business

		NHEC Small Commercial
Retail	Count	1
	%	20.0%
Personal services	Count	1
	%	20.0%
Other	Count	3
	%	60.0%
Total	Count	5
	%	100.0%

Table 3.52 -Number of Part-Time Employees

		NHEC Small Commercial
Less than 5	Count	3
	%	60.0%
20	Count	1
	%	20.0%
40	Count	1
	%	20.0%
Total	Count	5
	%	100.0%

Table 3.53 - Number of Full-Time Employees

		NHEC Small Commercial
0	Count	3
	%	60.0%
25	Count	1
	%	20.0%
30	Count	1
	%	20.0%
Total	Count	5
	%	100.0%

2B.3 – PSNH Municipal Rejecter Demographics

Table 3.54 - Population of the community

		PSNH Municipal
200 or less	Count	3
	%	33.3%
1350	Count	1
	%	11.1%
3300	Count	2
	%	22.2%
4300	Count	1
	%	11.1%
5000 – 6000	Count	2
	%	22.2%
Total	Count	9
	%	100.0%

Table 3.55 - Number of municipal buildings

		PSNH Municipal
5 or less	Count	5
	%	55.5%
8 or less	Count	3
	%	33.3%
30	Count	1
	%	11.1%
Total	Count	9
	%	100.0%

3. PSNH PAYS Pilot Municipal Non-Participant Responses

Included in this section are the responses from PSNH municipal pilot program non-participants (those PSNH municipal customers that have not been directly made aware of the PSNH municipal PAYS pilot as of the date of this evaluation - 20 respondents from a list of 45 non-participants).

3A.1 – Preferred Ways for Informing Customers About PAYS

Table 3.56 - Most effective way to reach NP with information about PAYS

	PSNH Municipal Non-Participants
Utility bill insert	3
	15.0%
Program brochure	1
	5.0%
Utility called	3
	15.0%
Vendor called	1
	5.0%
Letter/newsletter	10
	50.0%
Total	18
	100.0%

3A.2 – Likelihood of Participating in PAYS in the Future

Table 3.57 - Likelihood of non-participant using PAYS program if offered in the future

	PSNH Municipal Non-Participants
Definitely would	4
	20.0%
Probably would	2
	10.0%
Probably would not	5
	25.0%
Don't know	9
	45.0%
Total	20
	100.0%

For those respondents that indicated that they definitely would or probably would participate in the future, the interviewer then asked what the most important reason was for being interested in participating in the future. The verbatim responses were as follows:

- To upgrade and save cost.
- Cost efficiency.
- Savings.
- Working under previous program was excellent.
- Involved in a lot of energy efficient programs.
- Would work well with the street lights.

Similarly, for those respondents that indicated that they definitely would not or probably would not participate in the future, the interviewer then asked what the most important reason was for not being interested in participating in the future. The verbatim responses were as follows:

- Too much money and don't need it.
- They wouldn't spend the time or money.
- Just updated and don't need.
- Not sure of the savings.
- There is no need for any lighting or heating or other changes in the building.

Finally, those that were unsure of whether they would participate in the future were asked what else they would like to know about the program before they could determine if they would be interested in participating. The verbatim responses were as follows:

- Need it in writing. All of it in writing. Basics in writing. More specifics.
- Requirements of program.
- What products there are.
- Info on time frame and more about contract.
- Cost in the long run. Costs and time associated with their involvement.
- Need the cost and duration of specific products.
- Look at options and time and energy it required on my part.
- Paperwork and a description mailed to all three selectmen.

3A.3 – Barriers to Participation

Table 3.58 - Program Barriers to Participation for Municipal Non-Participants

Mean Values Reported for Program Barriers (Scale: 1=Major Barrier to 3=Not a Barrier)

Barriers	PSNH Municipal Non-Participants
Information about EE products & equipment	1.6
Information about use of EE products	1.6
High first cost	1.5
Uncertainty of savings	1.5
Split incentive (Landlord/Tenant)	NA
Difficulty in obtaining long term debt	1.7
Risk of PAYS balance becoming lien	2.7
Risk of disconnection due to PAYS non-payment	3.0
Risk of equipment failure	2.7

3.B – Demographics of PSNH Municipal Non-Participants

Table 3.59 - Population of the community

	PSNH Municipal Non-Participants
1000 or less	3
	15.0%
1001 - 2500	7
	35.0%
3500 - 5000	7
	35.0%
5001 – 10,000	2
	10.0%
13,000	1
	5.0%
Total	20
	100.0%

Table 3.60 - Number of municipal buildings

	PSNH Municipal Non-Participants
5 or less	12
	60.0%
6 – 10	5
	25.0%
11 - 20	3
	15.0%
Total	20
	100.0%

C. NHEC Focus Groups

Fourteen NHEC members attended the residential focus group (recruited from a list of NHEC's entire residential member base, less those that have participated in or had been made aware of but chose not to participate in the residential PAYS lighting or weatherization pilots). Fourteen members were also recruited and participated in the NHEC commercial focus group (recruited from a list of NHEC's entire small business member base, less those that have participated in or had been made aware of but chose not to participate in the PAYS pilot). Following is a bulleted list of the resulting key findings from NHEC's residential and commercial non-participant focus groups. Detailed results, prepared by the GDS Team's focus group facilitator, RKM Research and Communications, are presented as a stand alone write-up that can be made available upon request.

- Awareness of the PAYS pilot program is non-existent - not surprising, since only non-participants were recruited to participate in these focus groups.

- Participation in PAYS would be driven primarily by expected savings – for both residential and commercial consumers, the motivation to participate in any type of energy efficiency program is economic (environmental considerations are a socially desirable afterthought).

- Members have high expectations of cost savings from energy efficiency measures - with typical residential consumers needing to save approximately twenty percent off their current energy bill in order to justify participation and approximately sixteen percent savings for commercial consumers.

- High first costs and uncertainty regarding recovery of initial investment discourage the use of energy efficient measures in general – specifically, attendees noted that seasonal variations in energy cost and use patterns make it difficult to measure actual or predicted savings.

- The PAYS program is perceived as a way to overcome some key market barriers – particularly high first cost, information barriers (although these barriers can also be overcome by participation in other CORE energy efficiency programs), and uncertainty of savings, are the highest barriers that PAYS was identified as potentially helping to overcome.

- The requirements of the PAYS program (for maintenance, disclosure, and disconnection,) were not identified by focus group attendees as significant barriers to participation.

- The most popular feature of the PAYS program was reported to be its promise of no up-front costs.

- Focus group attendees expressed relatively robust interest in the PAYS program – with sixty-two percent of the residential non-participant attendees saying they either definitely or probably would participate, and ninety-three percent of commercial non-participant focus group attendees saying that they either definitely or probably would participate.

IV. SUMMARY OF KEY FINDINGS

In this section, relevant observations from the Detailed Results (Section III) are summarized. These results are grouped, for each NHEC and PSNH pilot, by the major research categories identified for evaluation in this project. Overall findings and recommendations from this PAYS evaluation were presented earlier, in the Executive Summary of this report.

A. NHEC Pilot(s)-Specific

1. NHEC Residential Lighting Pilot

1.1. Does participation in PAYS result in more members accepting installation of more energy efficiency measures?

It appears clear that this PAYS pilot was successful in getting more NHEC members to accept the purchase of energy efficient lighting. In addition, telephone interviews indicated that many participants (40% - 8 from a list of 20 respondents) have taken further energy efficient actions since participating in PAYS. From the responding members', and the lighting retailer's perspective, this was a very well received effort, with only a few comments about the new lighting not fitting in the desired applications. From the NHEC interviewees' perspective, the administrative burden of tracking each member's purchase, and associated PAYS monthly charges (PDC), was found to be excessive. Key findings include:

- In-depth interviews – all respondents felt that more members accepted more measures as a result of PAYS

- Participant telephone surveys – fifty percent (10 of 20) would have purchased none of the lighting measures without PAYS; fifteen percent (3 of 20) would have done all or most of lighting measures even without the PAYS; forty percent (8 of 20) have taken other EE steps outside of PAYS (57% reduce usage, 29% appliances, 14% other).

- Rejecter telephone surveys – eighty percent (16 of 20) of respondents have taken no energy efficiency actions on their own; twenty percent (4 of 20) have purchased products that were considered but not acted on through PAYS; and twenty-five percent (5 of 20) have taken other EE steps to reduce energy use (60% lighting, 20% appliances, 20% reduce usage).

1.2. Does PAYS overcome key market barriers?

The NHEC PAYS lighting pilot was successful in overcoming the significant barrier of high first cost of energy efficient measures. To date, the lighting pilot does not appear to have had any affect on the split incentive barrier, as more than 90% of participants were property owners, and renters were noted to have opted for an available Energy Star® lighting rebate rather than participate in the PAYS pilot. Other barriers that the lighting pilot appeared to address were noted to be the lack of information on energy efficient technologies and the uncertainty of savings. Key findings, summarized by specific market barrier, include:

- *Eliminating split incentives among developers/property owners/managers and building occupants*

  - In-depth interviews identify this as a major barrier, with PAYS being a major contributor to overcoming it (for tenants), but not contributing at all to overcome (for landlords).
- *Reducing risk for customers uncertain of future occupancy*
  - Not identified as a barrier during primary data collection. But, insufficient time in the field with portable measures to draw reliable conclusions.
- *Capturing non-electric savings with electric utility programs*
  - Not applicable for this lighting program
- *Lack of information - regarding specific energy efficiency technologies and their proper uses*
  - In-depth interviews did not identify this as a major barrier (only somewhat of a barrier). However, PAYS was identified as major contributor that could help to overcome this barrier – this must be tempered to recognize the fact that CORE programs may also provide information to help overcome this barrier.
- *High first costs associated with purchase and installation of energy efficiency measures*
  - In-depth interviews identified high first cost as a major barrier and PAYS as a major contributor to overcoming such a barrier.
- *Uncertainty that the energy savings will be sufficient to pay for the investment in a reasonable amount of time*
  - As shown below, numerous respondents identified this as a key barrier.
- *Difficulties for federal agencies, state and municipal building operators, non-profits, and other organizations to incur long-term debt obligations*
  - A shown below, this was identified as a key barrier by a number of telephone survey respondents.

Some barrier-specific findings:

  - Participant telephone surveys – top three barriers (scale of 1 to 3, where 1 = major barrier ad 3 = not a barrier): Information, uncertainty of savings, and high first cost (2.5 to 2.7). Bottom four barriers: Risk of equipment failure, risk of PAYS balance becoming a lien, risk of disconnection due to non-payment, difficulty in obtaining long-term debt (3.0 to 2.9)
  - Participant telephone surveys – PAYS contributions to overcoming barriers (scale of 1 to 3, where 1 = very helpful and 3 = not helpful): Top contributor, high 1st cost (1.2). Bottom contributors: information, uncertainty of savings, difficulty obtaining financing, and split incentives (but still high at 1.4 to 1.3).
  - Rejecter telephone surveys – top three barriers (scale of 1 to 3, where 1 = major barrier ad 3 = not a barrier): high 1st cost, uncertainty of savings, and risk of PAYS becoming a lien (2.3 to 2.5). Bottom four barriers: Risk of disconnection, risk of equipment failure, difficulty in obtaining long-term debt, and information about use (2.8 to 2.7)
  - Rejecter telephone surveys – PAYS contributions to overcoming barriers (scale of 1 to 3, where 1 = very helpful and 3 = not helpful): Top two contributors, high 1st cost and uncertainty about savings (1.4). Bottom contributors: difficulty obtaining financing and split incentives (1.8 to 2.0).
  - Non-participant focus group – top two barriers: high 1st cost and uncertainty of savings. 64% (9 of 14) think PAYS would help a lot to overcome the cost barrier, and 36% (5 of 14) think it would help a lot with overcoming the uncertainty of savings barrier.

- Non-participant focus group – maintenance, disconnection and disclosure requirements not viewed as a barrier (57% maintenance, 86% disconnection, 86% disclosure – not a concern).

1.3. What are the losses associated with PAYS products and have the companies been forced to disconnect any members/customers because of PAYS bad debt?

To date, bad debt associated with lighting products purchased through PAYS has not been an issue. Re-assessment of this question in a year would be appropriate to determine if this is an issue to be concerned with for PAYS portable measures. Key findings include:

- In-depth interviews note that no disconnections have been done due to bad debt.
- In-depth interviews noted that three members with portable measures have moved and customers took them with them to their new accounts (they all moved within NHEC territory), one moved member with portable measures went to bad debt.

1.4. What comments, if any, have the companies received from PAYS participants?

The lighting pilot was very well received by NHEC members, as illustrated in the consistently positive findings listed below. Per participant comments, the lighting pilot was not only successful at promoting energy efficient lighting, but also at education about the lighting and energy efficiency in general.

- In-depth interviewee claimed that overall member satisfaction is high and quality is good.
- In-depth interviewee noted that the lighting program participants have made very positive comments about the program and the savings that they are seeing on their electric bill.
- In-depth interviewees ranked success on achieving goals and quality of program both at 9.6.
- In-depth interviewee identified the greatest strength as allowing members to install measures with no upfront costs in a hassle free manner.
- In-depth interviewee identified the program as not only a success at selling CFLs, but as good educational component so CFLs were more likely to be used properly.
- Telephone participants rated overall satisfaction quite high (mean = 1.5 on scale of 1 to 5, where 1 = very favorable, and 5 = very unfavorable). Top three items: amount of paperwork, ease of participation, and billing (1.2 to 1.4). Bottom three items: printed materials, vendor, and follow-up (but still high at 2.1 to 1.9).
- Participant telephone surveys – ninety-five percent (19 of 20) said PAYS meets or exceeds expectations; eighty percent (15 of 20) definitely would participate again, zero percent experienced any problems with the pilot.
- Rejecter telephone surveys rated overall satisfaction (mean 2.7 on scale of 1 to 5, where 1 is very favorable and 5 is very unfavorable). Top 3 items: follow-up, information, and billing

system (1.25 to 2.25). Bottom 3 items: printed materials, salesperson and ease of participation (2.7 to 2.5).

- Rejecter telephone surveys – fifteen percent (3 of 20) definitely would participate if PAYS was offered in the future, forty-five percent (9 of 20) probably would participate, and twenty percent (4 of 20) definitely would not.

- Residential non-participant focus group – sixty-two percent (9 of 14) probably or definitely would participate in future program.

1.5. What improvements should be made to the PAYS infrastructure?

The primary issue associated with the PAYS lighting pilot was reported to be the administrative burden associated with tracking and billing. Other improvements, as shown below, include shifting the risk of available lighting inventory to a lighting manufacturer, develop training curriculum for retail staff, and shift more responsibility for bulk purchasing of CFLs to the retailer.

- In-depth interviewee noted PAYS billing arrangements are cumbersome and include manual elements that are the same for the smallest of projects as they are for larger efforts:
    - Identify necessary requirements based on criteria in filing: ability to track and pick up on arrearages, ability to track inactive accounts, conduct write-offs, mechanism for passing the unbilled PAYS charges onto next customer if a member moved, how to handle final payment, how to identify on member database that there was a PAYS measure installed, ability to stop payments and send members a statement every six months about what they still owe – some required manual processes developed around them.
    - Modification required to get PAYS permanent and portable measures to print on bills.
    - Once the loan is set up and on the bill, the whole process is automatic. However, some manual reporting is necessary to keep track and billing final payments is a manual process.

- In-depth interviewee noted a simpler explanation for lighting savings and associated PAYS payments would be helpful.

- In-depth interviewee noted that there is a fair amount of training needed for retail staff to answer questions about CFLs and PAYS and that not all trained staff are there at the right time to answer questions; "not perfect, but quite sufficient".

- In-depth interviewee noted that the lighting program did not have a training program for retail staff developed until after the program was started. If the pilot were to ramp up, it was felt that a formal training program would be needed.

- In-depth interviewee noted that the portable measures offer a higher risk for bad debt, are handled through mostly manual processes, and there is more room for problems. They further stated that the portable measures require a lot more attention and that administratively the costs outweighed the benefits. However it was noted that the CFL promotion was very popular.

- In-depth interviewee noted, as for expanding the lighting program beyond the pilot, it was noted that it may be difficult to manage on a larger scale, given the nature of the larger "big box" stores and the fact that they may not be equipped to offer the "hands-on" attention that was provided during the pilot.

- In-depth interviewee respondent noted that PAYS could be financed through a revolving loan fund rather than through an NHEC line of credit.

- In-depth interviews suggested better marketing, getting the word out, and testimonials might be a good marketing tool.

- In-depth interviewee suggested that lighting manufacturers could provide CFLs on consignment for a program like PAYS and then be paid for inventory that moves.

- In-depth interviewee suggested that for a future lighting program, NHEC could allow the hardware cooperatives to negotiate their own purchasing arrangements for inventory of CFLs, which could give them more control over the program.

- Non-participant focus group recommendations included:
  - Aggressive marketing (testimonial style examples).
  - Line item on bill estimating amount of money each month being saved.
  - Educational component to mitigate consumer skepticism regarding motives of the utilities and independence of the auditors.
  - Efforts to achieve simplicity and transparency in PAYS program structure.

2. NHEC Residential Weatherization Pilot

2.1 Does participation in PAYS result in more members accepting installation of more energy efficiency measures?

The weatherization pilot was successful in installing more measures in non-electrically heated homes, but was in conflict with NHEC's rebate program in electrically heated homes. It was determined early in the pilot that the PAYS program should focus its efforts on the non-electrically heated homes. This pilot has had limited participation to date but those who have participated said that they would not have done any of the work if PAYS was not offered. In-depth interview findings indicated that the PAYS weatherization pilot offered a more limited list of measures than the NHEC rebate program, which may have hindered more participation. Other key findings include:

- In-depth interviewees noted that rebate programs conflict with PAYS for electrically-heated homes, but more weatherization measures may be getting installed in LP gas-heated homes than would otherwise be done absent PAYS.

- In-depth interviewees noted that PAYS eligible measures are not the same list as measures eligible under the CORE program (less eligible under PAYS), would be nice if heating systems, windows, appliances, etc. could also be eligible.

- All in-depth interview respondents felt that more members accepted more measures as a result of PAYS.

- Participant telephone surveys – one hundred percent (all 2 respondents) would not have done any of the energy efficiency measures without PAYS, zero percent would have done all or most of the measures even without the PAYS, none have taken other energy efficiency steps outside of PAYS.

- Rejecter telephone surveys – eighty percent (4 of 5) of the respondents did not act on the PAYS recommendations on their own, twenty percent (1 of the 5 respondents) had purchased products that were considered, but not acted on through PAYS,. 60% (3 of 5) have taken other EE steps to reduce energy use (50% lighting – bulbs and fixtures, 50% other).

- Rejecter telephone surveys – twenty percent (1 of 5) probably would participate in PAYS offered in the future, zero percent stated that they definitely would participate.

2.2 Does PAYS overcome key market barriers?

The NHEC PAYS weatherization pilot was most effective at addressing the barrier of capturing non-electric savings with an electric utility program. Due to the conflict with the rebate program, the weatherization pilot focused on fossil-heated homes and although participation has been limited, satisfaction is high. Other key barriers addressed by the weatherization pilot are high first cost, uncertainty of savings and difficulty in obtaining financing. The weatherization pilot was noted to have had no affect on the significant barrier of split incentives between renters and property owners. More barrier-specific findings include:

- *Eliminating split incentives among developers/property owners/managers and building occupants*
  - From in-depth interviews, ownership appears to be a barrier to installing energy efficiency and PAYS does not appear to help overcome this barrier (100% of participants own vs. rent).
- *Reducing risk for customers uncertain of future occupancy*
  - Not identified as a barrier during primary data collection. But, insufficient time in the field to draw reliable conclusions.
- *Capturing non-electric savings with electric utility programs*
  - In-depth interviews show that weatherization services are successfully being provided to LP gas heated homes, but more effort to identify non-electric savings opportunities is needed.
- *Lack of information regarding specific energy efficiency technologies and their proper uses*
  - In-depth interviews do not identify this as a barrier
- *High first costs associated with purchase and installation of energy efficiency measures*
  - In-depth interviews identify as major barrier and PAYS major contributor to overcoming.
- *Uncertainty that the energy savings will be sufficient to pay for the investment in a reasonable amount of time.*
  - As noted below, a number of interviewees rated this as a key barrier.
- *Difficulties for federal agencies, state and municipal building operators, non-profits, and other organizations to incur long-term debt obligations.*
  - As noted below, a number of interviewees rated this as a key barrier.

Some barrier-specific findings:

- Participant Telephone surveys, (scale of 1 to 3, where 1 = major barrier ad 3 = not a barrier): no barriers identified (all rated 3.0).
- Participant telephone surveys, PAYS contributions to overcoming barriers (scale of 1 to 3, where 1 = very helpful and 3 = not helpful): Top contributors, high 1st cost, information, uncertainty of savings, & difficulty obtaining financing (all 1.0). Split incentive (N/A).
- Rejecter telephone surveys, top two barriers (scale of 1 to 3, where 1 = major barrier ad 3 = not a barrier): uncertainty of savings and high 1st cost (2.5 to 2.6). No other barriers identified (all 3.0).
- Rejecter telephone surveys, PAYS contributions to overcoming barriers (scale of 1 to 3, where 1 = very helpful and 3 = not helpful): Top contributors, high 1st cost, uncertainty about savings, information (equipment and use), and difficulty obtaining financing (all 1.3). Bottom contributors: none (all rate 1.3) except split incentives rate N/A.
- Non-Participant focus group, top two barriers: high 1st cost and uncertainty of savings. 64% (9 of 14 residential attendees) think PAYS would help a lot to overcome the cost barrier, and 36% (5 of 14) think it would help a lot with overcoming the uncertainty of savings barrier.
- Non-Participant focus group, maintenance, disconnection and disclosure requirements not viewed as a barrier (57% maintenance, 86% disconnection, 86% disclosure – not a concern).

2.3. What are the losses associated with PAYS products and have the companies been forced to disconnect any members/customers because of PAYS bad debt?

With the limited participation to date, bad debt has not been an issue with the weatherization pilot.

- In-depth interviews note that no disconnections have been done due to bad debt.

2.4 What comments, if any, have the companies received from PAYS participants?

Participants in the NHEC weatherization pilot have been very satisfied with the program and have offered only positive comments. Moreover, a majority of non-participants (62%) stated they probably or definitely would participate in the future. Other key findings include:

- In-depth interviewee respondents noted that overall member satisfaction is high and quality is good.

- For both the residential weatherization and small business programs, personal communications with participants (information sharing) was noted to be extremely important so that the members can make a sound and knowledgeable decision. "Program success hinges on these types of communications." It was felt that direct personal communications from NHEC staff, especially on residential projects, was very beneficial for the program success. All feedback from members was noted to be very positive. "If it wasn't for the PAYS program they would not have done these installations."

- In-depth interviewees rated success on achieving goals, using a scale of 1-10, where 10 is excellent, at 2.5, and rated the quality of program at 8.

- In-depth interviewees noted the pilot's greatest strength as allowing members to install measures with no upfront costs in a hassle free manner.

- "I'm glad you got this program because there is no way I could afford to install this stuff myself."

- Participant telephone surveys – 100% (all 2) said PAYS meets or exceeds expectations; 50% definitely would participate again, 0% experienced any problems with the pilot.

- Rejecter telephone surveys – overall satisfaction (mean 1.5 on scale of 1 to 5, where 1 is very favorable and 5 is very unfavorable). Top 4 items: level of paperwork, information, ease of participation and printed materials (1.5 to 1.67). Bottom 3 items: quality of service, utility staff and vendors (2.0).

- Rejecter telephone surveys – 20% (1 of 5) probably would participate of PAYS offered in the future, 0% definitely would, 40% (2 of 5) definitely would not.

- Residential non-participant focus group – 62% (9 of 14) probably or definitely would participate in future program.

2.5. What improvements should be made to the PAYS infrastructure?

Key improvement areas of the weatherization pilot were centered on the administration of tracking the projects. The recent move to the ENCOMPASS software was felt to be a positive one but that the transition made data manipulation more difficult. Another improvement was noted to have the role of PAYS program versus the rebate program more clearly defined. Also, expanding the list of eligible measures within the PAYS pilot was noted to be a necessary improvement. Other key findings include:

- In-depth interviewee noted PAYS billing arrangements are cumbersome and include manual elements that are the same for the smallest of projects as they are for larger efforts.

- In-depth interviewee identified staffing levels adequate to meet current demands, but if additional uptake occurs, additional staff will be needed.

- Regarding additional data, it was noted that it would be helpful to have a heading that says whether the project is a small business or residential project (currently all lumped in one database). A field to identify if offer was declined and reason for decline was also noted to be a good addition to the database.

- The move from the EETracks software to the ENCOMPASS software was noted to have made data manipulation a little cumbersome but the feelings were positive toward the shift to Encompass. IT problems were noted to be the biggest obstacle to data accessibility.

- Communications concerning program policy was noted to be adequate but there was room for improvement. An area of improvement was noted to be better notification of budgets and funding changes within the program. It was also noted that good communications

concerning policy changes will be important in the coming months as program changes are instituted.

- In-depth interviewee noted, for residential weatherization projects, the focus on non-electric savings was found to be an excellent service, but there was sensitivity noted as this may exclude electric customers. "This expands on the current CORE program delivery mechanism without having to use the same pot of dollars – this does not compete with the rebate dollars."

- One in-depth interview respondent noted that PAYS could be financed through a revolving loan fund rather than through an NHEC line of credit.

- Conflicts with rebates and does not overcome landlord/tenant barrier.

- In-depth interviews suggested: better marketing, getting the word out, and testimonials might be a good marketing tool.

- In-depth interviewee noted potential alternative source of funding PAYS products could be energy efficient home improvement loans offered by lending institutions.

- In-depth interviewee noted "It would probably do the program a whole lot of good the next time out to get input from the people that are in the field delivering the program. Not using all the resources that were available when they were developing the program initially was a mistake."

- Telephone participant surveys – overall satisfaction quite high (mean = 1.5 on scale of 1 to 5, where 1 = very favorable, and 5 = very unfavorable). Top five items: information, follow-up, printed materials, quality of service, vendor (all score 1.0). Bottom three items: billing, ease of participation and amount of paperwork (but still high all scoring 1.5).

- Non-participant focus group recommendations include:
    - Aggressive marketing (testimonial style examples).
    - Line item on bill estimating amount of money each month being saved.
    - Educational component to mitigate consumer skepticism regarding motives of the utilities and independence of the auditors.
    - Efforts to achieve simplicity and transparency in PAYS program structure.

3. NHEC Commercial Pilot

3.1. Does participation in PAYS result in more members accepting installation of more energy efficiency measures?

For the small business pilot, it was found that there was a conflict between the rebate program and the PAYS program and that PAYS was only used in niche applications, such as dairy farms where availability of cash was a primary issue. The PAYS pilot was modified to offer rebates, as necessary, to allow projects to pass the PAYS screening, which helped increase participation. Measures installed through the small business pilot to date have been almost entirely lighting. Other key findings include:

- In-depth interviews showed that conflicts with Core program rebates exist but by offering a combination of rebate and PAYS, commercial members appear to be installing more measures than they might otherwise have done.
- In-depth interviewee noted that although anything that passes PAYS test could be installed, ESCOs and electricians are a barrier to identifying potential measures (other than lighting).
- All in-depth interview respondents felt that more members accepted more measures as a result of PAYS – dairy farms sited as project best examples of installations that would not have happened without the program.
- Participant telephone surveys – one hundred percent (all 2 respondents) would not have done any of the energy efficiency measures without PAYS, one hundred percent (all 2) have taken other energy efficiency steps outside of PAYS (100% reduce usage).
- Rejecter telephone surveys – eighty percent (4 of 5) of the rejecters interviewed have done none of the energy efficiency measures recommended through PAYS, 20% (1 of the 5) have purchased products that were considered, but not acted on through PAYS, 100% (5 of 5) have taken other EE steps to reduce energy use (40% lighting, 60% other).

3.2 Does PAYS overcome key market barriers?

There has been limited participation in the small business pilot to date, but it appears that the program is successful in addressing three key barriers: high first cost, information on energy efficient equipment, and difficulty in obtaining financing. The participation of NHEC members who do not own their property is encouraging but too limited to determine whether the PAYS program is affecting the split incentive barrier. Other key findings include:

- *Eliminating split incentives among developers/property owners/managers and building occupants*
  - From in-depth interviews, ownership does not seem to be a major barrier and/or PAYS is a contributor to helping overcome the barrier (75% of participants own/25% rent).
- *Reducing risk for customers uncertain of future occupancy*
  - Not identified as a barrier during primary data collection. But, insufficient time in the field to draw reliable conclusions.
- *Capturing non-electric savings with electric utility programs*
  - More effort to identify non-electric savings opportunities is needed.
- *Lack of information regarding specific energy efficiency technologies and their proper uses*
  - In-depth interviews do not identify this as a barrier.
- *High first costs associated with purchase and installation of energy efficiency measures*

  - In-depth interviews identify this as a major barrier and PAYS major contributor to overcoming.
- *Uncertainty that the energy savings will be sufficient to pay for the investment in a reasonable amount of time*
  - In-depth interviews noted that savings is sometimes not seen due to seasonality issues, not as much an issue with dairy farms, office buildings and schools.
- *Difficulties for federal agencies, state and municipal building operators, non-profits, and other organizations to incur long-term debt obligations.*
  - In-depth interviews identify this as a major barrier with PAYS as major contributor to helping over come it.

Some barrier-specific findings:

- Participant Telephone surveys, (scale of 1 to 3, where 1 = major barrier ad 3 = not a barrier): Information about use of EE products identified as only barrier (at 2.5), all other items ranked 3.0 (not a barrier).
- Participant telephone surveys, PAYS contributions to overcoming barriers (scale of 1 to 3, where 1 = very helpful and 3 = not helpful): Top three contributors, high 1st cost, information on equipment, difficulty obtaining financing (all 1.0). Bottom contributors: information on use, savings uncertainty, and split incentives (all 2.0).
- Rejecter telephone surveys, top barrier (scale of 1 to 3, where 1 = major barrier ad 3 = not a barrier): high 1st cost (2.8). No other barriers identified (all 3.0).
- Rejecter telephone surveys, PAYS contributions to overcoming barriers (scale of 1 to 3, where 1 = very helpful and 3 = not helpful): Top three contributors, information (equipment and use), high 1st cost and uncertainty about savings (1.3 to 1.8). Bottom contributors: difficulty obtaining financing and split incentives (2.0).
- Non-Participant focus group, top two barriers: high 1st cost and uncertainty of savings. 64% (9 of the 14 attendees) think PAYS would help a lot to overcome the cost barrier, and 50% (7 of 14) think it would help a lot with overcoming the uncertainty of savings barrier.
- Non-Participant focus group, maintenance, disconnection and disclosure requirements not viewed as a barrier (64% maintenance, 79% disconnection, 64% disclosure – not a concern).

3.3 What are the losses associated with PAYS products and have the companies been forced to disconnect any members/customers because of PAYS bad debt?

With the limited participation to date, bad debt has not been an issue with the small business pilot.

- Depth interviews note that no disconnections have been done due to bad debt.

3.4. What comments, if any, have the companies received from PAYS participants?

Comments from participants have been very positive and nearly all (93%) of the non-participants in the focus group said that they would probably or definitely participate in a future program. All participants interviewed noted that the PAYS program either met or exceeded expectations. Other key findings include:

- In-depth interviewecs claimed that overall member satisfaction is high and quality is good.

- For both the residential weatherization and small business programs, personal communications with participants (information sharing) was noted to be extremely important so that the members can make a sound and knowledgeable decision. "Program success hinges on these types of communications." All feedback from members was noted to be very positive. "If it wasn't for PAYS they would not have done these installations."

- In-depth interviewees rated success on achieving goals at 6 and quality of program as an 8.

- In-depth interviewees noted NHEC small business PAYS pilot's greatest strength as allowing members to install measures with no upfront costs in a hassle free manner.

- Telephone participant surveys – overall satisfaction quite high (mean = 1.0 on scale of 1 to 5, where 1 = very favorable, and 5 = very unfavorable). Top six items: information, follow-up, printed materials, quality of service, vendor, and amount of paperwork (all score 1.0). Bottom two items: billing and ease of participation (but still high at 2 and 1.5).

- Participant telephone surveys – one hundred percent (all 2 respondents) said PAYS meets or exceeds expectations; 100% (2) definitely would participate again, 0% experienced any problems with the pilot.

- Rejecter telephone surveys – overall satisfaction (mean 1.4 on scale of 1 to 5, where 1 is very favorable and 5 is very unfavorable). Top 3 items: information, printed materials and quality of service (1.2 to 1.4). Bottom 4 items: salesperson, billing system, ease of participation, and level of paperwork (3.0 to 1.75).

- Rejecter telephone surveys – twenty percent (1 of 5) definitely would, 0% probably would participate of PAYS offered in the future, 40% (2 of 5) definitely would not.

- Commercial non-participant focus group – ninety-three percent (13 of 14) probably or definitely would participate in future program.

3.5 What improvements should be made to the PAYS infrastructure?

A key improvement to the small business PAYS pilot was noted to be a better, more defined integration with the NHEC rebate program. In addition, as with the other NHEC pilots, administrative tracking was noted be an area that would need streamlining if the pilot was to be expanded. As with the residential weatherization pilot, the move to Encompass software was seen as a positive step. It was also suggested that PAYS be financed through a revolving loan fund. Other key findings include:

- In-depth interviewees noted PAYS billing arrangements are cumbersome and include manual elements that are the same for the smallest of projects as they are for larger efforts.

- In-depth interviewees noted some would rather go with the 50% rebate.

- In-depth interviewee noted some suspicion associated with 7% charge.

- In-depth interviewee identified staffing levels adequate to meet current demands, but if additional uptake occurs, additional staff will be needed, sufficient installation contractors were noted to be available.

- Regarding additional data, in-depth interviewee noted that it would be helpful to have a heading that says whether the project is a small business or residential project (currently all lumped in one database). A field to identify if offer was declined and reason for decline was also noted to be a good addition to the database.

- In-depth interviewee noted the move from the EETracks software to the ENCOMPASS software made data manipulation a little cumbersome but the feelings were positive toward the shift to ENCOMPASS. IT problems were noted to be the biggest obstacle to data accessibility.

- In-depth interviewee noted communications concerning program policy as adequate but there was room for improvement. An area of improvement was noted to be better notification of budgets and funding changes within the program. It was also noted that good communications concerning policy changes will be important in the coming months as program changes are instituted.

- In-depth interviewee noted that the PO system could be more timely as the PO's sometimes get held up due to missing or misplaced information. As compared to non-PAYS projects, they were noted to be about the same, with the one additional piece of paperwork being the PAYS contract.

- The PAYS program's conflict with rebates was noted by several in-depth interview respondents as a program issue. For small businesses, it was noted that combining the rebates and PAYS financing was very successful. It was also noted that since the pool of funding for rebates is limited, when it is exceeded, PAYS will be the only option.

- One in-depth interview respondent noted that PAYS could be financed through a revolving loan fund rather than through an NHEC line of credit.

- Conflicts with rebates and does not overcome landlord/tenant barrier.

- In-depth interviews recommended better marketing, getting the word out, and testimonials as a good marketing tool.

- In-depth interviewee noted "It would probably do the program a whole lot of good the next time out to get input from the people that are in the field delivering the program. Not using all the resources available when they were developing the program initially was a mistake."

- Non-participant focus group recommendations include:
    - Aggressive marketing (testimonial style examples).
    - Line item on bill estimating amount of money each month being saved.
    - Educational component to mitigate consumer skepticism regarding motives of the utilities and independence of the auditors.
    - Efforts to achieve simplicity and transparency in PAYS program structure.

B. PSNH Municipal Pilot-Specific

1. Does participation in PAYS result in more members/customers accepting installation of more energy efficiency measures?

It appears that the municipal PAYS pilot was successful in getting more municipalities to install more energy efficient measures. Half of the participants responded that they would not have completed the project without PAYS, and the other half noted that they would have only done some of the work. However, the majority of the measures installed to date have been lighting. Other key findings include:

- In-depth interviews indicate that PAYS is resulting in more measures being installed in municipal buildings, however it was also noted that these are primarily lighting measures and they are passing the PAYS screening only with rebate funds included in many cases.

- In-depth interviewee noted that the requirement of two-thirds of savings paying back costs in three quarters of the measure life leads to only the most cost effective projects getting developed. It was also noted that roughly one third of municipal pilot participants choose to apply 100% of the savings to the project so that the loan is satisfied sooner.

- In-depth interviewee indicated that the PAYS program's greatest strength was that it allowed municipalities to install energy efficient measures with no upfront costs.

- In-depth interviewee noted that although there are other sources of capital for PAYS products, such as municipal leases, PAYS offers better financing and allows customers to complete projects much quicker than if they were using a lease.

- Participant telephone surveys – fifty percent (5 of the 10 respondents) would have done none of the PAYS recommended energy efficiency measures without PAYS, fifty percent (the other 5 of 10) would have done only some of recommended measures even without the PAYS; forty percent (4 of 10) have taken other energy efficiency steps outside of PAYS (75% reduce usage, 25% other).

- Rejecter telephone surveys – sixty-seven percent of the rejecter respondents (6 of 9) have not purchased any of the products (taken the energy efficiency actions) that were recommended but not acted on through PAYS; thirty-three percent (3 of 9) have purchased products that were considered, but not acted on through PAYS; thirty-three percent (3 of 9) have taken other EE steps to reduce energy use (67% lighting – bulbs & fixtures, 33% reduce usage).

2. Does PAYS overcome key market barriers?

The two major barriers that were effectively addressed by PSNH's municipal PAYS pilot were those of difficulty for municipalities to incur long-term debt obligations and high first cost. Another barrier that was noted to have been addressed was the uncertainty of energy savings, as it was noted that PSNH brings "credibility to the table" when discussing savings estimates. Other key findings include:

- *Eliminating split incentives among developers/property owners/managers and building occupants*
    - Due the nature of the pilot, which focuses on municipalities, this barrier cannot be addressed through the pilot activities to date.

- *Reducing risk for customers uncertain of future occupancy*
    - In-depth interview responses were mixed for this barrier but those that felt that it was a barrier also felt that the program did not address it.

- *Capturing non-electric savings with electric utility programs*
    - In-depth interviews indicated that projects to-date have focused primarily on lighting, there were no instances of non-electric measures mentioned. This was noted to be because ESCOs and contractors are driving the scope of projects and their expertise is in lighting. It was also noted that the more stringent screening of PAYS projects may limit the scope of the projects.

- *Lack of information regarding specific energy efficiency technologies and their proper uses*
    - In-depth interviews indicated that this was not a major barrier.

- *High first costs associated with purchase and installation of energy efficiency measures*
    - In-depth interviews indicated that this was a major barrier and that the PAYS program was very effective in addressing it.

- *Uncertainty that the energy savings will be sufficient to pay for the investment in a reasonable amount of time*
    - In-depth interview results for this barrier were mixed but those that did feel that it was a barrier also felt that the PAYS program was very effective at addressing it.
    - In-depth interviews noted that PSNH helps to bring "credibility to the table" when discussing savings estimates.

- *Difficulties for federal agencies, state and municipal building operators, non-profits, and other organizations to incur long-term debt obligations*
    - In-depth interviews indicated that this was a major barrier and that the PAYS program was very effective in addressing it.

Some barrier-specific findings:

- Participant Telephone surveys – top three barriers (scale of 1 to 3, where 1 = major barrier and 3 = not a barrier): high first cost, information and uncertainty of savings, (2.2 to 2.5). Difficulty in obtaining financing also identified (2.7) no other barriers listed (all else = 3.0).
- Participant telephone surveys – PAYS contributions to overcoming barriers (scale of 1 to 3, where 1 = very helpful and 3 = not helpful): Top contributors, high 1st cost, information about equipment, uncertainty of savings, and difficulty obtaining financing (1.2 to 1.5). Bottom contributor: information about use (1.6). Split incentives N/A.
- Rejecter telephone surveys – top three barriers (scale of 1 to 3, where 1 = major barrier and 3 = not a barrier): difficulty obtaining long-term financing, high 1st cost, and uncertainty of savings (2.0 to 2.4). Bottom three barriers: Risk of balance becoming a lien, risk of disconnection and information about products (2.9 to 2.8).

- Rejecter telephone surveys – PAYS contributions to overcoming barriers (scale of 1 to 3, where 1 = very helpful and 3 = not helpful): Top two contributors, high 1st cost and uncertainty about savings (1.4). Split incentive barrier also listed but results are skewed since majority of respondents stated N/A. Bottom contributors: difficulty obtaining financing and information about equipment (1.7 to 1.6).
- Non-participant telephone surveys, top two barriers (scale of 1 to 3, where 1 = major barrier ad 3 = not a barrier): high 1st cost and uncertainty of savings (both 1.5). Bottom three barriers: Risk of disconnection, risk of equipment failures and risk of becoming a lien (3.0 to 2.7)

3. What are the losses associated with PAYS products and have the companies been forced to disconnect any members/customers because of PAYS bad debt?

Losses and/or bad debt has not been an issue for the municipal pilot program.

- In-depth interviews indicated that there have been no instances of customers being disconnected due to PAYS-related bad debt.

- In-depth interviewee noted one instance where ballasts installed through a PAYS project needed to be removed because they interfered with the fire detection system. The contractor removed the ballasts and PSNH was not charged for the project.

4. What comments, if any, have the companies received from PAYS participants?

Participant feedback on the municipal pilot has been very positive, with all participants interviewed stating the PAYS program either met or exceeded expectations and 80% responding that they would definitely participate again. There were some problems noted, including equipment failures and lack of good communication. Other key findings include:

- In-depth interviews noted that customer feedback has been very positive for the PAYS program.

- In-depth interviews noted that customers like the freedom to choose their contractors.

- Telephone participant surveys – overall satisfaction quite high (mean = 1.2 on scale of 1 to 5, where 1 = very favorable, and 5 = very unfavorable). Top three items: billing, quality of services, and follow-up (1.1 to 1.3). Bottom five items: salesperson, amount of paperwork, ease of participation, utility staff, and printed materials (but still high at 2.0 to 1.6).

- Participant telephone surveys – one hundred percent (all of the 10 respondents) said PAYS meets or exceeds expectations; 80% (8 of10) definitely would participate again, twenty-two percent (2 of 10) experienced problems with the pilot (*i.e.*, equipment failures, lack of communication, inability to get direct answers, didn't inform about all the changes in electric bill).

- Rejecter telephone surveys – overall satisfaction (mean 1.6 on scale of 1 to 5, where 1 is very favorable and 5 is very unfavorable). Top 4 items: information, printed materials,

utility staff and vendors (1.8 to 2.0). Bottom 3 items: follow-up, level of paperwork, ease of participation (3.0 to 2.3).

- Rejecter telephone surveys – twenty-two percent (2 of 9) definitely would, sixty-seven percent (6 of 9) probably would participate of PAYS offered in the future, eleven percent (1 of the 9 respondents) definitely would not.

- PSNH Exit Survey response: "All county buildings are efficient thanks to PAYS. As new technology comes along, I'll participate."

- Non-participant phone surveys – twenty percent (4 of the 20 respondents) definitely would and ten percent (2 of 20) probably would participate if PAYS offered in the future.
    - Reasons for potential future participation included:
        - To upgrade and save cost.
        - Cost efficiency.
        - Savings.
        - Would work well with the street lights.
        - Working under previous program was excellent.
        - Involved in a lot of energy efficient programs.
    - Reasons for likely non participation included:
        - There is no need for any lighting or heating or other changes in the building.
        - Just updated and don't need.
        - They wouldn't spend the time or money.
        - Too much money and don't need it.
        - Not sure of the savings.
    - Additional info they would need before deciding to participate included:
        - More specifics.
        - Requirements of program.
        - Need it in writing.
        - All of it in writing.
        - Basics in writing.
        - Paperwork and a description mailed to all three selectmen.
        - What products there are.
        - Look at options and time and energy it required on my part.
        - Info on time frame and more about contract.
        - Need the cost and duration of specific products.
        - Cost, time and dollars, associated with their involvement.
        - Cost in the long run.

5. What improvements should be made to the PAYS infrastructure?

A primary issue that will need to be addressed if the pilot is to be expanded is the improved automation of PAYS tracking and billing. Similarly, it was noted that the level of administrative effort required for all projects is nearly the same, so that small projects may not be cost effective. A suggested improvement was to offer prescriptive measures and streamline the requirements of participating. Other suggestions included:

- In-depth interviews indicated that the quality of the work being performed in the PAYS program was excellent and that the quality control procedures were very comprehensive.

- In-depth interviewee indicated that on a going forward basis, the program will need improved automation of PAYS billing as much of the current system requires manual operations.

- In-depth interviewee noted that an electronic database would be needed if the program expands.

- In-depth interviewee noted that it would be helpful to supply vendors with feedback on a PAYS project after it has been in repayment for a few months.

- In-depth interviewee noted that contractor payments for PAYS projects are often delayed.

- In-depth interviewee indicated that the administrative burden of small projects is similar to that of larger ones. One solution suggested was to offer prescriptive measures and then streamline the PAYS process to work with less paperwork.

- In-depth interviewee noted that some projects take too long and that administrative burdens may be too high.

- In-depth interviewee noted that the inability to make changes to the scope of work as the project progresses is a major weakness in the program and that the PAYS incentive mechanism is small compensation for lost sales associated with operating a successful program.

- Better informational program materials.

- Telephone interviews highlighted a need for more written program information.