Upstream with Residential HVAC Programming in the Northeast

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ABSTRACT

This paper explores the process of regionally coordinated engagement of upstream market actors (manufacturers and distributors) in the residential HVAC marketplace launched in 2007 in the northeast. The paper enables attendees to understand the drivers behind a decision to jointly move upstream to enhance program outreach to end-use customers and HVAC contractors through stronger relations with distributors and manufacturers, and the subsequent process undertaken to pursue joint, cooperative activities between efficiency programs and industry.

The authors share the experience of Northeast Energy Efficiency Partnerships (NEEP) and its efficiency program sponsors in identifying the reasons to move upstream; provide an overview of the actions undertaken to execute; describe initial outcomes and extensions; discuss the future course of action; and share lessons learned[1]. Research and initial relationship-building efforts begun as early as 2004 culminated in early 2007 with a series of face-to-face meetings between efficiency program staff and upstream partners to begin developing an open-ended solicitation process in the residential sector. The process of inviting market actors to participate in the open-ended solicitation was undertaken during the summer of 2007, with negotiation and execution of promotional agreements in the fall, and initial activity ramping up in early 2008. However, the current efforts are just the beginning, so even as the activity continues today, lessons learned and initial outcomes are significant and will be discussed.

Introduction

Throughout the ages in the world of energy efficiency programs the paradigm for residential air conditioning incentive programs has been relatively constant: provide incentives to the end-use customer via outreach and active "selling" by the contractor[2]. In the northeast, residential programs have traditionally been run by the individual utilities or other program administrators (e.g., Efficiency Vermont) and have been built around customer rebates filled out by the contractor as part of the sales and installation process. These efforts have included use of a "circuit- rider" and local development of relationships with distributors as well.

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[1] Northeast Energy Efficiency Partnerships (NEEP) is a non-profit organization that coordinates regional efficiency program activity in the northeast and mid-Atlantic region. With gratitude for their support, NEEP wishes to acknowledge the actively participating efficiency program sponsors, including: Efficiency Maine, Efficiency Vermont, New York State Energy Research and Development Authority, Long Island Power Authority, National Grid, NSTAR, New Jersey Clean Energy Program. Additional program sponsors considering the opportunity in the near future include Cape Light Compact, Western Massachusetts Electric, Connecticut Light & Power and United Illuminating.

[2] Recent years have seen the addition of outreach to and cooperation with distributors and trade associations by some efficiency programs.

For a host of reasons, recent years have seen the market dynamics for air conditioning in the northeast change, with equipment costs and baseline efficiencies both increasing, making the savings to both efficiency program and end-use customer shrink, in turn putting pressure on the cost to energy savings ratio metrics that drive the programs, as well as on the end use customer purchase decision. The rising prices in particular led the ever-so-competitive contractor community to focus more and more on "not losing the job", driving the first cost to be the main concern and lowering the ability to take time and risk to upsell high efficiency or high quality. As program designs identified and required certain installation best practices, additional pressures fell on participating contractors. Such requirements as documentation of proper refrigerant charge and proper adjustment of air flow at commissioning, as well as conducting and providing load calculations (Manual J) supporting that the system is not over-sized, placed further pressure on the contractor. Even the willingness to take the time to fill out rebate paperwork apparently waned as rebate volumes showed signs of having reached a plateau. At the same time, evaluation activity and research led to awareness and policy interest in equipment sizing and installation quality. How can these multiple negative factors be dealt with to maintain and build market share, improve installation quality, and capture demand and energy savings while still being cost-effective and accepted by the market? One possible solution, which has been developing for three-plus years, is to change the program paradigm by focusing on the upstream market actors on a broad regional basis, including distributors and manufacturers, to supplement or at some point perhaps supplant the primary focus on the end-use customers and contractors[3].

Research Drivers

Although there is no shortage of evaluation and research activity associated with residential split systems, studies and events that can be identified as initial factors in steering the efficiency programs in the northeast toward upstream programs emerged in the 2004-2006 timeframe. As part of a 2004 strategic review of its own activities, Synapse Energy Economics suggested to NEEP that, with respect to residential HVAC, it "coordinate and implement cooperative campaigns with HVAC manufacturers to market ENERGY STAR HVAC systems" (Woolf, 36). At roughly the same time, at the 2004 ENERGY STAR HVAC Partners Meeting in Chicago, one of the U.S. EPA's main messages was around development of activities geared toward teaching and encouraging quality installation of residential HVAC systems. Meanwhile, a multi-party study was launched to develop strategies to increase efficiency of residential HVAC systems for the National Association of State Energy Offices' State Technology Advancement Collaborative (Titus), which would, even while in process, serve to guide understandings of the northeast market and market actors as upstream strategies were being considered and developed.

Preparing to Move Upstream

Given the novelty of the upstream approach, the long, stable history of operating rebate programs targeting customers and relying on the contractor, and the limitations of localized relationships at the distributor and manufacturer level, the shift towards upstream programming on a

[3] Various efficiency programs have long-standing relationships and cooperative programming on a local or even statewide basis, but to extend that regionally and to involve the totality of distributors' territories would enable more complete engagement of the distributor in particular.

regional basis is not an easy one. Efficiency programs in the northeast, particularly the New Jersey Clean Energy Program and the Massachusetts and Rhode Island Cool Smart Program, have had existing relationships with distributors and some manufacturers for several years but have wrestled with how to achieve more out of them. In addition, feedback from these partners has suggested a need for consistency across the territories served by distributors and the manufacturers they represent. As a regional efficiency organization operating via facilitated regional initiatives that coordinate, rather than directly operate, programs of the utilities and other efficiency program administrators, NEEP committed itself to develop understanding, support and buy-in for the idea of exploring the upstream possibilities from its sponsors, the program administrators. With limited and localized relationships beyond the contractor community, a significant amount of relationship building by all parties on the efficiency program side of the equation with the manufacturers and distributors, and building understanding and awareness of the potential to work regionally, would be necessary prior to "jumping in" to an upstream approach. Of course, the question of what exactly an upstream approach looks like and how it would operate as a regionally coordinated effort of separately operated programs had to be answered as well.

With such a new, largely untried in the region (as of 2004) approach on the table, NEEP faced a tough challenge initially: securing support from the efficiency program administrators for a loosely defined and largely nebulous concept. With production and cost of energy saved metrics to be achieved, and an arguably stressed air conditioning marketplace already, significant change such as going upstream on a regional basis implied substantial risk and time investment for the efficiency programs. For NEEP, the research and positive experiences with an upstream model in residential retail lighting were arguably pivotal to "selling" the concept to program administrators and, within NEEP itself, to securing the essential buy-in to the idea of dedicating scarce staff resources to developing the concept. Research, as described above, suggested that upstream was the direction to go due to the opportunity to reduce costs and increase effectiveness, or market reach, of the programs. Experience with upstream efforts from residential lighting program strategies that had involved upstream cooperative promotions with industry in the compact fluorescent lamp (CFL) segment for several years provided insight. Residential CFL efforts reduced transaction costs from $0.50 or more per CFL to less than $0.10 and increased volumes of product placed tenfold or more by shifting from instant rebate coupons to wholesale price markdowns. The CFL model involved releasing a solicitation to the market and then, based on their proposals, negotiating with interested manufacturers and retailers to pay a set incentive amount to the manufacturer or retailer in exchange for their pricing the product at a significantly reduced cost, often reduced by more than incentive amount due to the benefits of scale economies associated with increased production and distribution volumes. Incentives under this model are paid to the upstream partner once shipping and/or sales data are provided so not only are costs reduced and volumes increased, but improved market data is generated as well. With HVAC-specific research data and a successful model in operation in another segment, sufficient support was secured from sponsors to explore the upstream opportunity in the HVAC market.

Although the model for CFL upstream approaches was known, differences in the costs and investments in energy efficient HVAC systems created some barriers to completely accepting this model for program administrators. The typical efficiency program contribution/incentive for a high efficiency HVAC system is several hundred dollars as opposed to a few dollars for lighting. In addition, as discussed above, there are elements of the installation practice objectives that efficiency programs must target and that are components of the energy savings calculations underlying benefit/cost ratios and production goals. Therefore, rather than simply tracking units sold as with

lighting, the processing of HVAC incentives is complex, requiring significant information about the unit replaced (if applicable), the installation, and even the residence in which a unit is installed. Ultimately, though experience with CFL programs operating upstream was helpful and provided a conceptual model, the effort to attempt to apply it in the HVAC market would be far more complex and difficult. Nonetheless, the potential of the new strategy carried the day and decisions were made to explore moving upstream.

Relationship Building

With support in place the need became to build out the existing local relationships into regional ones, to cultivate new upstream relationships, and "pave the way" to launch active pursuit of cooperative activities with the HVAC industry. In 2005, NEEP began expanding and developing relationships with HVAC manufacturers and distributors and facilitating, when necessary, introduction of program administrators to industry. By polling sponsors, advisors and existing HVAC contacts an inventory of potentially appropriate and interested contacts within the manufacturing, distribution and trade/professional association ranks was assembled. Throughout 2005, informal conversations about industry's perspective on what drives the market and how to better impact it through efficiency programs led to the execution of a full day joint meeting in October, 2005 between efficiency program staff throughout the New York, New Jersey and New England region with representatives of major manufacturers and distributors.

This meeting was carefully structured to "wade into" the idea of region-wide upstream cooperation by first presenting to industry an overview of the policy and regulatory constructs that programs operate under, and providing an overview of the 2006 directions planned to be taken by the various efficiency programs. Based on EPA ENERGY STAR activity with respect to quality installation, a conversation was raised in which NEEP invited industry to provide their perspective on the issue of installation quality and sizing[4]. This balance of "we'll share with you" followed by "you share with us" was an intentional technique to build rapport and instill a sense of cooperation, equality and sharing. The second half of the daylong meeting was utilized to advance the question of how industry and programs could work together. A set of potential areas for cooperative work (consumer education, contractor training, trade school support, third party verification of installations and matching rebate campaigns) was offered to industry with the question: "Does this list sound right and feasible? Are there things to add or remove?" The discussion was followed by presentations by efficiency program staff of examples of how programs and industry have, in the past, already worked together on various education and marketing efforts. The outcome of the meeting was commitment to maintain contact, further build relationships and explore on a program-by-program basis additional cooperative opportunities through 2006, which happened primarily in the form of a cooperative quality installation verification (QIV) training CD-ROM and development (by the Massachusetts utilities). Another upstream effort called "Cool Card" was launched in MA and RI in 2007 on a small scale. Cool Card involved equipment listing and a SPIFF program whereby distributors streamlined the process for contractors of determining which coil/condenser pairings would be eligible for what existing consumer rebates, and that enabled distributors to receive incentives for selling them.

[4] ENERGY STAR began piloting use of the recently completed Air Conditioning Contractors of America (ACCA)/ANSI Quality Installation Specification in 2007 after expressing interest in it throughout its development.

The Northeast's Upstream Process

By the beginning of 2007 all the pieces were in place to launch the process of defining and executing upstream cooperative promotions with industry in both the residential and commercial markets. The effort became extremely complex and laborious given the varying degrees of awareness and understanding in industry and the varying programmatic (budget, incentive strategy and data) needs of sponsors as well as planning and regulatory timelines that were different for virtually all parties. NEEP undertook an initial kick-off that entailed a series of joint meetings between industry and efficiency program staff to shell-out directions, processes and next steps[5].

Working with program sponsors, initial lists of potentially interested industry parties were developed and a series of kick-off meetings were planned for Providence, Rhode Island in April of 2007. Interested parties were invited to the meetings with NEEP and efficiency program sponsors described as "to discuss working cooperatively to encourage the purchase, quality installation, and maintenance, of high efficiency heating and cooling equipment." Since the residential HVAC market actors had been exposed to small-scale, information-oriented cooperative activity already and demonstrated themselves to be at a level of readiness to discuss specific ideas and directions that would benefit from the confidential, one-on-one format. Over the course of the two days of meetings representation from efficiency programs in each of the New England states, New York and New Jersey engaged with over a dozen industry parties, including representation from major manufacturers and distributors such as American Standard, Bryant, Carrier, Lennox, Trane and York. Individual meetings were conducted with each of the five residential HVAC manufacturers and their distributor affiliates in 2 hours sessions over two days under the assumption that candor and depth of sharing would be enhanced by not having competing manufacturers in the room. The objective was to confirm that the residential market actors were indeed "ready" for a serious effort at developing industry-proposed cooperative promotional activities; to discuss trends, opportunities and drivers in the northeast's residential HVAC marketplace; and to help shape the form of a solicitation for cooperative activity proposals. Indeed the conversations were frank and the information shared included considerable detail and was often competitively sensitive. Information gathered included:

- Details on manufacturers' strategies and program structures for stimulating sales, generally through comprehensive incentive and marketing programs targeting both the customer (advertising, incentives, financing and warranties) and the contractor (incentive programs and sales contests)
- Details on manufacturer and distributor views on quality installation and contractor practices (some embrace quality installation as achievable and some do not based on potential for contractor push-back; most have some installation checklists or protocols, some of which include sizing). Generally, and to the pleasant surprise of efficiency program administrators, equipment sizing emerged as the place where there is considerable promise of cooperatively achieving impact.
- Approaches already used for training and sales support
- Perceptions on market drivers, barriers and opportunities (a theme was "fear price but sell quality and comfort")

[5] Meetings were also held, separately, to discuss opportunities within the commercial sector and are described in a paper presented to Association of Energy Services Professionals in January, 2008.

- Levels of engagement with existing utility-type programs (expressed concern that these programs are too cumbersome and unstable in terms of year-to-year consistency for some/many(?) contractors to engage them)
- Levels of engagement with tax incentives as a sales strategy (many recognize this a great, "free" sales tool)
- Extent to which installation quality is viewed by manufacturers and distributors as creating financial exposure via warranty claims and product returns (from contractor callbacks to warranty claims this is a real issue)
- Whether off-season sales and early retirement are viable sales strategies (depending on the region there really may not be much of an off-season, and early retirement is great in theory but a very expensive sell)
- How the transition to R410A refrigerant impacts sales and installation (R410 is sufficiently different and under high enough pressure that proper charge *should be* more and more a necessity)
- How ductless mini-split and inverter-based technology are impacting the market (this is still a niche but the inverter technology's efficiency creates a threat)
- Industry views on ECM motors and whether airflow correction can be "sold" without them (the industry must sell comfort and not lose jobs, so ECM will carry the day rather than duct system redesign and repair)

The meetings were successful, defined the approach to ultimately take, and provided a wealth of information for program operations.

Although the general philosophies and directions to take in developing joint program activities were resolved, one key question that received some discussion but no clear sense of agreement was regarding definition of the data requirements of efficiency program staff and the ability of industry to meet them.

Cooperative Activities Solicitation

The ultimate outcome of the joint industry-efficiency program meetings was to develop an open-ended solicitation process through which industry would propose cooperative promotional activities to the efficiency program administrators and to which the programs would respond. After the Providence meetings the challenge was to develop a solicitation document that would provide enough guidance to industry to enable responses that would achieve the objectives of the efficiency program administrators, yet be open-ended enough to enable industry to both be creative and recognize the sincere interest of efficiency program staff in letting them set the specific direction for upstream cooperative work. Key to the solicitation was drilling down as much as possible on the data and regulatory requirements of efficiency programs and reminding industry that it is data that enables all utility-type programs to be assessed and documented as cost-effective. It was also critical to explain clearly that some, all, or none of the participating efficiency programs may opt to pursue any or all proposals so the cooperative activities proposed should be scalable to the extent possible. Furthermore, since the distribution chain in the northeast is not consistent across manufacturers, the particular states and even programs within those states would be served by different distributors in some cases so the upstream parties had to be clearly instructed on how to identify which specific efficiency programs their proposal was relevant for. Finally, since parties

other than those involved in previous meetings and discussions would be involved, sufficient background and context had to be developed to enable new parties to adequately understand the nature of the process, the utility-type programs involved, and the general direction being pursued.

The solicitation was released in late June, 2007 and was followed by a bidder's teleconference and subsequent one-on-one meetings or teleconferences with individual industry partners. The choice to conduct another round of one-on-one meetings was driven by experience in launching an upstream effort in the CFL market that clearly pointed to a need to "coach" preparation of responses to ensure that they were reasonably consistent with expectations and capable of being compared with each other[6]. Responses were due in mid August of 2007.

A total of 21 different proposals were received from ten different upstream parties in response to the June, 2007 solicitation and one-on-one meetings. Proposals were of four types:

1. Piggybacking efficiency rebates and in some cases marketing funds with existing manufacturer comprehensive programs, including customer incentives and marketing as well as in some cases sales incentives, sales tools, and training for contractors. These would serve to supplement, not replace, existing efficiency program incentive offerings.
2. Distributor-based programs that would provide a certain lump-sum per unit of equipment sold and in some cases a fixed administration fee to the distributor, who would then utilize the funds for whatever incentive, advertising, training and sales or stocking incentives would achieve the targeted sales volume. These would replace, not supplement, existing efficiency program incentive offerings.
3. Training and tools programs that would use efficiency program funds to supplement industry funds for contractor training and/or subsidized pricing for sales and/or quality installation tools.
4. Pure marketing co-op which would utilize efficiency program funds for print, radio, television, in-store, and/or truck signage advertising (which are straightforward in concept and therefore will not be elaborated on in this paper).

Over a ten week period, through October, 2007, NEEP facilitated review of proposals, follow-up questions and discussion with industry, and identification of which efficiency programs intended to follow-up and pursue agreements with which proposers. Ultimately, almost half of the sponsors found themselves under a combination of regulatory/policy, budget, or program timing constraints that prohibited participation immediately and the other half proceeded to work toward agreements with industry first on incentive-oriented promotions and next on training and tools.

Incentive Proposals: Negotiations, Contracting and Launch

The November, 2007 through February, 2008 period saw a protracted series of discussions and negotiations between industry and NSTAR, National Grid (Massachusetts and Rhode Island) and the New Jersey Clean Energy Program regarding the incentive oriented proposals. STAR and National Grid were limited to consideration of air conditioning only, while the New Jersey Clean Energy Program also included gas heating equipment. Four different proposals were on the table, representing three different types of incentive strategies (as proposed):

[6] It is important to be clear that in order to maintain a fair and transparent process, these "coaching" sessions were limited to matters of general content and format rather than specific strategies and ideas.

1. A distributor based model that would see the efficiency programs fund a distributor to independently promote a program, to deliver a target number of properly installed, high efficiency units. This program would rely almost entirely on the creativity and drive of the distributor, which would receive initial fixed administration (a provision revised during negotiations) and some marketing related funding from the efficiency programs and then the larger incentive and marketing payments from the efficiency programs upon detailed reporting of participation and sales. This program would preclude participants from participating in other efficiency program offerings.
2. A manufacturer and efficiency program piggyback structure in which the efficiency programs would fund all or part of the required dealer contribution to existing manufacturer programs providing customer rebates. By reducing dealers' costs of participation in existing manufacturer programs, the piggyback would encourage more dealers to participate and to more aggressively promote the high efficiency equipment that would be eligible for rebates. Detailed sales reporting would be provided by the manufacturer/distributor. Under this model, equipment would also be eligible for additional incentives through the efficiency program's separate, existing program(s).
3. A manufacturer and efficiency program piggyback structure in which the efficiency programs would fund part of an existing manufacturer/distributor program providing dealer incentives. In addition, this model would use the dealer's submission of incentive requests to trigger fulfillment of an incentive to the consumer via the efficiency program's separate, existing program(s). This program would harness the customer relationship management and reporting of the manufacturer program while also providing a direct connection between the manufacturer/distributor program and efficiency programs so that dealers could more easily understand which equipment qualifies for both programs and reduce paperwork and administrative burdens. Dealers would have much more incentive and a much easier ability to promote high efficiency equipment. Detailed sales reporting would be provided by the manufacturer/distributor.

Immediately as negotiations began, significant differences between the regulatory and program needs of NJ and MA/RI emerged, creating a complicated process of reaching agreements. The idea of piggybacking with manufacturer/distributor programs and allowing participation in existing efficiency programs suited MA and RI well since they saw lower starting market share and were under guidance to get aggressive to build market share to capture demand savings. For NJ, where market share of high efficiency equipment and requirements of dealers were already stringent, the main advantage of the upstream approach is viewed as being to simplify the process and broaden participation without creating overall incentive amounts that would be higher than those offered by the existing efficiency programs; therefore all upstream deals would have to be strictly in lieu of existing efficiency programs. A separate problem quickly emerged in that the incentive structure proposed under the distributor based model proved to be considerably lower than what the MA/RI efficiency program was modified for 2008 to offer on its own; the manufacturer involved with that proposal recognized that the structure they proposed would put them at a significant competitive disadvantage to the MA/RI efficiency program and therefore had to renegotiate to get what it felt would be a more equitable deal.

Through a series of counter-proposals and discussions, three incentive-oriented upstream partnerships eventually emerged. The fourth proposal was deferred by the distributor partners

because the geographic territory of the distributor spanned an area much larger than was covered by the participating efficiency programs and the complexity and potential confusion for dealers led the partner to suggest that the opportunity must be built out to cover more of the region before it can be viable from their perspective. (This result provided a clear message and provided strong direction for NEEP and the efficiency program sponsors). The other three proposals emerged considerably differently in MA/RI and in NJ due to the structure of the separate efficiency program incentives in MA/RI and the requirement for participation in either the upstream program or the existing efficiency program in NJ.

Launch of the three agreements began with kick-off meetings with sponsors, industry and NEEP in late February through March, 2008. To date two of the most attractive components observed by National Grid and NSTAR are the strong positive industry response to the new incentives for contractors and the "normalization" and legitimization of utility program offerings being presented to contractors through the mainstream channel of manufacturer and distributor promotion announcement meetings.

Training, Extensions and Next Steps

The Providence meetings of April, 2007, insights and discussions as the incentive proposals were negotiated, and the proposals addressing training in particular all served to generate a significant number of activities and efforts to explore beyond the core concept of leveraged, cooperative incentives.

In virtually all discussions with distributors and manufacturers training was raised as a key need in order to improve market share of high efficiency equipment and to improve installation and sizing practices. In the Providence summit in April, 2007 the potential avenues for working cooperatively on training were identified as follows:

- NATE
- Sales
- QI (sizing, duct sealing, duct leakage, duct design, balancing/airflow and charge)
- ACCA Manuals (J and S in particular)
- Third party tools (sizing packages in particular)

Options for how to pursue training cooperatively were identified as including:

- Distributor infrastructure
- Manufacturer infrastructure
- Trade associations
- Third parties

Numerous industry proposals were received either alone or in conjunction with incentive proposals. Interestingly any or all of the types of training or approaches to offering them were on the table in the proposals themselves. Efficiency program administrators were especially pleased to see a response from a third party sizing software supplier for flexible, customizable training. Also pleasing to see was information on an until then little known training and certification opportunity through National Comfort Institute. As of the date of this paper negotiations and discussions are

underway in particular for training regarding QI and sizing, with spring activities being scheduled through May, 2008 with one partner and for fall of 2008 with another.

Beyond the solicitation process, the discussions and relationships have provided efficiency program administrators with a multitude of additional opportunities and resources related to the upstream partners. One of the biggest future opportunities, for example, is to explore how to leverage extended warranties and service contracts as a sales tool since customer's, according to industry, value these highly and because they create guaranteed revenue for contractors are also well embraced by the dealers. The ability to have close relationships with industry partners also provides for ongoing dialogue on matters such as efficiency program drivers, needs and of course changes but also on industry's perspective on market conditions (current and forward looking), up and coming technologies and promotional opportunities, and dealer/contractor wants and needs. For example, hearing directly from the upstream partners about the emergence of the various on-board diagnostic and feedback tools most are developing enables discussion about how to leverage these for improved sales and better installation quality. By conducting joint dealer meetings with industry (manufacturers and/or distributors) contractors are able to see and hear both of the major external parties who impact them at the same time, delivering the same message. Feedback is strong and positive now that dealers understand there are coordinated incentive strategies that provide incentives for stocking and sales of high efficiency equipment to all parties: distributor, dealer and customer. The dividends in terms of buy-in, awareness, and appreciation of the convenience of this dynamic on the part of contractors are emerging already as showing signs of leading to significant improvement in the dealers' willingness and commitment to selling high efficiency and embracing quality installation. This becomes critical as the efficiency programs pursue adoption of the ENERGY STAR quality installation specification since many of the tools and techniques involved are new and/or generally not embraced by the contractor community in the northeast.

Lessons Learned

The process of shifting from downstream, customer-oriented strategies to upstream, industry-oriented strategies on a regional basis for residential and commercial HVAC efficiency programming has been as challenging as it has rewarding, with numerous lessons along the way.

Patience and Courage

First and perhaps obviously given the almost four year effort to develop upstream HVAC activities in the Northeast, patience and tenacity are essential to wrestle with the myriad logic and logistic issues described herein. Regardless of the size of the programs or region it became clear that trust, clarity of communication and relationship building were critical to the success of the Northeast's process, despite the fact that this represented a significant amount of the time investment. These issues of trust, clarity and relationships were revealed as critical not just between the efficiency side and industry, but also even within the multiple parties on the efficiency side! Some of the issues raised in this vein included:

- Trust among the efficiency programs. That when it comes time to execute agreements, all parties had to be clear and in agreement about issues such as cost-sharing between industry and efficiency programs.
- Trust among industry partners. That there would be a conscious effort on the part of the efficiency programs to develop programs equitably so one manufacturer/distributor would

not have an advantage over another and so that neither those manufacturers/distributors who participated in an upstream agreement or did not participate had an advantage over the others

- Clarity of how money would flow and when.

That there was "process" risk, such as those issues above, for all parties during development and ultimately upon launch of these new program strategies and that such risk had to be managed became clear.

Courage has become a theme as NEEP de-briefed, and continues to de-brief internally – courage to continue to move the process forward was at times exhibited to the benefit of all and, frankly, at other times it was not, leading to delays, loss of clarity and at times loss of momentum. With so much new ground being broken all parties had their moments of wanting to throw their hands up and surrender to the challenges, risks and long process. Related to the relationship building and trust, unwavering optimism, encouragement and affirmation were all necessary.

Regulatory Buy-In

Revelations about regulatory and policy issues encountered along the way in the Northeast led to a clear lesson about the importance of recognizing the need for efficiency program staff and, also in this case, the regional entity facilitating the process, to conduct significant regulatory outreach and secure understanding and buy-in early and often. Through the course of time, it became clear at various points that what the regulator's position, or at times the efficiency program's understanding of that position, did not mesh with the actual directions being pursued. For example, there were at times the following types of issues that resulted in considerable delays:

- Will an upstream cooperative promotion involve only an incentive paid through a distributor or will it involve incentives through a distributor and a traditional efficiency program?
- When will these deals actually roll-out and how will programs transition to them?
- What will be the mechanics of contracting and payment, and will this fit with the regulatory cost-recovery/administration model in place?
- Is it allowable to negotiate different deals with different parties?

Cost recovery and regulatory approval are obvious, non-negotiable pre-requisites and all parties to an upstream process need to be aware of this reality, and need to work to minimize this regulatory risk.

Internal Review

The need to engage legal/contract support and evaluation staff throughout the process has been identified as important to streamline the pace of review and the iterations of drafts. For example, had data requirements received more attention early in the process the "end game" could have moved much more quickly. From both a legal perspective and a supply chain/procurement perspective, attempting to develop and execute agreements for new processes with new partners made itself known as a challenge. Not only review of documents, but also explaining concepts, regulatory encouragement (not pre-approval) and roles all required time. To undertake the legal and procurement efforts within the organizations of all parties and then to arrive at a mutually acceptable set of agreements and process understandings was critical and no small task.

Communication

A final major lesson learned is to be clear on what commitment looks like and what exactly it is being sought for. In the Northeast's process delays were significant at various times because different parties had different understandings at times about where we all were in the process and whether various parties were "in" or "out." Frustration was at times clear on various parties as it was revealed that what most parties thought was agreed upon was actually not.

Conclusion

New information, new market conditions, new tools such as the ACCA Quality Installation Specification and demands for increased market share and savings all enable new strategies to become viable, if not essential; the efforts in the northeast to develop upstream cooperative activities in the residential HVAC market are the result of this set of circumstances. As demands increased and research was undertaken on the state of the HVAC market and efficiency programs and how to improve them, the appropriateness of the upstream approach became very clear and the mandate from stakeholders, both internal and external to NEEP and its sponsors became strong. Through development and cultivation of relationships, tenacity and creativity on the industry and efficiency program sides, a successful process and initial outcomes have been achieved. In thinking through the opportunities initially created by the first round of incentive and training oriented cooperation with industry, and by expending the population of partners and programs that are working together, the potential to evolve upstream HVAC programming to a comprehensive approach involving incentives, training, and marketing for products, installations, and adoption of new technologies and practices such as quality installation and onboard diagnostics is clear. It is the belief of parties in the northeast that the general strategy of more deeply pursuing upstream activities, developed mutually with industry, can be successfully evolved here and replicated elsewhere to encourage long-term and significant changes in the way HVAC systems are stocked, sold and installed.

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