TRAINING MARKET ASSESSMENT REPORT
NYSERDA 2693 ENERGY CODE TRAINING

Energy and Other Professionals
Agreement No. 38888

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Training Market Assessment Report

Summary

Team IBTS has prepared this Training Market Assessment Report as a deliverable to NYSERDA under our contract through NYSERDA RFP 2693. This contract is to develop and provide Energy Code training focused on the Energy and Other Professionals (EOP) market sector.

Team IBTS’ strategy to develop meaningful training to this new market sector, as identified by NYSERDA, included conducting a training market assessment among stakeholders. The intent of this was to identify specific training needs for the EOP sector, the potential content of training, the level of detail required, barriers to successful delivery of training, and marketing and communication strategies to be employed. Team IBTS wanted to gather this information prior to the full development of course topics and content, to make every effort to tailor the training to the needs expressed by the stakeholders. A secondary goal was to share any training insights with other NYSERDA RFP 2693 training contractors for the benefit of their training curriculum development.

Following submission of the June 10, 2015 draft of this Market Assessment Report, it was determined the suggested approach to reach beyond the target audience silos (i.e., to the architect, engineer, code official, and building trade audiences) to enhance EOP training, should be taken further. NYSERDA expressed interest in using this training as an opportunity to affect the marketplace in terms of the roles of the EOPs in code compliance. As such, Team IBTS has taken the charge to revise its silo-ed approach and develop courses that are both structured for and align with the offerings from the other NYSERDA RFP 2693 training contractors. While still in process, this report provides the results of this effort, including suggested development of two pilot courses that would target architects, engineers, code officials, and building trade audiences in addition to EOPs.

This report provides a list of comments, ideas, suggestions, warnings, and potential topics received from the surveys, in-person meetings and teleconferences conducted. Team IBTS, including our subcontract training delivery providers and our curriculum development team, has distilled this input into key findings and recommendations heard from stakeholders in the marketplace. We have developed a series of recommendations on course topics, content and approaches that would be most beneficial to this audience and the other target audiences, and which would provide the best means to achieve greater energy code compliance.

Many of the comments and key findings are germane to the entire construction market and to stakeholders in the other target audiences (i.e., code officials, design professionals, and construction trades) to which NYSERDA is directing training. This is because we engaged ALL stakeholder groups to assess training needs, as well as compliance gaps - all the overlapping areas involving Energy Codes and how it impacts those stakeholders. We are happy to share this report with the other contract providers in hopes this information will assist them in preparing effective training to their market sectors as well.

Some of the big picture findings which cross multiple market sectors for this NYSERDA RFP 2693 training effort, and will be discussed in further detail herein, include:

- Stakeholders believe we need to include multiple stakeholder groups in the training - including the other NYSERDA RFP 2693 target audiences - to take advantage of cross-learning approaches, as well as allowing interaction that will bring valuable feedback about common and overlapping issues and goals. For example, we were often asked, “Can I bring my Homebuilders to the
training so they learn what we learn, and interact with others”? At a minimum, representing the perspectives of the other target audience groups in portions of the training is essential.

- EOP segment stakeholders are frustrated by the current lack of, or poor enforcement of, the Energy Codes by jurisdictions. They would like to see efforts made under this training initiative to promote enforcement before they gear up and get involved in their potential compliance roles. This is particularly critical given that we know NYSERDA and their Energy Code Support efforts are likely to include promoting third-party mechanisms to improve compliance. For example, Raters and Building Performance Contractors both told us “the 2015 IECC is better than the last version of Energy Star we promoted for years. However, if no one asks or ensures builders to comply with the Energy Code, they won’t bother to comply.”

- EOPs struggle to promote their various services, now required by the Energy Codes in many instances, without incentives, and again, without enforcement. “Commissioning is the first thing to go on a project, further confused by Design Build…how can I sell this without some type of incentive?”

- Lack of consistent, state-wide compliance checklists and other tools creates confusion at the various local levels, further adding to the inconsistent enforcement effort, and compliance with the Energy Codes. “I build in my town, I have a list of items to do on the job, as well as a checklist of documents to hand in with permit applications; next town over, they have no idea what to ask for, or ask for something completely different”.

Our charge is to address questions like these in the design of the curriculum, training logistics, and outreach methods – including communication and marketing – with emphasis on offering solutions which positively impact the EOP market.
1. Goals

The goals of this Training Market Assessment effort were to:

1. Assess gaps in current training approaches and resources, and in the compliance process.
2. Gather ideas and suggestions from our stakeholder groups on training needs.
3. Determine optimal logistical criteria such as course length, location, cost, etc.
4. Identify barriers in the compliance and enforcement process which could be addressed through training and education.
5. Creatively approach training to this audience to further increase energy code compliance through better communication, by building energy code service business capability, and increase overall demand for higher compliance.
6. Produce an effective marketing and communication strategy to convey the value of the training courses developed and fill the training sessions.
2. Assessing the Market

Gap Analysis

As part of the Training Market Assessment task, Team IBTS reviewed existing reports and canvassed the marketplace to determine where the larger “gaps” in the compliance process exist, as well as apparent gaps in current training and associated resources. We found that existing resources for Code Officials and lack of initiatives to promote Energy Codes contribute to ongoing problems with achieving higher energy code compliance, and in some cases add to, rather than reduce, confusion.

The New York Energy Code Compliance Study report (revised January 2014) prepared by Vermont Energy Investment Corporation, identified three priority issues under its Gap Analysis section:

1. Due to limited staff and funding, energy code compliance was not given high priority. Life-Health-Safety Building Codes were given the highest priority, often at the expense of Energy Code compliance.
2. Insufficient building data and the lack of centralized databases and reporting on compliance.
3. Limited technical knowledge, citing a general lack of understanding of the Energy Code, and the increased complexity of energy requirements for commercial buildings.

There is need for consistent compliance tools for use by Code Officials. These tools range from simple checklists and guides, to videos, manuals, and web-based assistance and computer calculation tools. Tools such as REScheck™ and COMcheck™ are available, but there remains uncertainty over when and where they should be used (COMcheck™ in particular). Further, there are few resources available to answer questions on the Energy Code (e.g., hotlines or forums).

For commercial buildings, the local Code Officials rely significantly on the expertise of the designer (i.e., architects and/or engineers) and the initial design to meet the energy code requirements, but often stop there in enforcement, especially with more complex buildings/systems. Local Code Officials often do not possess the technical skills to evaluate complex designs and equipment, and rely on an architect’s certification the Energy Code has been met. Often, limited or no specific code-related information is submitted for the project.

Consumers and other stakeholders who use or are impacted by energy codes need more education. There is limited education targeted to these stakeholders on the existence of the Energy Code and the benefits of improved enforcement/compliance. Therefore, demand is low for higher compliance and better enforcement, which translates into lack of demand for more support at the jurisdictional level. Increasing awareness of the overall benefits of code compliance could result in more of a “market pull” for Energy Codes, and hence better and more training and education. This extends to low support oversight on jurisdictions by the NYS-DOS as well, which again translates to low demand; advocacy-type training needs to occur from the consumer and jurisdictional level on up to local, regional and State policy makers. Some participants in the assessment indicated they thought the NYS-DOS was discouraged by policy makers from undertaking their charge to provide oversight on code enforcement in communities.

The stakeholders in the building construction marketplace tend to work and learn in “silos”, with a limited exchange of information, ideas and expectations. This limits the compliance process due to broken chains of information flow between enforcement and the design and construction stakeholders.
Training is often provided to one group or the other, without the opportunity to intermingle and create better communication across the market sectors.

There is limited training available on the Energy Code specifically. The Department of State (DOS) provides general training on the Building Code, but little on the Energy Code. There are currently no training courses listed on the DOS website. NYSERDA’s Energy Code website does provide a series of online, video courses on the Energy Code, but there are no live training events listed on the NYSERDA website as of this writing. While this contract and others issued under NYSERDA RFP 2693 are designed to provide extensive training over the next three years to stakeholders throughout New York, there is a need to provide continuous training as Code Officials come and go at the local level every year.

Methodology

Team IBTS developed a multi-level approach to gathering information from stakeholders on training needs and development. This approach included numerous individual telephone and live interviews with energy professionals and trainers, in-person stakeholder meetings conducted by invitation at three sites across New York State, and two telephone conference sessions. A list of questions was developed for each of the in-person sessions and a scripted format was followed to insure consistency of the information gathering process. In addition, attendees at the in-person sessions were asked to complete a Pre-session Survey (See Appendix I). Those not able to attend one of the above sessions could provide feedback by answering a more in-depth 27-question Online Survey (See Appendix II).

Individual Interviews

Team IBTS conducted 10 individual interviews with energy code-related professionals, including representatives from the NYSERDA RFP 2693 target audiences. Individual phone interviews and meetings with groups of stakeholders were conducted with EOPs, jurisdiction leaders, trainers, IBTS team members, representatives of the other NYSERDA RFP 2693 target audience consultants (i.e., Newport Ventures and Urban Green), and any other groups who would have a vested interest in code training/enforcement. In addition, IBTS staff and consultants conducted numerous telephone and live interviews with stakeholders at events like the North Adirondack Code Official Training Conference in Lake Placid in March, live training events in February and March, and construction-related events around NYS. Appendix II includes the comprehensive list of questions used in these interviews.

Stakeholder Meetings

Team IBTS invited participants from among the EOP categories and other target audience members identified in Appendix IV to attend a training market assessment group meeting. Our invitation list drew from individuals/organizations known to IBTS or our subcontractors, or from those organizations where we have existing relationships. Over 175 email invitations were sent out (See Appendix III), followed by phone call reminders. The intent was to gather input from all stakeholder groups regarding Energy Code training curriculum, delivery methods, understanding what would make training events valuable to participants (beyond technical, code-related content), and how best to market the trainings to track participants. We canvassed for a wide representation of stakeholders, trainers and organizations in the assessment, and sought to assemble a diverse audience to foster a good exchange of information and viewpoints.

Team IBTS conducted three one-day Training Market Assessment Stakeholder Meetings from late March through April, 2015. At each location, two separate half-day Stakeholder Meetings were conducted, one with Residential Stakeholders and one with Commercial Stakeholders.
Meetings were held on the following dates at these locations:

- Clifton Park (Albany area) – March 31, 2015, Clifton Park-Halfmoon Public Library
- New York City – April 8, 2015, BOMA-NY offices
- Buffalo – April 13, 2015, Erie County Fire Academy

Attendees of these stakeholder meetings are identified in Appendix V.

**Teleconference Stakeholder Sessions**

To augment information obtained from the in-person Stakeholder Meetings, Team IBTS conducted two telephone conference calls with Stakeholders who were unable to attend the in-person meetings, but were otherwise interested in participating. Two two-hour teleconference-webinars were held – a Residential-focused call on April 17th and a Commercial-focused call on April 20th – with approximately 7 participants on each call. This format was a bit more challenging to elicit comments than the live sessions; nonetheless, valuable information was gleaned from these sessions as well.
3. Input from the Assessment and our Key Challenges

Input obtained from the various data-gathering sessions was compiled. There was a lively exchange of ideas at the in-person meetings, and participants often built upon one idea and expanded the thinking to explore how to make it work. In some cases, new approaches to increase compliance were discussed, and the current barriers to achieving those goals exposed, with some solutions identified.

The list of comments provided here is essentially unfiltered. We have not made an attempt to judge, rank, or amend the ideas that came from the group. These are presented here as given during the information gathering sessions. In the next section of this report, we make an attempt to distill the comments into action-based recommendations that will influence our approach to development of the course content and formats.

Residential Session: Comments/Challenges

Approach

The Energy Rating Index (ERI) approach in 2015 is favored by the larger builders. It is estimated to save $1700 per home over prescriptive approaches. A builder can use 2009 insulation levels with good orientation and other features given credit under ERI method.

Local jurisdictions may have some prohibitions on using third-parties in the code compliance process. We need to investigate further. This may be due to payment processing, liability, competition, scope of control or authority, and questions around who pays for the third-party work etc.

There is uncertainty over who/what provides quality control over Raters. RESNET provides QA/QC over raters’ work with Provider QC experts for each state, usually by the HERS Provider for that Rater. While the frequency varies, it is one that is part of the HERS process and standard; each rater sees numerous QA visits each year. Training should convey the percentage of auditing that is conducted. Detail can be found at RESNET: http://www.resnet.us/professional/provider. Others suggested that it should be much higher - say 10%. The training should convey how a Code Official can have assurance that the Rater did it right. Information on these issues needs to be included in Builder and Code Official training.

There are legal liabilities involved in signing/stamping a set of plans, or performing a REScheck™ analysis, or certifying a blower door test. We need to explain this to the audience so they understand the ramifications and that knowledge should lead to more interest in proper training.

Explore a mechanism to develop a check list of potential agents/providers that can be made available to local Code Officials and municipalities. Is there a role for DOS or NYSERDA?

Hands-on learning is best, but difficult to pull off. IBTS has numerous partners Statewide with access to “lab houses,” as well as real construction projects, to enable hands-on training opportunities. These include those at Hudson Valley Community College and several other County CCs, private facilities like with Green Building Center (NYC & L.I.), New Buffalo, and many others.

The suggested course length is 3 to 4 hours, preferably in the morning. During peak construction season, it will be harder to attract attendees for training.
Joint training events such as combining energy code training with other training events covering other topics and/or with energy code training for other target audiences, may prove to be a very effective format for enlisting participants.

Content

The difference between thermal boundaries vs. pressure boundary is a confusing area in the code air sealing requirements. It was suggested that there needs to be an assessment to see how aware designers and code officials are about this topic, and inspecting for this element of the code requirements is key.

Training should include information regarding attic hatches, how they should be made to meet the higher insulation code requirements, and products that meet these requirements.

There are many new changes in the 2015 IECC (planned for introduction in January 2016). Training needs to address the changes. Most of the marketplace is unaware of these looming changes, in particular requirements for all homes to be Air Leakage tested, what are commercial Air Barriers, etc.

The NY Department of State (DOS) does not certify raters or maintain a list of qualified agents. It is important for a Code Official to know if the agent is qualified. Other States do simple lists of contractors who are qualified, without actually certifying them, which carries liability and the NYS-DOS doesn’t want that liability. Maybe NYSERDA just maintains a list?

Training contractors need to coordinate with DOS on courses that show what’s new in the 2015 IECC. DOS has a course that covers some of that already. Coordination will limit overlap or duplication.

Develop training courses in tiered fashion to address skill levels: Basic – Introductory, Intermediate and Advanced.

Develop courses by discipline (lighting, HVAC, Insulation, Air sealing) etc.

Video segments are good to use in training. Look for videos that are already available. Videos can “take them into the field...” where training can’t easily go.

Home inspectors performing services for realtors and homebuyers need to be made aware of the basic energy code requirements and what to look for in the inspection process.

Develop a basic course outlining the TOP 10 things you need to know about the new energy codes in New York, as well as a course that does the same for new commercial codes to take effect in 2016. Use that to focus interest in “deep dives” in advanced or special topics.

Look at the impact of high efficiency HVAC in the Energy Rating Index (ERI) process, and develop training around those aspects.

Develop training on use of the ERI as a more flexible and perhaps less expensive approach to meeting Energy Code compliance. Show examples of how ERI’s flexibility can save money, help compliance. Similarly, the use of Performance Path on the Commercial side.

It is necessary to be aware of regional differences in the degree to which there is understanding and enforcement across New York State. Additionally, there is variation in who is the local energy code “expert.” For example, there is relatively low use of the energy code in the lower Hudson Valley.
The integrated approach (e.g., LEED-style project charrette) to project management is very beneficial but rarely used. Develop training as to how this approach and integrated design can improve buildings, increase compliance.

**Delivery**

Code Officials need to be included along with our (EOP) target audience in live trainings. They need to know what they don’t know first, and then to be educated. In other words, teach them the main changes in the energy code first, then drill down to more specific detail on those changes and the overall requirements. A number of Code Officials are not that informed on the Energy Code nor enforce the provisions.

Lecture-style PowerPoint presentations alone are largely ineffective and make it hard to hold the audience attention for more than an hour. Include video, field work, activities, and demonstrations.

Clear examples of best practices from the field are desirable. For example a “what’s wrong with this picture?” type of lesson to demonstrate how things should be done right would be beneficial.

Coordinate early with DOS on course review and approval. John Addario is one-man shop and will need lead time to approve before our delivery. Approval is generally good for one year, then needs renewing if code is changed.

Use regional market leaders to provide testimonials to others outside of their normal market (to reduce the potential conflict of interest from speaking about their own market).

Discuss how the Energy Code applies to existing homes and renovations (larger market than new construction). What are the opportunities here for business in the Energy area? Include liability issues with not meeting codes in renovations, additions, alternations etc.

It could be beneficial to create a homeowner “Owner’s Manual” to foster understanding of the energy code. This would be good for inclusion with Consumer/User based training/education.

It could be very beneficial to provide training courses in languages other than English to educate a large component of the existing, non-English speaking workforce. Offering courses to some EOPs, especially in NYC-L.I. area might be valuable. Spanish language courses would be the first priority.

Web-based training is less preferred than live training, though there are situations that can work. If the web course is short and has integrated videos or a Q/A format, it can be effective. Web-based training with replay capabilities might be worthwhile if placed on a website for access.

**Marketing**

NYSERDA currently has dozens of contractors doing training. There is a lot of action and messaging in the market already. How do we differentiate THIS training, not confuse the market further?

Progressive contractors are reading about new code changes and requirements, and are gearing up their business models to respond. They want to see increased enforcement, though, to realize that opportunity.

Our audience estimated about 200 certified raters and blower door technicians in NYS. Is this figure accurate, and is it enough to meet upcoming need required by 2015 IECC? Training should include information on accessing contractors.

Be careful who gets attracted to the business development training. Sub-standard agents that are attracted to incentive programs may not be that skillful.
Re-examine the role of Realtors in the education and promotion of energy efficiency. Realtors are the most likely group to attend evening programs.

Marketing channels should include associations. Advertising in progressive construction trade journals (Journal of Light Construction, Old House Journal, etc.) can reach our audience.

Organizations that represent the building groups (AIA, NYSBOC, NYSBA, etc.) are good channels for marketing. There are ways to link into their annual meetings to provide focused training on the Energy Code, tailored to that audience.

We need to learn the businesses of other stakeholders and how they interact in the building permit and approval process with the Code Enforcement staff.

Conduct meet and greet sessions for contractors, designers, builders, raters, other EOP’s and the local Code officials to break down barriers and improve communication. This could be included in cross-silo training through our current building supply EOPs, inviting Builders, Contractors, Consumers, etc. to events that feature events, as well as products to meet the code.

Develop communication pieces that outline the benefits of the Energy Code to consumers and users, with the intent that it will drive demand for better compliance and enforcement.

Explore how to use the Building Materials Suppliers as a vehicle to reach contractors and installers. Perhaps “arm” them with informational materials to pass to users, other ways to promote compliance.

Multi-family and Affordable Housing buildings are a good target, and potentially independent target audience, for training and/or outreach efforts.

The permit applicant is an important audience to target for energy code training.

Municipal officials would be great allies in supporting application of the energy code if they were trained.

Open/walk-in events such as the New York State and county fairs should be considered as a venue to reach participants.

Identification of a “spokes-person” or known personality linked to a marketing campaign could be an effective method to increase awareness and interest in energy code training.

**Commercial Session: Comments/Challenges**

**Approach**

There appears to be limited interest in the Energy Code and its impact on energy efficiency overall in the market, especially as it pertains to enforcement. Global warming is potentially a larger concern to consumers. How can we make the link between building performance (local concern) and Global warming (larger concern)?

It would be beneficial to establish a linkage between energy compliance and Life Safety issues. Energy alone is not compelling and hard to sell. There is little leverage if the building does not meet the Energy Code (it’s hard to deny a Certificate of Occupancy for poor insulation). Health/Life/safety relevance of Energy Codes should be identified and promoted in the training.

We need to develop a message about commercial energy efficiency that will spark more action.
Many city and town building departments are still understaffed despite adding some resources since the 2008 construction slowdown.

Many communities have developed their own energy code process, particularly those choosing to go to a more stringent code. Such communities include Greenburg, Brookhaven, Clarkston, etc. Much of Long Island went to HERS-As-code in response to a LIPA program, with varied but interesting results. It would be valuable to add lessons learned from those communities, especially to third-party agents like raters and Home Performance Professionals. We should determine what the process is and exploit it for residential and commercial code training, do case studies for use in training all audiences.

Try to find a way to link the potential roles/assistance from the EOP agents to the A/E’s doing the design work. How can EOPS help in the compliance process? Some think they should be paid by and agents of the Designers.

Content

Equipment start-ups are usually done by the installing contractor. The test may not be at optimum time (AC in winter, heat in summer) and therefore is inadequate to assess actual performance.

Specification documents may be inadequate to get high compliance. Learn what Division 1 documents and specs are, and how they relate to the Energy Code provisions.

Some specifications are out of date or do not call for current code requirements. Sometimes they are too vague (must meet ASHRAE 90.1-2010 standards) without specificity.

Most large manufacturers know the IECC codes well – they need to know what they can sell.

We need to re-examine the role of utilities in this market and to assure that the energy code is integrated in program requirements.

There needs to be tiered training based on skill levels. Some need basic information on the code and resources available- others want more technical detail. An example would be a course on how to use the code vs. a course on the technical details.

Look at courses that build on each other. Can we get someone to come to the same course next year, or will they expect a higher level course?

Provide more specific information on what the commissioning requirements are in the Energy Code, and what to look for to determine if compliance has been met. Show how the commissioning requirements match up to the design process. Also identify the key reporting requirements to show compliance to the Code Official. And promote their building business with designers and building contractors.

Many Code Officials do not understand the basics of energy modeling, how it is done, what should be reported to show compliance. Develop a basic course on the subject showing what a Code Official needs to know, and what information should be provided by the designer and commissioning agents.

Develop a course that discusses 3rd party compliance as part of the code enforcement process. The course could show how it could benefit Code officials and reduce local burdens. It could also show the business opportunities open to providers. Can this be a single course or two targeted courses?

Develop a course on what’s new with the 2015 commercial code requirements.
Don’t assume that everyone is starting at the same level of understanding on energy Code requirements. Develop a tiered technical approach to the courses – Basic, Intermediate and Advanced.

It is necessary to be aware of regional differences in the degree to which there is understanding and enforcement across New York State. Additionally, there is uncertainty about whom is the local energy code “expert.”

A “How-to” guide for navigating building department protocols could be beneficial, particularly in New York City. Develop such a simple manual or leaflet for delivery with training?

**Delivery**

The EOP group may be more of a hands-on type of learner than the A/E group, especially for Intro courses. Interactive learning would be best.

Try to get into the field. Try school districts with projects, also vendors to showcase new installs.

Try a “speed dating” format for product showcasing, for products that respond to or address energy code requirements and issues... Have vendors set up displays, videos and learning stations and let the audience circulate every 10 minutes to a new station.

Show what’s wrong and why as learning tools.

Code Officials are currently confused about the current code requirements and which tools can be used to show compliance (example – COMcheck™). The DOS website needs to be more informative and clear on this subject right now.

**Marketing**

Most building owners will not pay for extra commissioning work or retro-commissioning. It is done once, then forgotten. In the meantime, economizers are installed but then dampers stay open or controls overridden. Controls are often overridden or broken. This is a problem in achieving ongoing energy savings and could be a good marketing angle.

Building owners are big drivers in this market – they control the money. BOMA, REBNY, others like them should receive training on impacts to their constituents.

Large commercial real estate companies often have in-house energy resources, but they may not integrate message and strategy with their corporate level leadership such that practices are implemented in the field.

Outreach to this audience through their respective professional organizations – AEE, ASHRAE, BOMA, Real Estate Board, and AGC.

Develop an advocacy spin to the Energy Code message to create a greater awareness and demand for compliance. Figure out a way to push this message through to all stakeholder groups, so there is both push and pull on code compliance.
4. Key Findings

Our training market assessment process provided a better picture of the EOP marketplace. This market is more varied than the other sectors NYSERDA has segmented as target audiences (Code Officials, Construction Trades, and Designers). The EOP group is more diverse, harder to reach through a single entry point (such as NYSBOC for Code Officials), is often tangential to the code compliance process (conducting tests or inspections at the request of the contractor), and less compelled to attend training in order to receive required CEUs or certifications. Marketing channels are more complex and fragmented. This group includes numerous practitioners, and nearly all learn best in “hands-on” rather than just by listening to lectures and/or being guided through slide presentations formats. They have varying degrees of understanding on the Energy Code. Some recognize the business opportunities presented by the more complex Energy Code requirements, others are unaware of the potential.

Based upon what we heard, Team IBTS offers the following key findings we will use in the development of the courses, delivery formats, content and marketing channels. These key findings include the following concepts under these topical headings: Approach, Content, Delivery and Marketing.

Approach

The benefits of complying with the Energy Code need to be more clearly marketed to consumers, to help create the local demand for better enforcement and ultimately better buildings.

Third-party compliance assistance can provide a benefit to local jurisdictions. There needs to be more exploration on how energy code compliance can benefit from these services. Barriers to using third-party compliance agents need to be addressed, including addressing job-protections concerns by local Code Officials.

There is a business opportunity for raters and testing agents under the IECC 2012 code requirements, but many are unaware of the new code requirements that involve testing. A strategy to provide education on the code requirements and the skills needed to meet should be explored.

Training courses should try to reach as broad an audience as possible, to eliminate information “silos” that limit the exchange of information and ideas.

Limited resources to conduct Energy Code review and inspections at the local level are not likely to improve. It will remain an operating limitation.

Lack of basic understanding of Energy Code requirements across all Stakeholders disconnects the enforcement chain. Many do not know what they need to know.

Work with NYS-DOS to identify communities with a model energy code process, and distill the key features and process to potentially replicate in other areas.

Content

Training courses should be developed to reach varying levels of expertise on the subject. This suggests there could be benefit to developing Basic, Intermediate and Advanced courses targeted at different segments of our audience.

Code Officials rely on professional certification of Energy Code compliance on commercial projects. There should be required documents or deliverables to provide assurance and paperwork on what was designed and built, and what compliance methodology was used (COMcheck™, eQUEST, etc.).
Most commercial buildings use simple unitary systems, and code training could focus on that building type with checklist-type tools and methods.

Third-party compliance agents would benefit from a certification or registration process whereby they can assure a Code Official they meet certain quality or professional standards.

PowerPoint presentations with little audience interaction over one hour in length are largely ineffective. Use of video segments and different activities (small-group break outs) would enhance these types of presentations.

A deeper discussion of energy code requirements would work only for the advanced attendees. Most will not be able to absorb all the details and would benefit more from a “Top 10” type presentation.

**Delivery**

Most attendees would prefer a course under four hours in length. Longer courses would work in a multi-day conference format. Most would not attend an evening course.

Webinars are generally not highly rated as the preferred learning model when discussing existing training models. It is possible to use webinars constructively for shorter training sessions.

Most would pay a small fee to attend, typically not over $50. Travel of less than 1 ½ hours is preferred.

NYS-DOS can provide a better service to Code Officials by providing more information on the status of current codes and the resources that can be used to demonstrate compliance. For example, there is current confusion on the use of COMcheck™ as a tool, and many do not know the implications and requirements of codes slated to take effect in 2016.

Hands-on and small session/breakout training is preferred by this target group. There are limitations to hands-on training (logistics, timing, liability) which could be overcome with creative thinking.

It would be worthwhile to explore offering one or more courses in Spanish.

**Marketing**

There needs to be more advocacy for Energy Code enforcement at the local (city and town) level, so that Code Officials get the support and resources they need. A broad-based marketing message could be developed by NYSERDA and be delivered to local jurisdictions. IBTS could also assist through their extensive Board of Director connections across municipalities in New York State.

Marketing channels should include a number of highly-read progressive publications such as the *Journal of Light Construction* and *Old House Journal*.

Many of the EOP group can be reached their professional organizations (AEE, BPI, RESNET, etc.). A stronger community commitment to energy efficiency would create a better environment for Energy Code compliance. There was significant interest in addressing a portion of training efforts to municipal officials as one method to increase a sense of focus and opportunity in local communities. Other methods to achieve this goal should be explored.

Creative training sessions that engage the attendee would be of interest to many. For example, a “speed-dating” format which would bring vendors together with potential users for a quick meet-and-greet in a single space was discussed as a potentially effective approach.
Consider seeking sponsorship of training from vendors, where they could help reduce event costs, and fund a post-training happy hour or meet-and-greet session to encourage networking.

Work more closely with large commercial building owners/operators/managers to assure their in-house resources are aware of Energy Code requirements, and that they meet them.

It would be worthwhile to consider incorporating Spanish into advertising and marketing efforts.
5. Curriculum Development Strategy

It is clear from our training market assessment research there are many barriers to achieving better compliance with the Energy Code, and some of these barriers can be addressed through improved training. Simultaneously addressing some of the other structural barriers, such as lack of support from municipal governments, will also help to increase interest in training and ultimately serve to improve compliance levels as well. Therefore, we are proposing development of training courses aimed primarily at the EOP market which address both the technical aspects of the Energy Code (what is required) and the existing barriers to higher compliance (why the Energy Code is important).

In general, the actual courses need to be short, engage the audience through interaction and participation, be of interest to a wide audience, contain less but more focused information, and be delivered by effective and engaging trainers.

With regard to course content and audience targeting, rather than develop courses exclusively for the EOP target audience, it has been determined based on feedback to the June 10, 2015 draft of this Report, that an approach which reaches across the originally proposed NYSERDA 2693 target audience silos is preferred. In addition to addressing the technical aspects of the Energy Code that are pertinent to the EOP target audience, the courses should also describe the code compliance process, highlighting the potential roles of EOPs within. As part of this approach, EOPs wishing to receive a deeper, technical understanding of the Energy Code would have the option of attending courses offered by Urban Green for Architects/Engineers and/or by Newport Ventures for Code Officials and Building Trade professionals. Further, to promote the role of EOPs within the code compliance process, NYSERDA indicated Team IBTS could offer courses targeted at Architects/Engineers, Code Officials, and Building Trade professionals. These courses would also be of interest and available to EOPs.

To determine how best to design the Team IBTS courses, the team proposed development of two pilot courses. The purpose of these pilot courses would be two-fold. First, it would allow testing of the evolving content approach we have been discussing, i.e., combining customized technical content modules targeted at two of our EOP audiences (one residential and one commercial) with the process/“business case” content intended to promote the role of EOPs in code compliance. Second, it would allow us to gauge the interest in the marketplace for this approach and provide insight into how to market and position the training course offerings. One pilot will be designed for residential audiences and the other for commercial audiences. The course titles are still TBD, but would address the question of “How a 3rd Party Energy Specialist Can Make Life Easier” for the other target audiences.

Team IBTS anticipates these pilot courses may constitute a significant portion of two of the five courses required under our agreement. A key next step is to roll out the outreach and deployment of these courses to garner the additional insight we desire to help us identify and finalize the list of courses which will be offered.
6. Marketing Strategy and Outreach

During the Training Market Assessment effort, it was realized the deep connections Team IBTS has with industry associations and local/regional organizations across the State would help us promote our training in the marketplace. Our goal will be to diversify attendance as a means to enhance knowledge and awareness of codes and create dynamic learning environments. During the meetings, there was a desire to fill the room with a varied group of EOPs such as Building Officials, Municipal Representatives, and others who would be influential in helping reach the goal of Energy Code compliance. Our team is uniquely positioned to support this initiative, through the active engagement of many different trade associations, as well as connections to educational, government and public institutions throughout the State. We have identified some channels to reach energy professionals through the following organizations:

- NYS-DOS
- ACEEE
- Northeast HERS Association
- Air Barrier Association of America (ABAA)
- Specialty Insulation Contractors Organizations (ICCA, ICA-NYC, NIA, IICAA, ECICA, etc.)
- BPI
- BPCA
- The Building Commissioning Association’s Northeast Chapter
- ASHRAE: seven chapters in NYS
- The Association of Energy Engineers (AEE): four chapters in NYS
- The National Environmental Balancing Bureau (NEBB)
- The Testing, Adjusting, and Balancing Bureau (TABB)
- Northeast Retail Lumber Association (NRLA)
- ACCA Chapters (this should get us HVAC suppliers, Residential and Commercial)
- BOMA, REBNY
- CRBRA, WNY HBA, regional chapters
- NYSBOC (Associate Members)
- NYSBA (Associate Members)
- NACHI
- New York State School Facilities Association (School energy and facilities managers)

**Messaging**

During the Training Market Assessment meetings, the majority of participants suggested Energy Code training to our audience should focus on business growth, competitive advantage, and weave in the risks of not being knowledgeable about the codes. Professionals who are knowledgeable themselves with
new codes at the forefront of the new code rollout will be able to expand their business and be on the forefront of changes. For example, messaging may include:

- Leading Energy Professionals have already incorporated NY code into their business models.
- “What’s in it for me?” Promoting code compliance is a significant business opportunity for Energy Professionals.
- Code compliance is required by law; there are significant potential liabilities if you don’t comply.
- Training qualifies for Continuing Education Units (CEUs).
- Manufacturers can promote their products to all users of the code and build their brand if they actively engage those who are knowledgeable of the new codes.

The messaging will be tailored for each market, Residential and Commercial. Although each will want to grow their business, the message will be geared to overcoming the pain points each will face by not being Energy Code educated. For example:

**Residential Energy Professionals:** These professionals have the opportunity to grow their business by having Energy Code knowledge. They can assist builders in code compliance, allowing them to participate in programs with financial incentives. Their expertise helps reduce liability by having buildings that meet and exceed code. The 2015 IECC code requires DET and other special inspections which are largely being ignored; EOPs can help their clients avoid liability by providing these services.

**Commercial Energy Professionals:** These professionals can offer code compliance verification which provides opportunities for business growth, as well as greater flexibility for designer clients. As a result of their expertise, building contractors will experience a smooth code compliance process and will obtain a certificate of occupancy more quickly. This knowledge can also reduce costs for builders by being involved at the design phase. Also, the Energy Code requires Commissioning (Commissioning, Air Barrier requirements, and other special inspections which are largely being ignored); EOPs can help their clients avoid liability by providing these services.

The proposed cross-target audience approach will facilitate identification and exploration of the business case opportunity for EOPs within the code compliance process for both sectors.

**Marketing Communications Plan**

We want to work closely with NYSERDA and their marketing consultant EMA to develop an overall marketing strategy that will reach multiple Stakeholders and increase overall interest and commitment to the Energy Code; this is currently lacking, and presents a major barrier to successful delivery of training across all the market sectors. Having EMA deliver a high-level, statewide message about the importance of the Energy Code will provide a significant boost to all of the contractors tasked with providing training.

To maximize awareness of the training, Team IBTS will employ a variety of marketing strategies to recruit potential students to all of our trainings. By using an integrated marketing approach to reach our audience, they should be exposed to our messaging multiple times to have a positive impact on attendance. Additionally, we will develop teaser tactics, such as offering a 1-hour webinar during the summer of 2015 to create interest in learning more about the Energy Code. Webinars which are developed can have a dual-purpose use by also using them during our training sessions.
Team IBTS intends to do direct outreach to existing networks and partners and leverage a variety of tactics to reach our audience. We will evaluate the methods of reaching our audience and develop a multi-touch plan within budget. Additionally, we will track and analyze results to be able to make adjustments to our plan, if needed.

The tactics which will be considered as we craft our marketing plan include:

- **Press Releases**: Distributing press releases to local, regional, and State-wide media outlets (print, online, and television).
- **Email Marketing**: Acquire lists through Hoovers or other list sources who provide email addresses. Partner with industry associations and organizations to send messages to their members (when available).
- **Industry Websites/Publications**: Utilize online industry websites and publications for posting training schedules and advertising the launch of training programs.
- **Social Media**: High frequency social media messaging via Twitter®, LinkedIn® groups, company blogs, etc. Feature training publicity on websites commonly visited by Energy Professionals.
- **Direct Mail**: Direct mail to industry association members and acquired lists.
- **Webinars and Presentations**: Present to industry groups representing Energy Professionals, such as the Building Commissioning Association and the Northeast HERS Alliance (NEHERSA).
- **Conference Presentations**: Identify conferences that target our audience and submit proposals to present a training session.
- **Video**: Develop video clips talking about key benefits to training, Energy Code information and testimonials.
- **Online**: Google Ad-Words campaign, landing pages, banner advertising.
- **Collateral**: Brochures and flyers to be used at events attended by our team.

This new cross-target audience opportunity also greatly enhances the need for Implementation coordination with Newport Ventures and Urban Green. All three organizations are in agreement on this point, and are exploring how best to coordinate.
Appendix I: Pre-session Survey

Developing Effective Training for Energy Code Compliance

Your Feedback and Help is Important

New York Training Assessment Stakeholders Meetings

Better Training for Higher Compliance with the ECCCNYS-2015 and 2016

To best develop training for NY energy code education and compliance we need your help. The meetings for ALL building construction business stakeholders will be conducted statewide to understand the best methods to deliver training. We need you to share your experiences with code compliance and enforcement, course content you have seen, training delivery format, marketing outreach and other areas that may pertain to effective training.

Prior to attending a training assessment session, please give some consideration to the questions below and share your views. Use the note area after each question to record your thoughts prior to the meeting. During the meeting, please let us know if there are additional areas of concern that are not addressed.

1. Are there aspects of the current residential or commercial energy code requirements that present particular difficulties for you and your work or business?

   Notes:

2. What do you think are the most difficult gaps or problems in compliance and enforcement practices, and how might training be developed to cover critical subjects based on those gaps?

   Notes:

3. What difficulties do you have when it comes to energy code compliance?

   Notes:

4. What do you see as barriers to enhanced energy code enforcement and compliance?

   Notes:

5. Do you think the traditional code enforcement infrastructure of municipal code enforcement officials have the knowledge, tools and resources they need to assure energy code compliance?

   Notes:

6. Do you think that, as the energy code becomes more performance based (i.e. blower door testing, duct testing, air barrier inspections and commissioning), jurisdictions should employ the use of special inspections to assist with those performance requirements?

   Notes:
7 Based on what you do for YOUR business in relationship to the energy code, what do you think is the most effective training format for:
   » HERS Rater and other Residential Building Performance Specialists and Contractors?
      Notes:
   » Commissioning (Cx) and Testing & Balancing Agents?
      Notes:
   » Commercial Air Barrier contractors and Auditors/Inspectors?
      Notes:
   » Building Supply/Material Suppliers/HVAC/Steel/Concrete?
      Notes:
   » Involvement of other Market Groups not specifically covered by this contract (Building Officials, Homebuilders/GCs/Designers)?
      Notes:

8 What are the most important subjects to cover, current gaps or needs in compliance?
   Notes:

9 What 3rd party compliance approaches do you see in your area? e.g., 3rd party, Raters, Cx agents?
   Notes:

10 What Compliance tools or materials do you think would help improve the compliance process for you? e.g.,
    electronic media, online training, resource manuals, software tools such as REScheck or COMCheck, Tablet or
    Phone-based compliance forms.
   Notes:

11 Are there changes that might come with the IECC2015 that you see as presenting potential issues with respect to:
    » Implementation?
      Notes:
    » Enforcement?
      Notes:
    » Cost?
      Notes:

   *For example – greater emphasis on Air Barrier requirements for ALL buildings, blower door and duct leakage
   tests, HVAC Testing and Balancing on completion?
Appendix II:
Online Survey

Developing Effective Energy Code Training

Market Assessment Survey- Your Input Is Important

To best develop training for NY energy code education and compliance we need your help. We need you to share your experiences with code compliance and enforcement, course content you have seen, training delivery format, marketing outreach and other areas that may pertain to effective training.

1. Since there are many delivery methods for training, how do you learn best? Please rank the following from 1 to 7 with 1 being the most preferred.
   Please note: as you rank your answers, the list moves to reflect the order chosen.

   ▼ Classroom Lecture
   ▼ Classroom Discussion in Small Groups
   ▼ Online Training
   ▼ Reading Educational -Based Materials About the Topics
   ▼ Hands-On Exercises (i.e. field training)
   ▼ Webinars
   ▼ Video

2. Are there other ways you learn that are not listed above?

   [Blank space for input]

3. What is the best length of a training session? (Please rank 1-5, with 1 the most preferred)

   ▼ 2 Hour Morning
   ▼ 2 Hour Afternoon
   ▼ Half-Day Morning

   https://www.surveymonkey.com/s.aspx?PREVIEW_MODE=DO_NOT_USE_THIS_LINK_FOR_COLLECTION&sm=ehTZXyN/pNLM9Qd/monthlyRpCJ/Hr...
4. How far are you willing to travel for training? (Please respond in either miles or time)
   Miles: 
   Time (i.e. minutes of driving):

5. What are your barriers for attending training? (Please check all that apply)
   - Cost
   - Available Time in Schedule
   - Approval to Go
   - Travel Distance
   - Interest/Desire
   - Support from Supervisors to Attend
   - Do Not See Need for Advanced Training

Other (please specify):

6. During training, which types of materials do you prefer to receive (check one):
   - Handout Materials that Summarize the Course Content
   - Copies of the PowerPoint Slides for Note Taking
   - CD-ROM or Other Media with Presentation and Other Handouts

What Other Materials Would Be Helpful (please specify):

7. Do you want Continuing Education Units (CEUs) for attending training?
   - Yes
   - No
   - Not Relevant to My Job

8. What kind of Continuing Education Units (CEUs) do you want to receive?
   - AIA
   - CEC’s (engineering)
   - BPI
CEUs (code officials)  
IACET  
Other (please specify)  

9. After training, what is the best format for technical assistance for energy codes answers?  
(Please rate from 1 to 4, with 1 being the most preferred method. )  
Please note: as you rank your answers, the list moves to reflect the order chosen.  

- □ Hotline  
- □ FAQs on Website  
- □ Ask Expert On-Line Format (Blog)  
- □ Newsletter and Response Articles  
- □ Email  

10. What do you think is the most effective training format for each of the groups listed?  

<table>
<thead>
<tr>
<th>Classroom</th>
<th>Online</th>
<th>Small Group Discussions</th>
<th>Webinar</th>
<th>Combination of Classroom/Online</th>
</tr>
</thead>
</table>
| □ Rater and other Residential Building Performance Specialists/Contractors  
| □ Cx and Testing and Balancing Agents  
| □ Air Barrier Contractors and Auditors/Inspectors  
| □ Building Supply/Material Suppliers/HVAC/Steel/Concrete  
| □ Involvement of other Market Groups - Building Officials, Homebuilders/GCs/Designers  

Other (please specify)  

11. Which of the following building features cause the greatest confusion for energy code compliance? (select one)  

- Building Envelope (walls, ceilings, floors, foundations)  
- Lighting  
- HVAC
Water Heating
Air Sealing
Duct and Envelope (DET) Testing
Commercial Air Barriers
Commissioning

Comments:

12. What barriers have you faced, caused by energy code requirements, when providing your services?

13. What do you see as challenges for better energy code enforcement and compliance?

14. Which of the following would assure better enforcement and compliance of energy codes?
   - Third-Party Inspections
   - Better Enforcement Tools
   - More Hands-On Training at the Job Site
   - Coordination Among Trades and Inspectors
   - Lack of Detail From the Design Professional in Drawings and Specs
   - Consistency of Documentation Required and Provided
   - Electronic, Tablet or Phone-Based Compliance Tools

Comments:

15. Which of the following materials do you think would help improve the compliance process for you? (please check all that apply)
   - Electronic Media
   - Online Training
   - Resource Manuals
   - Software Tools (i.e. checklists, RESCheck and/or COMcheck)
   - How-to or Requirement Commentary Videos
   - Mobile Apps

https://www.surveymonkey.com/s.aspx?PREVIEW_MODE=DO_NOT_USE_THIS_LINK_FOR_COLLECTION&rm=cHTZUXM1pNLmWmX0UaRjCJh...
16. The following training modules are being proposed for Residential Energy Code Training. Please rank in order of importance to your industry. 
Please note: as you rank your answers, the list moves to reflect the order chosen.

- [ ] Course 1: Energy Modeling and Performance Testing for Code Compliance (Residential)
- [ ] Course 2: Understanding the Energy Code: Opportunities for Residential Energy Professionals

17. The following training modules are being proposed for Commercial Energy Code Training. Please rank in order of importance to your industry. 
Please note: as you rank your answers, the list moves to reflect the order chosen.

- [ ] Course 2: Energy Code Requirements, Commercial Plan Review, and Evaluating Materials and Details
- [ ] Course 3: Commercial Energy Code: A Deep Dive into Technical Requirements

18. Do you think the traditional code enforcement infrastructure (relying only on building departments staff alone) can assure energy code compliance?

- [ ] Yes
- [ ] No

If no, please explain why.

19. What third-party compliance approaches do you see in your area of expertise? (i.e. Raters, Cx Agents)

20. Does third-party compliance assessment or special inspections help improve energy code compliance in your industry?

https://www.surveymonkey.com/s/aspx?PREVIEW_MODE=DO NOT USE THIS LINK FOR COLLECTION&am=n=chTZUXM1pNLm-Wu9XUaRyCJh.fm...
21. How could the interaction between the code compliance and construction trades industries be improved to increase compliance? (i.e. improved communications, common ground discussions)

22. How could the interaction between the code compliance and construction trades industries be improved to increase compliance? (i.e. improved communications, common ground discussions)

23. What is the biggest challenges that your industry has faced in working with or implementing energy codes?

24. How do "Energy and Other Professionals" (EOPs) usually hear about energy code training? (i.e. Marketing Outreach via email, newsletters, other organizations, etc.)

25. Are there other methods recommended to reach "Energy and Other Professionals" (EOPs) to make energy code training available?

26. What motivates "Energy and Other Professionals" (EOPs) to get trained on the energy codes?

27. What kind of messaging will be most effective in getting people to attend energy code
Developing Effective Energy Code Training Survey

training? (i.e. build your business, avoid liability, provide better service, etc.)

Next

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Appendix III:
Stakeholder Meeting Email Invitation

Subject: Invitation to NY Energy Code Training Market Assessment Stakeholders Meetings

You have been identified as one of a handful of experts in the building/energy field with a valuable opinion on energy code training.

NYSERDA and the Institute for Building Technology and Safety (IBTS) invite you to participate in a 3-hour information gathering meeting for the Building Energy Code training program we will be conducting beginning this fall. As compensation for your time and travel, we will provide a $50 gift card to all participants.

NYSERDA’s goal for this program is to promote outstanding Energy Code training sessions, and improve compliance with the Energy Conservation Construction Code of New York, as well as to prepare stakeholders with information about the changing energy codes. The purpose of these face-to-face meetings is to gather experts in energy efficiency and the code enforcement process to discover what we need to train on, and how. Do we need better content? Are we training the right people on the right energy code topics? Where does the enforcement process break down and how can we address that through training? What’s the right length, time and location for training? Your participation is essential - we expect to have a lively discussion session which will better inform our course development and delivery.

These meetings are scheduled to take place on the following days and location:

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuesday, March 31, 2015</td>
<td>Clifton Park-Halfmoon Library</td>
</tr>
<tr>
<td></td>
<td>475 Moe Rd, Clifton Park, NY</td>
</tr>
<tr>
<td>Wednesday, April 8, 2015</td>
<td>BOMA-NY offices</td>
</tr>
<tr>
<td></td>
<td>11 Penn Plaza, 22nd Floor, Suite 2201, NY, NY</td>
</tr>
<tr>
<td>Monday, April 13, 2015</td>
<td>Erie County Fire Training Facility</td>
</tr>
<tr>
<td></td>
<td>3359 Broadway, Cheektowaga, NY</td>
</tr>
</tbody>
</table>

On each day, a morning session will focus on the Residential market while an afternoon session focuses on the Commercial market. We are asking for your attendance at either the Residential OR Commercial session on only one of the days identified above. As such, this is intended to be a one half-day commitment.

We will provide additional information to those interested in attending. Please RSVP as soon as possible with your name, phone # and email address, along with the date and time you would like to attend, to Debbie Russell at drussell@ibts.org, or by phone at (518) 283-1834.

Additionally, if you have suggestions for anyone who should also be invited to attend one of these meetings, please reply with their name(s), organization(s), and contact information.

We are looking forward to working with all of you to put best training practices in place, for you and your colleagues. Thank you for your time.

Sincerely,

Jeffrey Domanski, LEED AP | Senior Manager, Energy and Sustainability Group
Institute for Building Technology and Safety

Cell 646.483.1338 | Office 518.283.1834 | www.ibts.org

@ibts.org | @ibts.org | IBTS
Appendix IV:
EOP Stakeholders

- Third-party Inspectors – including Plan Reviewers
- Evaluators
- HERS/Energy Raters
- Energy Auditors (including blower door testers)
- BPT technicians, BPI, BA and ENV and contractors, BPCA
- Builders, including segmentation by local chapters
- Home Performance Contractors
- Advanced HVAC System Installers (air sealing, house pressurization, direct-vent units, HRV systems, Manual J experience)
- Other Contractors, e.g., Commercial Specialty Insulation Installers
- Remediation Agents
- Commissioning agents – likely A/E firms, Flex tech folks, and firms through the Building Commissioning Association
- Testing and Balancing Specialists
- Air barrier Installers, Testers, and Inspection Professionals with ABAA certs
- Energy Modelers
- Jurisdiction Leaders and local ATV reps
- Utility Company Representatives
- Energy Project Finance Professionals
- Code Enforcement Officers (Code Officials) familiar with residential compliance in the areas of air sealing, blower door testing, HVAC installs etc. REScheck™ and Rem/Rote™
- Code Officials familiar with commercial air sealing techniques and requirements, HVAC inspections, COMcheck™, DOE-2, and duct sealing procedures, heat recovery, etc.
- Lighting Designers and Installers using LED's, low-voltage systems, remote control strategies, daylighting combinations, etc.
- NYS-DOS staff Joe Hill and Mike Burnetted
- NRLA members in each region
- Commercial Auditors
### Appendix V: Market Assessment Meeting Attendees

#### RESIDENTIAL

<table>
<thead>
<tr>
<th>Name</th>
<th>Company/Organization</th>
<th>Silo</th>
</tr>
</thead>
<tbody>
<tr>
<td>John Addario</td>
<td>NYSDOS</td>
<td>Code Official</td>
</tr>
<tr>
<td>Dan Coutin</td>
<td>EME Consulting Engineering Group</td>
<td>EOP</td>
</tr>
<tr>
<td>Joe Hill</td>
<td>NYSDOS - Asst. Director Energy</td>
<td>Code Official</td>
</tr>
<tr>
<td>Michael L'Ecuyer</td>
<td>ICF</td>
<td>Engineer</td>
</tr>
<tr>
<td>Dave Wilson</td>
<td>Dynamic Building Solutions, LLC</td>
<td>EOP</td>
</tr>
<tr>
<td>Michael Dunseith</td>
<td>Green Jobs Training Center</td>
<td>EOP</td>
</tr>
<tr>
<td>Tony Lisanti</td>
<td>Anthony Lisanti Energy Consulting LLC</td>
<td>Engineer</td>
</tr>
<tr>
<td>Todd Blackley</td>
<td>Building Performance Solutions</td>
<td>EOP</td>
</tr>
<tr>
<td>Mark Brind'Amour</td>
<td>Buffalo Energy</td>
<td>EOP</td>
</tr>
<tr>
<td>Emelie Cuppernell</td>
<td>PSD Consulting, NEHERS Chair</td>
<td>Engineer</td>
</tr>
<tr>
<td>John D'Arpino</td>
<td>Advanced Home Inspections</td>
<td>EOP</td>
</tr>
<tr>
<td>Fred Fellendorf</td>
<td>Buffalo Energy</td>
<td>EOP</td>
</tr>
<tr>
<td>Susan Mann</td>
<td>PSD</td>
<td>Engineer</td>
</tr>
<tr>
<td>Brett Pevear</td>
<td>Building Efficiency Resources, LLC</td>
<td>EOP</td>
</tr>
<tr>
<td>Ryan Meres</td>
<td>Institute for Market Transformation</td>
<td>Building Trade</td>
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<tr>
<td>Mike Burke</td>
<td>CSG</td>
<td>EOP</td>
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<tr>
<td>Margaret Poniatowski</td>
<td>Buffalo Engineering</td>
<td>Engineer</td>
</tr>
<tr>
<td>Paul J Fox</td>
<td>BASF</td>
<td>Building Trade</td>
</tr>
<tr>
<td>Bill Keating</td>
<td>CSG</td>
<td>EOP</td>
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<tr>
<td>Juli Turner</td>
<td>NYSBA</td>
<td>Building Trade</td>
</tr>
<tr>
<td>Jennifer A Novak</td>
<td>SUNY CNSE</td>
<td>Engineer</td>
</tr>
<tr>
<td>Autumn Curilla</td>
<td>GDS Associates</td>
<td>EOP</td>
</tr>
<tr>
<td>Jonathan Cali</td>
<td>PEGENV</td>
<td>EOP</td>
</tr>
<tr>
<td>Shirley Ellis</td>
<td>TAMU (Texas A&amp;M)</td>
<td>Code Official</td>
</tr>
<tr>
<td>Ian Shapiro</td>
<td>Taitem</td>
<td>Engineer</td>
</tr>
</tbody>
</table>

#### COMMERCIAL

<table>
<thead>
<tr>
<th>Name</th>
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<th>Silo</th>
</tr>
</thead>
<tbody>
<tr>
<td>John Addario</td>
<td>NYSDOS</td>
<td>Code Official</td>
</tr>
<tr>
<td>Tom Barone</td>
<td>NYS Parks &amp; Recreation</td>
<td>Engineer</td>
</tr>
<tr>
<td>Raymond Hickey</td>
<td>Advanced Comfort Systems, Inc.</td>
<td>Building Trade</td>
</tr>
<tr>
<td>Joe Hill</td>
<td>NYSDOS - Asst. Director Energy</td>
<td>Code Official</td>
</tr>
<tr>
<td>J David Houle</td>
<td>EME Consulting Engineering Group</td>
<td>Engineer</td>
</tr>
<tr>
<td>Paul Tangredi</td>
<td>CLEAResult</td>
<td>EOP</td>
</tr>
<tr>
<td>Kevin Van Detta</td>
<td>Leidos</td>
<td>Engineer</td>
</tr>
<tr>
<td>Mike Flatley</td>
<td>Steven Winter Associates, Inc.</td>
<td>Engineer</td>
</tr>
<tr>
<td>Ian Graham</td>
<td>Vidaris</td>
<td>Engineer</td>
</tr>
<tr>
<td>Mike O'Donnell</td>
<td>Steven Winter Associates, Inc.</td>
<td>Engineer</td>
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<td>Kelly Westby</td>
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<td>James Page</td>
<td>Testing, Adjusting, and Balancing Bureau (TABB)</td>
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<td>Brendan Kelly</td>
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