

NYStretch-Energy Code RESIDENTIAL WORKING GROUP Meeting

October 12, 2017 | 2:00 pm – 4:00 pm

Location: WebEx meeting

PARTICIPANTS

Remote: Jim Edelson, Mark Lyles, David Heslam, Chris Sgroi, Jeff Domanski, Tom Eisele, Joe Dolengo, Kevin Stack, Joe Hitt, Joe Hill, Pasquale Strochia

Absent: Priscilla Richards, Tony Lisanti, Lou Petrucci, Steve Rocklin, Dave Abrey, John Ciavacco, Kerry Jane-King, Michelle Tinner

AGENDA

1. Roll call and introductions of new Working Group members – Jeff Domanski (IBTS)
 2. Recap of Stretch Code progress and schedule – Jim Edelson (NBI)
 3. Proposed Residential Code Structure – Mark Lyles (NBI) and David Heslam (Earth Advantage)
 - a. General savings estimate
 4. Review of preliminary Residential modeling results – David Heslam (Earth Advantage) and NBI
 - a. Methodologies – single family and multifamily
 - b. Updated modeling results
 - c. Key findings from savings analysis
 5. Issues from Advisory Group meeting – Jim Edelson/Mark Lyles (NBI)
 6. Next steps, model modifications and menu options – Jim Edelson/Mark Lyles (NBI)
 7. Discussion - All
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MINUTES

Roll call and introductions of new Working Group members

Following a roll call of participants and confirming good audio connection for all beginning at 1:00 pm, Jeff Domanski provided a brief overview of the agenda.

Recap of Stretch Code progress and schedule

Jim Edelson provided an overview of efforts and progress made to-date and indicated the meeting would largely focus on the second round of Residential prototype modeling to achieve the project goals since the 2nd Advisory Group which took place on 9/28/17. The meeting will also provide insight into the development of draft NYStretch-Energy 2018 language and the schedule of remaining project efforts, including efforts to prepare for legal review and to support the NYC team's process.

Jim shared the dates of the upcoming Commercial (10/24/17) and Multifamily (10/26/17) working group meetings. The “Revised Timetable” slide showed that final modeling and analysis should take place in November, which would be followed by the final Advisory Group meeting in early December.

Chris Sgroi shared a brief update on NYStretch-Energy 2016 adoption efforts, which was largely shared in the 2nd Advisory Group meeting on 9/28/17. The plan is to adopt administrative aspects of the code in November and follow with publishing efforts. Jim indicated TRC was hired to assist with the process.

Previous meeting minutes, slide files, and resources identified are available on the NBI NY Stretch Resources page, at: <https://newbuildings.org/nystretch/>

Proposed Residential Code Structure

Jim described the proposed framework for the Residential code shown on the “Residential Structure” with a focus on the “efficiency credits” options which is based on building size to guide the number of credits required to comply with the stretch code. The diagram shows there are up to 9 options for envelope and 8 options for renewables and high efficiency equipment.

On several “Base Measures Modeled” slides, Mark noted the base package being considered (see slides for details). For the High Efficacy Lighting measure, the modeling team had conversations with lighting experts from which a likely recommendation of 65 lumens/watt (L/W) for lamps and 45 L/W for all luminaires is anticipated. The “Three additional efficiency packages modeled” shows a sample of what measures being considered for that credit approach.

Action:

- DOS to reply to NBI request for guidance on how the renewables options would apply to a state building code.

Review of preliminary Residential modeling results

David Heslam discussed the modeling methodology used for single and multifamily residential prototype, including updating modeling results and the key findings from the savings analysis. David noted this information was presented at the advisory group meeting so a relatively quick review of the methodology was presented today. See slides for details.

David indicated the three climate zones, three HVAC systems, and four foundation types included led to the 36 modeling variations used. David and Jim stated two rounds of modeling will be conducted to hone in on savings versus total usage. In the first round of modeling, different modeling tools were employed to identify the baselines, including the updated version REMRate, which is not approved yet, but is anticipated to be soon. Round 2 will look at additional measures. For round 1, used different modeling tools to get the baseline savings goals against the 2015 IECC. The 2018 IECC will be used to gauge savings achievement. See slide for details, including tables showing ERIC baseline comparisons.

As shown in the slides, tables were presented showing baseline comparisons and the results of combining optional packages with a set of mandatory measures (by state average, heating fuel, and climate zone). David emphasized there was a focus on getting the weighting right in these efforts, which was a significant issue discussed in the previous Advisory group meeting.

David discussed the major takeaway of the table shown on the “SF Mandatory Measures and Additional Measures – State Average” slide, which shows source energy values for mandatory measures package by itself, which shows 12% savings by itself, and mandatory measures combined with additional measures. Additional measures bring 2-3% better energy savings. If combined together, all three credits would result in 20% savings, but there needs to be evaluation to assure no interaction among the measures. On the “SF Mandatory Measures and Additional Measures – By heating Fuel” slide, it was noted that combining the domestic hot water (DHW) measures with the mandatory measures yields 19% savings over baseline.

Issues from Advisory Group meeting

Three issues identified in the Advisory Group meeting and discussed at this meeting are (1) how to address use of passive house approaches in compliance paths, (2) the weighting of residential construction types across the state, and (3) approaches to achieve additional savings to achieve the 20% over baseline goal.

Jim noted the interest expressed at the first Advisory Group meeting of incorporating passive house approaches within NYStretch-2018 – and that the removal of passive house elements from NYStretch-2016 was an issue. There is still uncertainty on which of the two passive house systems (i.e., PHI and PHIUS) should be considered – or whether it is possible to represent elements of both. Input from several stakeholders is required, including the Department of State. The “Weighting Information” slide presented the data used for the proposed weighting approach.

Jim indicated that addressing the need to identify additional savings was the most important goal for the meeting. Mark spoke to the table shown on the “Additional Savings” slide, which is from the Northwest Energy Efficiency Alliance (NEEA). NEEA has used a model, which has been used by utilities, that allows adding measures to existing suite of measures to determine benefits. Mark indicated the team’s interest in proposing a points-based approach (see “Menu Options” slides for details).

Discussion/Stakeholder input

- Joe Dolengo asked for clarification about demand savings vs. peak demand and the ability to achieve peak load reductions. Pasquale supported consideration of peak load shaving due to anticipated growth in solar/electric approaches. Jim responded that the NBI team is monitoring the NY Reforming the Energy Vision (REV) process and utility plans, but that this is not part of the current scope or base code assumption. Pasquale noted that investor-owned utility companies in Hudson Valley are planning on instituting demand charges (time of day/real time costing) – therefore this could be very timely in 2 years.
- Obtaining builders’ perspective on measures has been a focus of the NYStretch development efforts, and approaches, including performance path, that provide flexibility are seen as valuable. There was also discussion that vetting development of package options by building community may not be necessary to yield good stretch code. The performance path was supported as a potentially better way to obtain benefits compared to prescriptive approach which relies on assessment of prescriptive measures by code officials.

Actions:

- Chris Sgroi to discuss NYSERDA’s potential role in addressing peak demand reducing code-based strategies with Priscilla.

- NBI to discuss utility and network perspective with respect to measure packages with Priscilla – including energy storage as a potential option.

Next steps, model modifications and menu options

Jim and Mark discussed next steps and menu options to be considered, with a focus on receiving feedback on enhanced envelope options and additional discussion on high efficiency equipment and renewable energy. The Advisory Group was also encouraged to identify measures not currently included for consideration.

The “Enhanced Envelope Options” slides showed nine measures currently in consideration (see slides for details). It was noted that very little savings improvement is derived from insulation-based measures, but UA-based measures have room for optional improvement (options 4 and 5).

In discussing the options shown on the “High Efficiency Equipment and Renewable Energy” slides, Mark and David provided additional detail on the requirement, based on work done in Oregon, for the “Ducted HVAC systems in conditioned space” approach, indicating to receive credit it requires replacing electric resistance in the primary zone (main living area) but not secondary/smaller areas (e.g., bedrooms) because of relative benefits and to avoid oversizing of equipment. The “Super efficient water heating” option is based on use of tier 3 requirement for heat pump water heaters and propane water heaters.

The modeling team requested feedback on Option #6, “Energy management device and duct sealing,” an option he suggested likely has alignment potential with existing NYSERDA programs.

Jim indicated the solar PV and solar hot water option values could be scaled, such as a credit per kilowatt or credit per collector area, respectively, which are not required in New York so are therefore above code. He also suggested the PV option could be examined to determine potential load shaving benefits.

Discussion/Stakeholder input

- Several comments were shared on the “Ducted HVAC systems in conditioned space” enhanced envelope option. Pasquale noted there is an “aggressive” incentive in the code that prevents duct testing. Chris asked if anyone knows what percentage of builders are moving duct into conditioned space. Pasquale replied there is resistance by builders and it is hard to gauge how many do it. Building awareness was indicated to be important so builders know this is a beneficial strategy, and Tom and Steve suggested it should be considered on mandatory list rather than as an option.
- Chat comment from Pasquale: “Just curious, as resource for the group members it would be helpful if we could be provided a copy of the current 2018 IECC. My concern is that the actual 2018 IECC version that will be adopted in NYS will likely be a later date printing (as was the case for the 2015 IECC). This would help us to defray the costs of the additional copy needed.”
- Pasquale commented on the description of the Ducted HVAC systems measure on the “High Efficiency Equipment and Renewable Energy” slide, noting that he has been involved in a number of heat pump studies in New York and Massachusetts and while oversizing is an issue, there should be identification of the system sizing guidance because of interest in systems operating in extreme weather conditions, particularly in zones 5 and 6. He anticipates having data from study by Spring 2018. Pasquale also noted that the Energy Star standard makes an allowance for heat pumps greater

than 125% and Bruce Harley could be contacted for additional information. NBI suggested that equipment sizing guidance could be based on climate zone.

- Joe Hitt from the Department of Public Service asked whether the “High efficiency water heating” option (#4 on the first “High Efficiency Equipment and Renewable Energy” slide) asked if the furnace AFUE be higher than the boiler AFUE since the market averages for boilers are typically lower. It was indicated a natural gas boiler was assumed in the modeling rather than for oil. As such, 0.90 is appropriate.
- To a question on why energy management devices were combined with duct sealing (option #6, “Energy management device and duct sealing”), Mark indicated this was based on the observations that these measures are often combined with duct-based credits. To a question of why not examine the benefit of energy management devices and duct sealing as standalone measures, NBI indicated that this could be done. Pasquale suggested that duct testing be removed as the energy benefit is minimal, and it would be beneficial to see standalone benefits of energy management control devices, with emphasis on control over monitoring.
- Pasquale asked for clarity on how the options credits interface with the mandatory ERI pathway. Jim indicated, as was done for NYStretch-2016, ERI is mandatory and one must do mandatory measures, based on points or percentage approach, and sufficient number of options to comply. Pasquale stated that it will be easier when it’s clear what the target is for ERI. Jim anticipates will need approximately 8% to the 20% savings goal.
- Pasquale suggested car chargers or car charger “readiness” be considered. Jim indicated would be better placed on mandatory list as it is more policy-based objective, and that it is required in the Massachusetts stretch code.
- Pasquale suggested in addition to PHI/PHIUS being considered as an alternate compliance pathway, the DOE Zero-Energy Ready Homes standard be considered as an alternate compliance path. Jim replied that comparisons done to-date showed it was not better than the Prescriptive path being considered already. Jim indicated that additional comparison would be done.
- Pasquale suggested energy storage be considered – perhaps as an extra credit, which would have impact on peak demand. NBI to explore with NYSERDA (included in Actions identified in previous section)
- Joe asked if there is heavier focus on KW reductions in other code development efforts. Jim indicated mostly seen in California Title 24 2019 Residential code which is requiring net zero and nearly net zero). This effort includes series of requirements by climate zone, including amount of solar required, peak load, and “grid harmony” requirements. Hawaii also pursuing this, but not yet in code.

Actions:

- NBI to revise the first “High Efficiency Equipment and Renewable Energy” slide to provide clarification that option #4 is based on natural gas and propane water heaters, and not oil.
- NBI to restructure the Structure diagram to reduce complexity and enhance ability to perceive compliance requirements.
- NBI to do comparison of DOE Zero-Energy Ready Homes standard to PHI and PHIUS standards.
- NBI to share example of an “energy management device” and how it is being used with clarity on actions to which it would be linked.

Discussion (and next steps)

Discussion on topics took place throughout meeting – see notes above.

Mark closed meeting noting modeling results will be shared at the next Advisory Group meeting which is expected to take place in early December.

Jeff encouraged all to share comments or suggestions by email.

THE MEETING CLOSED AT 3:40 PM.