FINAL MINUTES

NYStretch-Energy Code COMMERCIAL WORKING GROUP Meeting June 10, 2017 | 1:00 pm – 3:00 pm

Location: WebEx meeting

PARTICIPANTS

Remote: Priscilla Richards, Jim Edelson, Mark Lyles, Jeff Domanski, Tom Eisele, Harry Gordon, Ian Graham, Joe Hill, Joe Dolengo, Maria Karpman, Jodi Smits-Anderson, Don Winston, Bing Liu, John Addario, Gina Bocra, Kerry Jane-King,

Absent: Jack Bailey, Lou Vogel

AGENDA

1:00 – 1:15 Welcome / Roll Call / Review Workgroup Context/Objectives Jeff Domanski (IBTS), Jim Edelson (NBI)
1:15 – 1:30 Energy Targets and Existing Building Options Jim Edelson and Mark Lyles (NBI)
1:30 – 2:30 Commercial NYStretch Measures and Appendix g - Scoping and Discussion (NBI)
2:30 – 2:45 Modeling of Results, Questions, Discussion (PNNL and All)
2:45 – 3:00 Discussion and Wrap-up – Next Steps

MINUTES

Review of Working Group Context/Objectives

Jim Edelson provided a summary of the NYStretch 2018 project that was conveyed in the 6/8/17 Advisory Group meeting. The NYStretch 2018 code is anticipated to be adopted in 2019 by New York City. NYStretch 2018 will focus on energy measures; other "green code" measures will be addressed separately. The development of NYStretch 2018 is using a process similar to that used to develop the 2016 NYStretch-Energy code, but in addition to the Commercial and Residential working groups, a Multifamily working group will be utilized. Similar modeling activities will be employed with Bing Liu of PNNL conducting the commercial modeling and Earth Advantage (based in Portland) doing the residential modeling.

Jim next described the proposed Structure Diagram for the Commercial code, including the performance, prescriptive, and efficiency options/savings packages which will be analyzed. A similar measures and packages structure was utilized in 2016 NYStretch project, which resulted in a potential 20% savings over IECC-2015.

Discussion/Stakeholder input

- Don Winston asked if there was documentation on the methodology for the weighted average savings as it would help the team respond to real estate and other interested stakeholders. Jim

indicated that he will share the spreadsheet developed for those calculations, and will share reports when finalized.
- Bing Liu stated that the backup slides from the NYStretch 2016 effort, which show the distribution across buildings, could also be shared.

Action item
- Jim/NBI to share background information on the development of the NYStretch 2016 Commercial code weighted average savings, including the NBI spreadsheet and PNNL backup slides.

Energy Targets Options
Jim described the energy use intensity (EUI) targets being considered for NYStretch 2018, and the methods in consideration for weighting predictive building performance to national codes and correlating results to a performance cost index (see PowerPoint slides).

Discussion/Stakeholder input
There was discussion of which geographic representation of energy cost should be used for the project, and agreement that national, New York State, and regional/sub-state costs should be considered in the modeling as there can be significant differences, including significant variation within the State. Analysis from NYStretch 2016 effort considered site source and cost, and information on New York State cost benefit analysis was developed. Jim indicated that these options will be evaluated and a proposed approach will be shared. Jim spoke to performance cost index (PCI) target, as well (see PowerPoint slides).

Discussion/Stakeholder input
- Ian raised NYC Local Laws as vehicle for EUI targets. Don indicated that intent is to move towards EUI, but this would not be sufficient to verify compliance with code.
- Maria indicated there is "gaming" threat with use of absolute EUI, such as inclusion/exclusion of unregulated loads such as consumer electronics.
- Gina cautioned that the lack of experience with modeling should be considered, and that there should be clear guidance on how to achieve targets.
- Bing indicated there is significant misunderstanding of PCI calculation and suggested it would be beneficial to work with Maria and Jim to show how to calculate PCI for NYC.

Action items
- NBI/PNNL to share data on cost benefit analysis done as part of the 2016 NYStretch project.
- Maria Karpman to share a document that describes differences in cost approaches (e.g., national vs. NY)
- Jim/NBI to provide a proposal for approach to use of geographic energy cost options and site/source cost option.
- Jim/NBI to share "Rosenberg" paper with the working group participants.
- Bing/PNNL to share slides showing PCI calculation methodology.

Existing Buildings Options (in NY Stretch
Jim walked through existing mechanical and lighting building provisions included in the 2016 NYStretch effort, new existing building code structures, option packages, and current and proposed New York City existing building code provisions, with focus on the threshold that requires compliance with beyond-base code provisions (see PowerPoint slides).

Discussion/Stakeholder input

- New York City's beyond code requirements are currently not reflected in the building code. Beyond code requirements for new buildings and renovations are included in the NYC *Greener, Greater Buildings Plan*, which is comprised of local laws defining building size thresholds for compliance requirements, including benchmarking, disclosure, lighting upgrades, and sub-metering. The Department of Building enforces these requirements and has started drafting existing building code.
- The NYC measures should be considered for the NYStretch 2018 with awareness that the State would not have authority to mandate so local municipalities would be required to both adopt and enforce compliance.
- Jim explained lighting upgrade options and thresholds related to Title 24 (see PowerPoint slide), noting that major building retrofits removes third option and that daylighting and lighting control options are proposed, which can be more easily enforced than current NYC requirements.
- Mechanical system commissioning, which was suggested for IECC 2018, is being considered for NYStretch 2018.
- Ian Graham asked for further explanation of what constitutes a "Level 3 Alteration" (see PowerPoint slide). Jim indicated this is a 50% alteration of building, referencing section from IEBC, and/or alteration to major building systems, and noted that this differs from Chapter 5 of the Energy Code in that it has additional requirement to make sure two "options" are met to get permit when doing system replacement. This is intended to require actions beyond original project scope at "building milestone" opportunities.
- Ian, playing "devils advocate" asked if this approach is vulnerable to cheating the system when a builder proposes a "solution" which was already intended, which is very difficult to verify.
- Maria Karpman noted that ASHRAE 90.1 Appendix G has same baseline for existing buildings and renovations for improvements of the 2004 code and that there is a mismatch between performance and prescriptive approaches. She referenced the Policy Recommendations she presented at the 6/8/17 Stakeholder Advisory Group meeting (see slides from that meeting) and efforts by Mike Rosenberg at PNNL to develop language. These comments were submitted to NYSERDA during the 2016 NYStretch public comment period.
- Jim asked if this Working Group was ready to support the proposed provisions, which was not the case. Ian indicated difference between the approach and Appendix G must be addressed and Maria echoed need to address enforcement loopholes associated with allowing multiple modeling options.
- Ian noted that there are five different compliance paths in NYS and it would be good to simplify, suggesting the group consider using ASHRAE instead of the IECC, with Appendix G as an option, but cautioned that there is little experience by a small fraction of potential user population with the new Appendix G modeling. He believes no one has yet used Appendix G to show energy code compliance, but some have used for cost analysis. Don Winston agreed with these statements, and noted its use for LEED was problematic because chiller water method in NYC when using DX allowed deviation from stringency and prevents compliance by some buildings because of their size.
- Jim noted that the proposed approach is the approach that Massachusetts is using.
- There was agreement that additional analysis or study may be required to ensure sure local coded would not be less stringent than state code. Bing suggested this may have been addressed by Mike Rosenberg at PNNL.

Action items

- Jim/NBI to initiate follow-up discussions, possibly by email, on local vs. state code requirements and loophole challenges.

Commercial NYStretch Measures and Appendix G - Scoping and Discussion

Mark Lyles and Jim next spoke to the draft "Range of Commercial Provisions" document prepared for discussion with the Working Group (see draft document). The goal of the Commercial provision is to assemble a portfolio of measures that will result in a minimum of 10% savings above 2015 IECC. The first two sections of the document, Scope and Performance Based measures, were addressed by the previous discussions. Mark indicated interest in aligning the proposed Stretch Code provisions with New York City's Climate Resilience Guidelines and sought input from Working Group members in NYC.

Discussion/Stakeholder input

- Tom Eisele indicated that New York City is looking at weather data, sea level rise, temperature change projections to attempt to address future-proofing in construction codes and produce a guideline document identifying updates to construction code.
- Mark proposed using Passive House and Thermal Energy Demand Intensity (TEDI) requirements in the Stretch Code. Maria indicated that Passive House includes to provisions that fall below Appendix G requirements, including not capturing fan energy. Maria suggested Passive House could be good for simple projects (i.e., envelope measures) but not for commercial buildings, and that Urban Green's Energy Code training slides has useful information. Ian noted need to define which Passive House provisions are to be considered.
- Mark indicated that Section 3 of the proposed commercial provisions is based on seeking alignment with ASHRAE 90.1 and benchmarking requirements, which could require sub-metering. Don expressed objection to these types of measures because he believes metering requirements are expensive, and sub- and interval-metering results are vulnerable to "cherry picking" and there is insufficient knowledge by nearly all stakeholders as to what to do with the data – and that "NYSERDA's linear tracking" supports this [CONFIRM]. He cautioned to be wary of inconveniencing occupants and that it is likely that work-arounds, such as occupant-controlled receptacles.
- Jodi Smits-Anderson suggested education on the use of metering data should be included and Kerry Jane King indicated that the SmartNY program, coordinated by NYPA, requires metering in buildings and believes this is a great approach that can be used well.
- Ian suggested giving people a path to use 90.1 as compliance for all building types.
- There was agreement that Automated Demand Response controls should be included as an option.
- There was agreement that overhead lighting provisions should be mandatory.

Building Envelope Systems

- Jim led discussion of the Building Envelope System by noting the proposed values drew from 189.1 and that the proposed prescriptive options were higher than provisions in 2016 NYStretch.
- Ian suggested the fenestration values presented are unachievable without plastic windows – which will not go into high rise buildings – or triple pane windows which would fall into the Prescriptive path. He also noted that the weighting factor must be considered.

- Bing indicated that their approach to suggested values is based on recommending only what can be achieved by commercially available products. The alignment with this intent should be examined again.
- Jodi – looking at beyond energy – comfort and experience of building users
- Ian and Don expressed skepticism about the exterior overhang provision because of cost and structural concerns, including ice-shedding problems, and suggested would need to be lower value.
- Mark noted that current energy codes do not sufficiently address thermal bridging (including windows and balconies) so represents an opportunity. Proposed approach is based on a weighted area calculation and use of thermally-broken windows. Ian suggested it's not possible to meet code w/o and continuous insulation. Gina Bocra agrees there is opportunity here but has seen little uptake and lack of knowledge with respect to Appendix A calculations. Construction practices around windows could be a challenge both structurally and in terms of enforcement and that perhaps better to leave burden on window manufacturers. [INSERT HARRY GORDON'S EMAIL CLARIFICATION/COMMENT HERE??]

Mechanical Systems

- Mark indicated that the mechanical systems values were also based on 189.1 and there is a proposed 'optional' table for equipment which will be better than the 2016 requirements and will have requirements for DOAS calculations. Jim noted that Washington State is also working on code in this area which could be utilized.
- Don suggested that attention to boiler rating could lead to better operation at their rated efficiencies and it could be beneficial to mandate overall system efficiency vs. individual equipment.
- Don suggested that the combination of proposed system components for water heating systems not likely to work.
- The proposed lighting table is based on LED installation, was approved for 2016 NYStretch and can produce savings beyond IECC 2018, which went up significantly from IECC 2015.
- Mark indicated that the sola-ready requirements are in the residential code and will be in an appendix for 2018 for commercial, and that the state is willing to adopt. These would apply to high-rise buildings. There was discussion of high-rise issues, including comparison of production potential to relative building consumption and potential for gaming by nominal compliance efforts (e.g., small installations). Fire department personnel safety was also discussed.
- The Efficiency Packages presented in the draft are the same (or similar?) with the 2016 NYStretch packages.

<u>Action items</u>

- Maria to share Urban Green Energy Code training slides which reference Passive House approaches. NBI to post to the document sharing site (ADD LINK) for Working Group evaluation.
- NBI/PNNL to review commercially available Building Envelope System products.
- NBI (Jim) to look at Appendix A calculations for thermal bridging (CONFIRM).
- Mark to follow-up with Don to discuss methodology and language for boiler efficiency approach and mechanical system requirements.
- Jim/NBI to share proposed solar-ready code language with the Working Group.

Modeling of Results, Questions, Discussion

- Jim indicated the he will confer with Bing/PNNL about what should be included in the modeling based on today's discussion.
- Priscilla noted that there was not time in this meeting to follow-up on the Advisory group meeting action of addressing modeling prototypes, including existing building prototypes, and that a working group would be formed to address modeling. Don, Ian, and Tom will be among the participants.
- Priscilla indicated that the scheduled August 10th meeting of the Stakeholder Advisory group will be postponed. The date is still to be determined.

Action items

- The slide deck from today's meeting will be shared with meeting minutes.
- A Modeling Working Group will be formed.