

# **NYStretch-Energy Code Kickoff Meeting**

**June 8, 2017 | 9:00 am – 3:00 pm**

**Location:** NYSERDA - Albany Office, 15 Columbia Circle, Albany, NY 12203

## **PARTICIPANTS**

**In Person:** Priscilla Richards, Jim Edelson, Jeff Domanski, Debbie Russell, Marilyn Dare, John Addario, Steve Bluestone, John Ciovacco, Tom Eisele, Harry Gordon, Ian Graham, Joe Hill, Joe Hitt, Maria Karpman, Steve Rocklin, Rebecca Ruscito, Jodi Smits-Anderson, Michelle Tinner, Don Winston

**Remote:** Mark Lyles, Bing Liu, Lois Arena, Gina Bocra, Joe Dolengo, Laurie Kerr, Katrin Klingenberg, John Lee, Lou Petrucci, Lou Vogel

**Unable to Attend:** Dave Abrey, Kerry Jane-King, Tony Lisanti, Tim McDonald, Bill Nowak, Kevin Stack, Pasquale Strocchia

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## **AGENDA**

9:00 - 9:30 am	Gather, Refreshments, Settle In
9:30 - 9:45 am	NYSERDA Welcome and Policy Context - Priscilla Richards, NYSERDA
9:45 - 10:00 am	NYC Policy Context - John Lee, NYC Mayor's Office of Sustainability
10:00 - 10:30 am	Overview of project team, process and timetables - Priscilla Richards and Jim Edelson, New Buildings Institute
10:30 - 11:15 am	Overview of technical approach - Priscilla Richards, Jim Edelson and Kevin Carbonnier, New Buildings Institute
11:15 - 11:30 am	Multifamily opportunities for consideration - Jim Edelson
11:30 am - 12:15 pm	Discussion and Feedback on Structure and Approach - All
<b>12:15 - 1:00 pm</b>	<b>Lunch</b>
1:00 - 1:30 pm	Commercial, Multifamily and Residential modeling approaches and considerations - Bing Liu, Pacific Northwest National Labs and Maria Karpman, Karpman Consulting
1:30 - 2:00 pm	Code measures for consideration - Mark Lyles, New Buildings Institute, and Jim Edelson
2:00 - 2:30 pm	Discussion and formation of workgroups - All
2:30 - 2:45 pm	Update on NYStretch-Energy - Status and Implementation Plans - Priscilla Richards
2:45 - 3:00 pm	Wrap-Up and Next Steps

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## **MINUTES**

### **NYSERDA Welcome and Policy Context**

The meeting opened at 9:30 am by Priscilla Richards, Program Manager, NYSERDA Codes Team welcoming everyone, checking for attendance of the remote participants, and giving a brief overview of the launch of this second round of the NYStretch-Energy Code (see PowerPoint presentation). In addition to information presented on the slides, Priscilla also mentioned:

- Stretch energy codes provide a method for communities to achieve more energy and carbon savings, and support the Governor's Reforming the Energy Vision (REV).
- Development starting now so that the new version is available in sync with the timing local communities need to consider it at the same time as updates to other building codes
- Stakeholder input critical to making it credible and achievable
- NYSERDA still working on finalizing the first NYStretch-Energy version; status update at the end of the meeting
- Thank you to attendees for their interest and participation

#### Discussion/Stakeholder input

- The NYS 2030 goals will be hard to meet, and many people are not aware of them
- NYSERDA needs to base stretch codes on what has been achieved and not on conceptual ideas since stretch codes, when adopted by municipalities, are not voluntary
- Enforcement is a critical area where support and training are needed; without enforcement, stretch codes, even if adopted, will deliver little to no savings

#### Action Item

- NYSERDA to distribute the Power Point presentation after the meeting

#### **NYC policy efforts**

John Lee, from NYC Mayor's Office of Sustainability, indicated that NYC is interested in adopting a Stretch Code and has made steps towards doing so, including the recent introduction of a bill by City Council to adopt a stretch code to take effect in 2019, a second stretch code by 2022, and a low energy intensity building requirement for all new construction and substantial renovation by 2025.

#### Discussion/Stakeholder input

- Gina Bocra, NYC Dept. of Buildings Technical Affairs Unit, noted New York City Council law allowing NYC to have a separate energy code more stringent than the NYS ECCC. Expressed that NYC is hoping to build on this group's stretch code work to reduce effort to identify an adoptable model or a springboard for the NYC model. Suggested that members of this group should anticipate invitation to participate on a committee to develop the NYC Stretch Code as early as March of next year.
- Tom Eisele noted that NYC's benchmark laws and the potential laws should be kept in mind as related efforts.
- Discussion on coordination needs of stretch energy code and other codes- New York State uniform codes, ICC International Energy Conservation Construction Code, ASHRAE 90.1, etc.
- Confirmation by Joe Hill that October 2019 is the likely timing for the next state code adoption, including the energy code
- A number of communities in addition to NYC have expressed interested in the Stretch Code, including Ithaca and Yonkers

- Discussion on complexity and challenge for fairness, identifying issues such as: vastly different uses among buildings, “as designed” versus “as operated” perspectives, terminology and definitions, and maintaining multiple compliance options including prescriptive and modeling.
- Discussion on importance of appropriately capturing existing buildings opportunities and savings potential

#### Action Items

- Jodi Smits-Anderson to share resource on technology approaches to bring down energy/carbon uses
- NBI to share paper on energy use intensity
- Project team (NBI/IBTS) to create a web location to share project-related documents, including reference resources.

#### **Overview of project team, timetables, and process**

Priscilla and Jim presented the project team, the approach, and the schedule (see PowerPoint presentation). In addition to information presented on the slides, Priscilla and Jim also mentioned:

- The team will consider suggestions received through the first round of stretch comments (that were too late in the process to be included)
- The focus for this round will solely be on energy as opposed to the broader sustainability focus last round.
- Resiliency items will be considered, but only to the extent that they tie into energy use issues
- Working group meetings – two of each of the three groups – will be held via WebEx.
- Advisory meetings will be in-person with a meeting in August or early September in NYC (date/time TBD) and November 16<sup>th</sup> at the NYSERDA offices in Albany. [**Editor’s note: in the meeting these dates were identified as August 10<sup>th</sup> and November 9<sup>th</sup>. The August 10<sup>th</sup> meeting is being rescheduled (date TBD) and the November meeting will take place on November 16<sup>th</sup>**]

#### Discussion/Stakeholder input

- Model green codes exist that are readily adoptable by communities. Not sure whether it is worth the effort to develop watered-down versions that work at the state level.
- More important to focus on stretch energy code requirements, where the complexity is beyond local capabilities

#### Action Item

- Sign up for working groups by all stakeholder participants

#### **Technical Aspects of the Stretch Code**

Jim next focused on the process to complete this project, including modeling and the measures to be considered, and the priority technical areas to be considered. .

**Green Code.** Priscilla noted the 2016 NYStretch effort considered a broader suite of code areas beyond energy, but NYStretch-2018 will be focused on energy. Many of the non-energy topics considered

during the previous NY Stretch effort are being addressed by the NYS DEC, which is putting together a workable framework in NYS for a broader sustainability effort.

#### Discussion/Stakeholder input

- Recognition of existing ‘green code’ models which are broad and allow flexibility.
- Ian suggested this group not spend time developing a watered-down version of a broader green code or a complex Energy Code with unachievable requirements.

**Net-Zero efforts.** Jim indicated options considered for the Stretch Code include providing a code estimated to be one code cycle ahead; or it could be designed to achieve Net Zero.

#### Discussion/Stakeholder input

- Jodi Smits-Anderson emphasized the need to educate stakeholders, including DASNY, about the “2030 Zero Energy” NYSERDA intent of the code cycle.
- Don Winston noted there has been interest in Net Zero efforts in NYC but no significant results to-date. He suggested emphasis on documented achievements and quantified benefits rather than conceptual benefits would enhance likelihood of adoption by large municipalities.

**Evaluation metric approach.** Jim discussed the intended use of Energy Targets, including the use of site energy use intensity (EUI), source EUI, and energy cost as metrics to assess impact of NYStretch 2018, and the weighted-average approach to representing the NYS climate zones. He showed comparison of compliance EUIs and costs metrics across all 16 building prototypes and a comparison of a set of five building prototypes (see PowerPoint slides). Retail Store and Secondary Schools were shown to be leading in compliance levels, likely due to use of LED lighting. He noted that these measures were prescriptive, and not based on Appendix G.

#### Discussion/Stakeholder input

- It was suggested that operations vs. EUI be considered in the NYStretch 2018 approach.
- There was a variety in opinion on which energy target metric be employed, including support for use of more than one metric. .
- Katrin Klingenberg, PHIUS, suggested looking at the PHIUS report on ASHRAE 90.1 Performance Cost Method, as it addresses these issues.
- Agreement to continue discussion of evaluation metrics approach in the Working Groups.

#### Action item

- Working Groups to include energy target metrics in the agenda for the first set of meetings. NBI to share paper on EUI evaluation and possible lead development of white paper comparing options. The PHIUS report on ASHRAE 90.1 Performance Cost Method to be made available in

**Multifamily Buildings.** Multifamily buildings are significant in both NYS and NYC and that a multifamily prototype would be included. Jim stated that the EPA “One Source Measures: Multifamily Guide” will be considered as a resource for identifying measures for consideration. The Multifamily slides identified measures that may result in 20-30% saving over IECC-2015, measures that could result in 3-10% savings, and top candidates for the NYStretch 2018 project.

#### Discussion/Stakeholder input

- Maria noted that her modeling uses 10 stories for the Multifamily prototype.
- Steve Bluestone suggested that Booster Systems be considered as part of the project.
- Ian asked if one version of the first Stretch Code was more stringent than another. Jim noted the Commercial saved more energy than the Residential; generally, more stringent on the mechanical. Jim indicated the City of Boulder, CO, adopted a base scope change, where all R2 have to follow Commercial code.
- Tom commented that NYC has buildings that were originally offices, and are now being converted to Multifamily Residential.

### Action item

The project team will post the EPA “One Source Measures: Multifamily Guide” to the project ‘shared documents’ website (<http://newbuildings.org/nystretch/>)

### **Plug Load discussion:**

- Don noted plug load is an important factor, probably moreso in commercial than in residential buildings.
- Lois Arena indicated that hallway lighting is very significant in their model.
- Don asked if the modeling deals with the whole building usage, including tenants’ consumption, or only HVAC and fixed lighting.
- Lois noted in accounting for all building usage, they add 80% for tenant usage.

**Lighting.** It was suggested that lighting is still the biggest area to mine, and the code has not caught up with technology advances.

### Discussion/Stakeholder input

- Jodi asked if LED lights should be mandated or if a two-option approach could be employed.
- Tom noted that now we are running up against different codes when talking about lighting in common spaces. Ian noted this comes back to enforcement.
- Gina commented there is a threshold for lighting – when more than 20% is changed, the whole space must comply.
- Significant challenges identified unique to NYC are the need for electrical drawings and lighting falls under both mechanical & electrical codes.
- Don commented that in the NYC code, under certain circumstances, you can exempt kitchen exhaust in certain apartments.
- There was general agreement that lighting design often is not based on LPD modeling, but rather by fixture layout, which often results in more lighting than needed.

### **Indoor Air Quality Discussion**

- John Ciovacco indicated interest in an air quality standard that can be addressed by mechanical ventilation in commercial modeling, and that heat recovery and energy recovery may be an opportunity to address in the Stretch Code.
- Maria indicated that air quality is captured, but Jodi suggested quantity in terms of certain pollutants, not quality is captured which is not related, and that it would be helpful to have air quality testing to help get correct ventilation.

- Ian asked if we should identify other control metrics to potentially modify demand ventilation.
- Jodi suggested we could identify the top 2-3 air quality issues.
- Ian would be worried if problem contaminants are being controlled.
- Don discussed CO<sub>2</sub> rates, and that we're dealing in the energy business with different standards – ASHRAE, LEED, Passive House, etc. The systems that require energy are getting more mandates on this, and end up in a squeeze on this. Jodi commented CO<sub>2</sub> is an occupancy consideration; if we are talking about air quality, it's not tied to occupancy. She commented the way to address energy is to address toxins. No conclusion was reached.

### **Wastewater Heat Recovery Discussion:**

- John suggested waste-water energy recovery in large buildings should be explored.
- Don commented true wastewater heat recovery requires use of a heat pump and there are significant challenges to do this.
- Ian indicated that testing done in residential buildings was problematic and would be even more challenging in large buildings.

### **Modeling**

**PNNL.** Bing Liu discussed the PNNL models, methodology, and measures to be employed for the NYStretch 2018. The models are well-documented, freely available by download, and are updated every 3 years by DOE requirement. Commercial and Multifamily prototypes were developed to allow apple-to-apple comparisons of energy efficiency standards and, per DOE requirement, the modeling will enhance ability to assess the cost effectiveness of the proposed code changes Sixteen (16) prototype buildings, covering 80% of the Building Stock are proposed (see the PowerPoint slides). Representative commercial prototypes were derived from the national CEBECS database. The modeling addresses all climate zones.

### Discussion/Stakeholder input

- Ian asked if the PNNL prototypes used for this Stretch Code would be compliant with Appendix G. Bing replied the modeling would not be Appendix G compliant, but would consider elements of Appendix G. Bing noted there will be a manual with a baseline set for Appendix G that CEOs can reference to enhance their understanding of the modeling.
- Don conveyed concern that the modeling performed for NYStretch 2016 did not sufficiently reflect market realities, and asked if the group would be receiving input prior to doing the modeling this time.
- Tom expressed his concern that the PNNL modeling was not applicable to NYC and that there is resistance to modeling within the design community.
- Priscilla responded this was a reason we are looking at an additional modeling prototype for Multifamily buildings. Marcia asked if NYSERDA's Multifamily Program may have information to use.
- Don and Ian suggested there is need for more discussion of the prototypes to be included, and that existing buildings, which will represent 80% of building stock, need to be addressed because they have different challenges than do new buildings, and there are provisions which will not work in existing buildings.
- Don cautioned against making Code requirements too severe for existing buildings as that could prevent renovations and building abandonments. Ian suggested it will difficult to achieve 80% reduction by 2050, as there can be some unexpected consequences.

- Priscilla indicated the budget would allow for adding only one additional prototype.
- Laurie stated ed that 70% of existing NYS buildings are heated with steam. Ian suggested that is not an issue from an energy modeling perspective.

#### Action item

- NYSERDA team (Priscilla, Marilyn) to meet with Multifamily Program to determine if applicable data is available for the NYStretch 2018 effort, including information on existing buildings.

**Karpman Compliance modeling.** Maria Karpman provided a summary of the modeling-based project she has been conducting for NSYERDA, for which she has developed a set of policy recommendations and is developing a Review Manual. For this effort, data was collected from a wide range of stakeholders in different states. The policy recommendations are presented in the PowerPoint slides.

#### Discussion/Stakeholder input

- Jodi and Ian suggested modeling should be used as a design tool, early in the project development process, rather than as a method of proof.
- Don suggested modeling will continue to be used as a proof mechanism;
- Gina indicated that the NYC DOB still sees many projects using COMcheck™ and performance modeling is a good approach. Laurie Kerr commented that to the extent all the improvements to the code are modeling, she seconds Gina’s thought regarding prescriptive versus performance. Ian felt we will be doing big disservice if there is no prescriptive method. Jodi noted the cost of the modeling is more expensive than the design; it would be great if could do prescriptive as well. Ian shared he tries to tell people this – to start early, begin at the start of design. Don noted LEED and Appendix G doesn’t allow you to take best practice.

#### **Comments on code measures for consideration**

Jim and Mark Lyles, NBI, discussed the code measures proposed for consideration, including envelope, lighting, and HVAC options. Resources to assist with selecting and evaluating measures were identified (e.g., the Zero Cities Project, Washington State, and Vancouver efforts). Preliminary savings results from PNNL modeling of envelope measures were discussed.

#### Discussion/Stakeholder input

There was discussion of dedicated outdoor air system (DOAS) requirements, with determination that it could not be mandated, but could be included as an options package.

#### Action Items

Summary of resources and white papers to be shared with, and possibly developed by, the working group participants:

- 1) Metric Site vs Source vs Cost
- 2) EUI Whitepaper
- 3) ASHRAE 90.1 Performance Cost Method
- 4) Multifamily Guide Project (NBI)
- 5) Karpman Enforcement Manual Project Policy Recommendations
- 6) Preemption Issues (NBI)

**[Editor’s note: These items are available at this location: <http://newbuildings.org/nystretch/>]**

The meeting paused at 3:00 pm, the scheduled end time of the meeting, at which point several in-person and remote participants departed. The meeting ended at 3:00 pm, at which point several people. For those who remained, Priscilla provided an update on the status of the NYStretch 2016 project.

### **Update on 2016 NYStretch-Energy - Status and Implementation Plans**

Priscilla's update overview indicated the 2016 NYStretch language would be released by July 1, 2017 and the release would be supported by a NYStretch-Energy Toolkit and outreach efforts. The Toolkit is still being completed. The Toolkit will include: an Overview Presentation (PowerPoint presentation); a step-by-step adoption guide for jurisdictions; cost studies for Residential and Commercial applications; and a FAQ document. The adoption guide is intended to be a resource for local communities and their stakeholders which describes the NYS Energy Code and 2016 NYStretch Code. Portions of the Toolkit will be released later this summer. Karl Rabago, Pace University, drafted a model code for jurisdictions.

Outreach efforts include a number of methods. NBI will conduct a number of webinars and one in-person event. NYSERDA's internal team, the Clean Energy Community Program (CECP) coordinators, and DEC will provide information about NYStretch and the Toolkit.

For the next Stretch Code, there is the thought to give a slide deck to jurisdictions geared toward the communities' perspectives, to show their stakeholders. Priscilla indicated there is a need for training on this. Ian commented CEOs have to be trained. Priscilla is considering Stretch Code training for communities.

### Discussion/Stakeholder input

- Jeff Domanski, IBTS, offered to include information on NYStretch and the Toolkit in their NYSERDA-supported Energy Code training course, "NY Energy Code Municipal Opportunities".
- Ian noted that NYC law requires an Energy Code inspection and asked: how do you get a community to want to enforce codes? To enforce all the code, not just their special interest.
- Smaller jurisdictions with limited resources will still face challenges implementing, supporting resources to demonstrate compliance (i.e., plan reviews and site inspections), and enforcement.
- Steve Rocklin highlighted the importance and needs of the enforcement community, including the need for support. Through NYSERDA's ongoing Energy Code Support Services Program, he has observed that many plans don't even comply with older versions of codes, and that Code Enforcement Officials don't understand the Energy Code or what is needed.
- Ian noted the potential dominance of enforcement over incentives for code deployment. As an example, he indicated there was low uptake of free plan review services offered to design teams until NYC enforced the code.
- Priscilla suggested that 3<sup>rd</sup> parties will be needed to support these efforts.