New Jersey Zero Energy Buildings Meeting Minutes

3.25.2021, 1:00 – 2:30 pm

Attendees

- Kai Palmer Dunning
- Moses Riley
- Darren Port
- Ben Adams
- William Amann
- Rob Austin
- Helaine Barr
- Barbara Blumenthal
- Raymond Cantor
- Edward Clerico
- Ben Cohen
- Christopher Colacello
- Eric DeGesero
- Rupa Deshmukh
- Deane Evans
- Christina Farrell
- Peg Hanna
- Karl Hartkopf
- Kyle Holder
- Emma Horst-Martz
- Jak Inglese
- Matthew Kaplan
- Jason Kliwinski
- Dawn Korbelak
- Michael Kornitas
- Leann Leiter
- Trina Mallik
- Robin Murray
- Andrew Musick
- Doug O'Malley
- Paul Orlando
- Anne-Marie Peracchio
- Dean Potter
- Crystal Pruitt
- Stacy Ho Richardson
- Matthew Rivas
- Attilio Rivetti
- Jerry Ryan
- Carolyn Sarno Goldthwaite
- Christine Schell
- Jennifer Senick
- Monika Serrano
- Edward Smith
- Jen Souder
- Andrew Topinka
- Victor Viscomi
- Andy Winslow
- Glenn Haydu

Welcome and Introductions

- Goals:
  - Convene diverse group of stakeholders to discuss topics related to energy code adoption, building decarbonization, and reaching state goals
  - Forum for discussion, sharing best practices
- NEEP Background
  - Regional Energy Efficiency Organization in Northeast and Mid-Atlantic, covering 13 states
  - Goal is to work with stakeholders to states achieve decarbonization goals in homes and buildings
- POLL: Stakeholders on Call Today
- POLL: What topic areas related to codes and the group help New Jersey better address
  - Climate change, EV charging, codes, cost, model codes, demand response, retrofits and existing buildings, feasibility, consumers, heat pumps, equity, enforcement
- NEEP's 2020-2021 New Jersey Work
  - Participate in NJ Energy Efficiency Advocates Tables
  - Working with NJ EE advocates to conduct outreach and education

- Ongoing technical assistance to stakeholders on appliance standards legislation
- Convening ZEB Collaborative

Background on ZEB Collaborative

- Effort convened between NEEP, NJ BPU and Rutgers
- **Goal**: help state achieve its goal of 100% clean energy by 2050 (2019 energy master plan)
- **Purposed**: bring together stakeholders and build consensus towards reaching goals
- **Goals**: develop a roadmap to provide *options* to meet state goals, examples of what other states do, and what can be done to assist that state
- **Scope**: 5 collaborative meetings addressing topics based on stakeholder interest/needs, and produce an informed roadmap with options for next steps

Timeline

- **January** – MOU with BPE and RCGB
- **February** – invite and confirm participants
- **March** – Energy Advisory committee, first collaborative meeting, codes survey, and follow up/outreach/research
- **April** – preview survey results, prepare context and options report, second collaborative meeting for review and discussion
- **May** – NEEP, RCGB, BPU, DCA draft a roadmap, advisory committee meets and presents draft to collaborative, followed by edits to roadmap
- **June** – final ZEB roadmap
- **July** – public briefing to broader public stakeholders on roadmap

ZEB Roadmap Discussion

- Guided by NJ ZEB Collaborative feedback and advisory committee
- The roadmap *could* address:
  - Advancing ZE code development
  - Improving code administration, enforcement, compliance
  - Related decarbonization strategies informed by stakeholders – workforce training, electrification, existing buildings, etc.
- Stakeholder Survey will help with its development
  - Identify key issues, information, perspectives
  - Identify important topics to be addressed during meetings
  - Determine needs and best practices

New Jersey Energy Master Plan Overview – Stacey Richardson, BPU

- Latest version on January 27, 2020
- 3 pillars:
  - 100% clean energy by 2050

  - 80% reduction in emissions by 2050 relative to 2006 levels
  - Building a stronger and fairer New Jersey
- GHG emissions: residential, commercial, and industrial sectors are the second largest source in NJ after transportation
- Achieving goals will require immediate action in all sectors
- Priorities:
  - Improving EE, improving envelopes, and decarbonizing buildings
  - Decarbonization: reduction of carbon, or to remove carbon
    - Primarily found in heating sources and appliances for buildings
  - Electrification: replacement of fossil fuels with electricity for heating and cooling and appliances
- Opportunities:
  - reducing demand first
  - decarbonize second
- Challenges:
  - Cost factors
  - Reliability and redundancy
  - Education and awareness, enabling customers to decarbonize
  - Equity considerations
- EE priorities include affordability, equity, environmental justice, economic development, decarbonization, and public health
- Transition to a clean economy must support economic growth, benefits all customers equitably, works with existing industry partners
- Plan includes clean energy financing mechanisms that enable greater reach and penetration of programs
- Conclusions: building electrification is a critical measure to reach goals in conjunction with transportation as well

New Jersey Energy Code Overview – Darren Port, NEEP

- ICC – International Codes Council
  - Responsible for promulgation for all of the various building codes
- IECC – International Energy Conservation Code
- Development of the IECC
  - ICC puts out a call for proposals, icc assembles a committee to review the proposals, vote on the proposals, and then the proposals advance to a public comment hearing. Results of this hearing go to an online vote for governmental members of the ICC (primarily code officials, but also sustainability council members, energy office members, etc. – generally those who adopt and administer codes)
  - Development has changed recently
    - To date, the IECC has used the governmental consensus process for development
    - Recently, ICC has decided to change this to an ANSI standards development process

        - Same process for ASHRAE standards, same process for ICC 700
        - Different process, remains to be seen how it will work and what the results will be
        - Concern among energy advocates will not be as robust as the previous process, but remains to be seen
        - Biggest difference is that the final proposals for the ANSI process won't be voted on by governmental members. Instead, it uses a collection of committees to make this final determination
        - ICC has promised that there won't be any efficiency rollbacks under this process and will continue on a glide path towards zero energy code
        - Will remain a code despite it using a standards process
        - Standards process is a bit more rigorous
- **Question: how can stakeholders still participate in development?**
    - A little unclear on how proposals will work under new process, generally no public input to committees and subcommittees
    - There is opportunity to suggest a code change – ICC will put out a call for code change proposals and you can engage this way
    - ICC has a call out now for folks to serve on these development committees for the 2024 cycle if you are interested in participating, apply to join the committee!
        - April 23rd due date
- Overview of the 2021 IECC
    - NJ Currently on the 2018; 2021 just recently published last month
    - 2021 IECC is most efficient code to be developed in 3 code cycles
    - Stronger than 2018 and 2015 IECC
    - Residential
        - 8-14% estimated gain in efficiency depending on climate zone
        - 118 proposals approved for residential section, 4 later removed
            - 66 were administrative changes, 46 impact energy efficiency
        - Key changes across the board, but particularly envelope – just about get the building to a zero energy ready envelope
        - Zero Energy Appendix for residential buildings included in the code
            - Uses energy rating index (ERI, scale from 0-100 with 0 being a zero energy building) to achieve zero energy buildings
    - Commercial:
        - ~10% more EE than 2018
        - 21 proposals for mechanical
        - 36 envelope changes
        - Key impacts across the board of the code
        - Many new tables, including a credit based table to achieve required efficiency
        - Also a zero energy appendix for commercial buildings

        - Utilizes Arch2030 Zero Code, Proposed by AIA National
        - **Doesn't increase energy efficiency**; requires renewables to make up remaining annual load to achieve zero energy
    - NEEP has content coming out regarding the 2021 changes in the next few weeks
- **Question: how does the IgCC work with IECC?**
    - IECC covers only energy; IgCC covers a lot more topics, including water, site assessment, waste, materials
- **Questions: existing building codes?**
    - Yes, there is an international existing building code and others that address existing buildings
- **Question: could NJ adopt the code and would it help it achieve zero energy codes? What other code adoption tools/strategies are needed?**
    - Yes, it would help NJ on this pathway
    - Envelope provisions essentially get you to a zero energy ready building (zero energy before renewables applied to make up remaining annual load)
    - Puts NJ on the path definitely
    - 2021 IECC doesn't include electrification measures
        - There were 4 electrification proposals that were voted in the affirmative by the membership but were later removed by the board
            - Electric vehicles, but taken out based on scope of energy code
            - Other provisions (water heating) potentially could run up against preemption
            - These are viable proposals though and could still be adopted as an amendment to the code if interested
            - Electrification is critical to decarbonization and code is a really effective way to do it
    - Code Study to measure compliance with the code would be a valuable undertaking
        - One is being undertaken currently
    - Appliance standards are key – actually more savings here than in building codes; NJ has an appliance standards bill pending currently
    - Existing buildings – we won't meet decarbonization goals without addressing the existing building stock
        - Will need policy and codes to address existing buildings
- **Question: Looking at other policies, stretch codes, what should NJ do?**
    - Stretch codes are a key code adoption tool to get to ZEB
    - NJ has uniform construction code from 1977 act
        - Unifies all municipalities to follow the same code
        - Also says NJ can only adopt national model codes, so can't necessary create own code in NJ so have to look at various alternatives
        - Legislation could develop it, DEP could develop a stretch code or address air quality

    - Does give commissioner leeway to adopt amendments that meet the intent of the uniform construction code
    - Address health safety and welfare, climate change could be considered under this umbrella
    - Amendments would have to draw from national model codes
        - ASHRAE has 189.1 – essentially the technical provisions of the IgCC (international green construction code) which could be made into a stretch code (Maryland has done this)
    - Utilities could design programs with incentives, legislation could provide incentives as well
- **Question: current electricity is fossil fuel heavy, natural gas has lower impact, if we want ZEB that are all electric, what is being done to the grid to help reach this goal?**
    - **Darren**: There is a renewable energy portfolio standard in NJ which addresses the amount of renewable energy on the grid, eventually will move toward 100% renewable power for NJ
    - **Stacey**: combination of strategies between energy efficiency and increased renewables over time
- **Question: how is the BPU interfacing with agencies (DEP, DCA) in terms of code adoption**
    - **Stacey**: this collaborative is a primary way we are interfacing. New governor's office of climate and council as well to make sure there is continued collaboration between agencies
- **Question: what impact will the appliance bill have regarding improving building efficiency as opposed to requiring all electric buildings/building electrification**
    - **Darren**: Appliance standards bill is not intended to replace what is being done on electrification side of buildings, just that standards related to appliances help to reduce the plug load in homes and buildings, so as that load goes down there is a lot of savings.
- Jen Senick Rutgers, Energy Code Compliance Baseline Project
    - Energy code compliance baseline study of NJ has recently commenced, will be completed approximately March 2022
    - Been lots of stakeholder communication up until this point
    - Study is not fielded yet, sample is being developed now and will separate program participants from non-participants
        - As we transition into methodology, we will present statistically significant results for buildings and geographic locations for these buildings
    - Outcomes/next steps: will provide details into current compliance rates with energy code, where we have energy savings opportunities we can harvest going forward
    - Would like to find time during next meetings where I can give brief glimpses into the preliminary findings
    - Wil be fielding a series of Delphi expert panels to complement data from the study and it would be great to see participation from this group accordingly

  - **Question: what's the goal of this study and, once completed, how do you expect it to help NJ decarbonize?**
    - **Jen**: study will tell us in detail where there may be some compliance issues if any and the extent to whether these are systematic
    - It will benchmark our compliance against other states
    - Energy models in the study will provide us an estimate that would be attributable to code compliance measures that could be employed as a result and as guided by the study
    - Following recommendations drawn from the study will help discover energy savings
- **Question: are there standards for ground and air sourced heat pumps?**
  - **Darren**: Yes there are, NEEP drafted these standards, happy to answer questions about these or shoot me an email and we can connect you with our ASHP team
- **Question: is there a resource that shows GHG emissions on the grid from past years as well as into the future towards reaching 2050 goal?**
  - **Stacey**: I can check with my colleagues to see if we can follow up on that
  - **DEP**: global warming response act report does show GHG emissions by sector for NJ

Concluding Remarks and Next Steps

- POLL: what NJ topics related to decarb and codes should the ZEB collaborative discuss during upcoming meetings?
  - Amendments, equity, enforcement forms that can be properly used for compliance, role of heat pumps, PMJ implications, existing buildings, cost cost cost, existing buildings and retrofit costs, energy code scope, process for adoption
- Next Steps:
  - Meet on monthly basis, 3rd or 4th week of the month
  - Look out for the stakeholder surveys to send out in the next week or so
    - Share with your network! Will help form consensus and identify stakeholder needs as we prepare the roadmap
  - Reach out if you have any questions
- **Question John: ratepayer study, what is the basis on the comment that this will be a lower cost for ratepayers?**
  - Draft study on ratepayer impacts for energy master plan. We will continue this work to have a full report on this issue.
  - Basis: high-level view, if we can electrify and decarbonize the building sector and all sectors in the state, there will be lower consumption through energy efficiency, increasing renewable energy deployment and distributed energy resources as well as electrifying sectors as much as possible. Overall we think that this combination of strategies will help us achieve these goals. We will have data for you
  - Is there a reference, something in the report that backs up.

  - Darren: issues across the region trying to phase out fossil fuels or gas completely, such as Brookline MA which was struck down by the AG
  - Question from representative of fuel merchants association of NJ, being put out of business, working on a low carbon liquid fuel, we want electrification not zero carbon.
- **Comment Eric**: electrification is a good goal regarding decarbonization, but in the short term there will be a price to be paid in abandoning natural gas unless there is a simultaneous reduction in electric rates
- **Comment Ann Marie:** appreciate earlier comments on changing format so we can have more a discussion throughout in future meetings
  - Keeping analysis in sync with where the policy is headed is important. Timing is important and pace is critical so outcomes are what are desired. Pushing towards electrification. Balancing load increases with renewable energy coming onto the grid.
- **Question: as part of the roadmap will we be making recommendations on the IECC 2021?**
  - **Darren**: Up to stakeholders, if you want to make strengthening amendments, adoption of the zero energy appendices, that can certainly be part of the short term goals of the roadmap