

**Energy Efficiency & Housing Advisory Panel  
Public Input Session | February 4<sup>th</sup>, 2021**

## Attendance

### Attendees:

- RuthAnne Visnauskas, Commissioner, New York State Homes and Community Renewal (Chair)
- Janet Joseph, Senior Vice President, Strategy and Market Development, New York State Energy Research and Development Authority
- Peggine Neville, Deputy Director of Clean Energy, Department of Public Service
- Gina Bocra, Chief Sustainability Officer, New York City Department of Buildings
- Bret Garwood, Chief Executive Officer, Home Leasing, LLC
- Jin Jin Huang, Executive Director, Safari Energy, LLC
- Clarke Gocker, Director of Policy and Strategy, PUSH Buffalo
- Jamal Lewis, Senior Policy and Technical Assistance Specialist, Green and Healthy Homes Initiative
- Sadie McKeown, Executive Vice President and Chief Operating Officer, The Community Preservation Corporation
- Bill Nowak, Executive Director, New York Geothermal Energy Organization
- Molly (Dee) Ramasamy, Head of Deep Carbon Reduction, Jaros, Baum and Bolles
- Daphany Rose Sanchez, Executive Director, Kinetic Communities Consulting

### Not in Attendance:

- Kyle Bragg, President, 32BJ SEIU
- Elizabeth Jacobs, Acting Executive Director, Akwesasne Housing Authority
- Laura Vulaj, Senior Vice President and Director, Sustainability, SL Green Realty Corp.
- Dan Egan, Senior Vice President, Energy and Sustainability, Vornado Realty Trust
- Amy Sugimori, Director of Policy and Legislation at 32BJ SEIU

## Meeting Notes

### **Welcome and Introduction** (RuthAnne Visnauskas, NYSHCR)

- Commissioner Visnauskas kicks off the meeting, provides an overview of the meeting agenda and objectives, and introduces the participants of today's call. See slides 3-5 for additional details.

### **Climate Leadership & Community Protection Act (CLCPA) and this Panel's Contributions** (Vanessa Ulmer, NYSERDA)

- Vanessa Ulmer provides an overview and timeline of the CLCPA, the contributions of the Energy Efficiency and Housing (EE&H) Advisory Panel, and past/future public engagement efforts. See slides 6-11 for additional details.

### **Preliminary Draft Recommendations Under Consideration** (John Lee, NYSERDA)

- John Lee introduces the group's preliminary draft recommendations that are under consideration. See slides 12- 19 for additional details.

## Public Input Session

- Kelly Richardson kicks off the public input session by providing an overview of the key questions for consideration before passing to the Hester Street moderator team to explain the session's process, format, and guidelines.
- Nisha Baliga and Isella Ramirez are moderating the discussion.
- Public input is summarized below:
- *Commenter #1*
  - PUSH Silver came about because I personally received support from programs to have a more sustainable home. One of most marginalized and impacted. Because of work through CLCPA, has been a member of this work.
  - Please ensure these meetings stay public and open so people like me can have the information and know what is going on in our community.
  - Got a lot of help from PUSH Buffalo Warm and Dry program to make home healthier.
  - When we look at these things in our community, we realize we need energy efficiency and so that our buildings have the retrofits needed to be sustainable for years to come.
  - Please make recommendation for mandates for all buildings to consider reducing emissions.
  - Proud that PUSH is invested in living wage legislation for our policies.
  - Make sure there is no lip service for ending racism in communities.
- *Commenter #2*
  - Concerned by lack of specificity of dates by which to phase out gas for new appliances – new buildings and retrofits.
  - Concerned about lack of popular awareness of beneficial electrification.
  - People think about new boiler when it is broken -- need thinking to be more proactive for electrification to work.
  - A lot of towns (e.g. in CA) are putting sunset dates on gas. Would like to see towns and cities in NY having the support to do so. Should support towns and cities on the forefront to make these decisions to eliminate gas in their towns.
- *Commenter #3*
  - Recommend developing an outreach program sooner rather than later to gauge reaction to the plan.
  - According to most recent NYSERDA study, 75% of homes use fossil fuel heating.
  - Concerned about plans to use air source heat pumps (ASHPs) as the primary retrofit system. A Minnesota study showed a lack of capacity at very low temperatures and requires a backup system.
  - Need a process to show that it will work in NY.
  - Unacceptable for panel to recommend technology that won't work.
  - How will these systems be resilient after an ice storm when electricity is out for a week+?
- *Commenter #4*
  - Agree with comment on needing hard dates for recommendations.
  - Support the breadth of engagement and continued stakeholder engagement to strengthen quality of recommendations.
- *Commenter #5*
  - Even with rebates available now, it is not affordable enough to install electric heat pumps.
  - Urge to set dates for gas phaseouts as soon as possible.

- Support gas bans for new construction as soon as possible.
- Need to use dates to enable planning and address unintended consequences and barriers associated with the transition.
- *Commenter #6*
  - Will submit detailed written comments.
- *Commenter #7*
  - Passive House has potential to shift the industry into the high-performance building sector.
  - Passive House is a critical tool to achieve GHG emission goals for the city and the state.
  - Recommend passive house pilot projects to speed up the pace of high-performance construction and the electrification of buildings.
- *Commenter #8*
  - Need to transition as quickly as possible to geothermal heat pumps.
  - Public education, big rebates (especially for low-to-moderate income (LMI) citizens), laws preventing hookups for gas for new construction, and mandates will drive homes towards transitioning to ground source heat pumps (GSHPs).
- *Commenter #9*
  - Would echo positive comments made but also the need for greater specificity in the recommendations.
  - Agree with the concern about people not knowing this is going on.
  - Work on the CH&C Communities program but have neither the resources nor the proper incentives to encourage people to adopt heat pumps at will.
  - Concerned there have not been members of panels across this process from K-12 or SUNY to discuss workforce development.
  - PUSH, unions, and employers as well as educators need representation.
  - Urgent to have an inter-panel group put together with the Just Transition panel and this group, in addition to inviting others from the labor ecosystem with an understanding of energy.
- *Commenter #10*
  - Encourage panel to create funding from CLCPA for NYS land banks to pick up tapering funding from NYS Attorney General's office.
  - Land banks did a good job in the 2008 recovery.
  - Support the Climate and Community Investment Act, low embodied-carbon concrete legislation and a more aggressive stretch code.
- *Commenter #11*
  - Will submit more detailed comments in writing.
  - Education is critical.
  - Have been living in a house with GSHP for a while but many people not aware of it (and she was not either).
  - Curious about the lack of labor union participation in the survey. They have historically been critical stakeholders to implement renewable energy development.
  - Support greater specificity on timelines.
- *Commenter #12*
  - Agreed that dates are critical to enable stakeholders to figure out how best to meet deadlines and mandates.
  - Appreciate removal of the 100-foot rule.

- State law states that providing gas heat to all citizens of NY is in the public interest. Suggest reworking phrasing to say, “providing heating or thermal energy services” rather than “gas” explicitly.
- Loans and financing are valuable but do not help people who lack credit. Consider third-party ownership schemes for individuals or district heating systems.
- Look at electric rates as well, which are volumetric. Volumetric rates tend to create an inverse cost shift where the costs of maintaining the electric system more heavily burden those on electric heating relative to those heating with fossil fuels.
- *Commenter #13*
  - Finding a lot of our communities don't know about CLCPA, emissions reduction, and evolution of the industry.
  - Need to do a tremendous amount of outreach to the public to let them know this transformation is taking place with or without their buy-in.
  - Emphasize importance of education and resources for low income residents.
- *Commenter #14*
  - Have been having conversations about how best to support this affordably.
  - Equipment affordability and capital cost, as well as cost of running an all-electric household, are key considerations.
  - Education in this area will be a big help.
- *Commenter #15*
  - Dates and details in recommendations are critical.
  - Suggest panel look at the new construction requirements in CA (e.g. net zero, renewable electricity).
  - Should give more support for implementing NY Stretch.
  - Support carbon tax to raise revenue and support projects.
  - Hope this panel does not consider bioenergy as it is controversial.
- *Commenter #16*
  - Concerned about issues related to scale: can drive heat pump adoption via three methods: code, incentives, or demand.
  - Driving from demand is challenging and requires a contractor supply that recognizes demand from marketplace. Marketing is very critical to encourage contractor adoption. HVAC contractors tend to be very resistant to change.
- *Commenter #17*
  - Grew up in energy poverty.
  - A lot of energy waste in business buildings.
  - If we focus some of our efforts on energy efficiency and some on electrification, we can repurpose business building energy waste to support marginalized communities.
- *Commenter #18*
  - Investigating refrigerant impacts from cooling and heat pumps.
  - Lack of information around hydrofluorocarbon (HFC) refrigerants -- growing portion of NY non-CO2 GHG emissions.
  - Policies here will increase use of HFCs and HFC emissions. Recommendations fail to address types of refrigerant, leakage, or end of life venting.
  - 4 recommendations for HFCs:
    - Direct NYS building code council to prioritize updated safety standards to allow for low global warming potential (GWP) refrigerants.

- Adopt low-GWP refrigerants for new equipment consistent with those in CA and other states.
  - Incorporate refrigerant emission reductions into energy efficiency incentive calculations.
  - Will submit fourth in writing.
- *Commenter #19*
  - NYS is behind NYC on this front.
  - Need to move faster and provide more support to LMI communities.
  - Push up the dates (some policies should start in 2022).
  - Spend massively on supporting LMI homes.
  - NYC can't mobilize capital needed -- state needs to do so.
  - Governor is missing in action and is coming to defang NY's law.
- *Commenter #20*
  - Represents 19 chapters of thousands of state building officials.
  - Support plans here but does not believe it is feasible to place burden on enforcement and building officials.
  - Our communities cannot withstand financial impact of increased requirements.
  - Enforcing codes that will hurt local development.
  - Courts do not fine or provide significant penalties for code violations.
  - The most practical means of higher energy efficiency is incentive programs that encourage moving away from fossil fuels towards electrification, not new codes.
- *Commenter #21*
  - Biodiesel is a drop-in replacement for existing equipment. Increases efficiency, burns cleaner, and does not increase costs to consumers.
  - Industry supports increasing biodiesel blending to 20% by 2030.
  - Consider integrating biodiesel blending standard into recommendations.
- *Commenter #22*
  - Support all-of-the-above approach.
  - Significant benefits of using drop-in biodiesel.
  - Worked previously at CARB.
  - Cleaner fuels are a valuable bridge strategy as electrification ramps up.
  - Commissioned a national study to quantify impacts of biodiesel increase.
  - Preliminary results indicate potential for significant reduction in health impacts.
- *Commenter #23*
  - Want to address cross-cutting issues.
  - Large barrier for LMI community to provide income documentation.
  - Recommend providing an income verification letter upon filing taxes which can be used to qualify for these programs.
  - Increased energy literacy is significantly needed among both public and local government.
  - Opportunity to reimagine the role of local government in supporting energy transition.
  - More resources should be provided to code enforcement officials. Could enable them to provide energy assessments or provide support for code compliance.
- *Commenter #24*
  - Need to prioritize equitable mandates that protect tenants and maintain affordability.
  - Support electrification pilots in affordable multifamily housing which builds community support.

- Demand for electrification and natural gas transition policies.
- Echo providing hard deadlines on fossil fuel phaseouts.
- Need more funding mechanisms for efficiency and electrification, especially in affordable housing and for comprehensive retrofits (for heating/hot water/cooking).
- Have states and municipal agencies require that all new and retrofit building projects meet highest efficiency standards.
- NY green bank should have investment plan that aligns with CLCPA goals.
- Cost-benefit analysis should include greater health impacts.
- *Commenter #25*
  - Refrigerants are 5% of NYS emissions.
  - If you use 20-year GWPs, the emissions impact is higher.
  - Calling on EE&H and waste panel to look at refrigerants.
  - Speed up the approval of A2L and A3 refrigerants for use in heat pumps -- R410A in heat pumps today has huge impacts when leaking.
  - Need to update codes to allow for A2L and A3 refrigerants.
  - Lower the acceptable leak rate in large commercial refrigeration appliances. Lower leakage also means higher equipment efficiency
  - Adopt CA requirements on refrigerant emissions.
- *Commenter #26*
  - Experience selling gas technology (natural gas boilers).
  - Need to clarify timelines in order to avoid stranded assets. When you install a new boiler or furnace that is gas-fired, it's a 15-30-year piece of equipment.
  - Incentives for homeowners and businesses need to also be directed to electrical upgrades.
  - Need to support preparation of emergency replacements with electric equipment.
- *Commenter #27*
  - Currently overseeing 10-unit building conversion from oil heated steam to ASHP and will be happy to share data from the project.
  - Support the immediate ban on fossil fuel heating and hot water in new construction, fair utility rates for electric heating and hot water, and a push for training technicians.
  - The panel can't just focus on gas, they also need to look at oil.
- *Commenter #28*
  - Support recommendations of panel, especially around LMI support and workforce development.
  - Support Michelle Rogat's recommendation of streamlining income qualification.
  - Customer recently installed a geothermal system, and now pays \$45/month at new home instead of \$400 in old home.
  - Need to provide ongoing training for wide range of practitioners and establish hubs for workforce development both in urban areas (accessible by transit) and rural areas.
  - The NYSERDA LMI heat pump pilot is a good start. We need more programs like this.
  - Redlining legacy has led to significant deferred maintenance and makes it challenging for these homes to participate in EE programs.
- *Commenter #29*
  - Support the benchmarking ordinance, collecting data to support this.
- *Commenter #30*
  - A lot of pay-for-performance projects emerging in the US. These models shift the focus away from individual measures to whole-building metered savings.

- Would like to see a push in legislation towards pay-for-performance models for energy efficiency.
- *Commenter #31*
  - Fracking ban has not led to a massive ramp up in large renewable projects.
  - Need to stop all large fossil fuel projects.
  - Need to stop all fossil fuel subsidies to fully support renewables.
  - Have to require comprehensive training programs for installers. Currently there aren't enough trained installers in the market.
  - Retrofits must be made affordable.
- *Commenter #32*
  - Dire housing situation in NY, many homes without adequate heat and water.
  - Field a lot of calls from cold homes, homes heated with coal and wood, people without central heating.
  - Many old homes that we can't push into energy efficiency programs.
- *Commenter #33*
  - Need all-electric new construction to stop buildout of gas infrastructure.
  - Several large cities in CA have passed these ordinances.
  - New York City's LL97 regulation is a good model for capping emissions and should be explored for smaller buildings across NYS.
  - Phasing out fossil fuel boilers can help with this.
  - Require phaseout of fossil fuel equipment at point of sale or by a certain date.
  - Would like to see greater student involvement in the public policy engagement.
- *Commenter #34*
  - Agree with others that hard dates are needed in the recommendations to allow the entire supply chain to plan accordingly.
  - Currently competing against fossil fuel solutions with challenging economics, but if heat pumps were only option, we'd have greater scale and be able to drive down costs further.
  - Need to engage manufacturers and suppliers in training. Need to give upstream incentive for increased training.
  - Loan-loss reserve program from NYSEDA is a good model for supporting other lenders and enabling them to drive down interest rates and increase participation from customers with lower credit scores.
  - 20-year products can help make things more affordable (15-year is okay).
  - Need to monetize non-energy benefits in BCA.
  - Need more incentives for bundling.

#### **Next Steps and Wrap Up** (RuthAnne Visnauskas, NYSHCR)

- Commissioner Visnauskas thanks participants for their input and provides an overview of key next steps, including:
  - Written comments are encouraged through February 18th and may be submitted to the Panel via email to: [eehpanel@nyserda.ny.gov](mailto:eehpanel@nyserda.ny.gov)
  - Comments (verbal or written) will be documented as part of the Panel's deliberations.
  - Staff will produce a thematic summary of comments that the Panel receives by February 18th, including responses to clarifying questions by theme, which will be posted to the CLCPA website.
  - The Panel will make recommendations that will help inform the Climate Action Council as it works to develop a Scoping Plan

- Public engagement efforts will be ongoing as the Climate Action Council continues its work to meet New York State's climate and equity goals

### **Q&A and Chat**

*Please note that commenter names and any other personal information have been removed. In the case a commenter has referenced a previous commenter by name, the name has been redacted.*

- To reach 100% Zero Carbon Electricity by 2040 is less than 20 years away, is it really possible? What is the current level now in 2021?
- The direct emissions understates the importance of the Buildings emissions and is not consistent with the CLCPA mandate on greenhouse gas accounting. When upstream methane and CO2 emissions are included, building emissions become the #1 source. We cannot meet the CLCPA goals without substantial reduction in these Building emissions. I say this as a scientist who has published directly on this topic, and as one of the members of the Climate Action Council.
- I agree with the proposed bans. But why move so slowly? Ten years is a very long time, given the CLCPA mandates & the urgency of climate change.
- Why are conservation measures available now not a being required during these goal setting process.
- Great to hear the proposal to stop false advertising about "clean" gas, and also eliminating the 100-foot rule. Very important!
- There is a serious issue in NY regarding energy efficient construction. I built a certified Passive House in Woodstock NY, completed in 2016. The sole assessor of Woodstock raised my assessment 50% specifically based on his claim that he recently realized how energy efficient my home is, and therefore decided it was worth far more than he previously determined (the earlier assessment was high compared to comps.) My home meets all the issues you are encouraging. Many communities provide incentives including real estate tax abatements for net zero energy electric homes, not disincentives. For example, Baltimore County MD offers a five-year tax abatement for a home like mine. You just mentioned disadvantaged communities; if low income households make the energy efficiency upgrades, we all must do, raising taxes makes a mockery of our work. I'd like to discuss this with you later.
- The carbon fee is very important, I think. We need to find ways to very aggressively move fossil fuels out of the current housing stock and commercial building stock. An aggressive carbon fee would be a big help.
- AC systems in large buildings, we should be lowering acceptable leak rates. This can be implemented by closely monitoring both electricity usage and refrigerant leaks, resulting in systems that both leak less refrigerant and gain energy efficiency. New York State should also adopt the low GWP limits on new equipment that California has set. Extended Producer Responsibility programs could provide funding to incentivize the proper collection and recycling or destruction of high GWP refrigerants. Refrigerant leakage affects energy efficiency and contributes a significant amount of greenhouse gases. I urge the buildings advisory committee to include refrigerant management guidance in their recommendations to the CAC. I would also urge the panel to support extended producer responsibility agreements for refrigerant gases as a means of funding incentives for proper capture and reclamation of refrigerants.
- Will there be public engagement and awareness provided for local community members who may not necessarily be educated about these initiatives? Also, what would you suggest for tenants to do if they'd like to push for retrofits within their own building, but it may not be welcomed by the landlord?



- Better cleaning and servicing (really preventative maintenance) of cooling equipment, refrigeration and AC, need to be pushed since those items now consume ~25% more electric than needed according to a 2018 study by the Carbon Trust.
- Beyond a carbon fee, we really need to find other ways to more rapidly move to retrofit current buildings to remove fossil fuels. While I appreciate the hard work by the Panel so far, I think you need to much more aggressively move on this need to retrofit, in a way that is just to all.
- The panel should consider making submetering in Master meter building mandatory especially in cooperative buildings
- We've focused on energy efficiency, housing, and environmental justice. The NYCHA climate mitigation roadmap similarly highlights the inefficiency in these apartments. How can industry stakeholders partner with NYS/NYCHA to help provide solutions?
- I did submit testimony but one program that I did not hear mentioned was the Green Jobs Green NY program which seeks to accomplish many of the goals discussed today. Many of us have been disturbed about the state implementation which has fallen far short of goals, partially due to barriers to obtaining up front financing. Is anything being done to reform the program to make it work as hoped?
- Commenting on the need for preventative maintenance of cooling equipment needs to pushed to the forefront. The emissions reduction potential could be as much as ~24.6% of the City's total stationary emissions.
- Today HVAC contractors face few if any permitting obstacles or rebate checklists and payment delays installing fossil fuel furnaces. Geothermal heat pump installers face many hours of red tape, extraordinary checklists, inspections, permitting, and business crushing delays in rebate payments. In New York it is easier, faster, and more profitable to install a furnace using pressurized, explosive gas. Your recommendations will help a great deal, but the additional administrative burdens are a major disincentive to contractors.
- These recommendations are laudable, but without a major reform in how the electric utilities operate, they are fighting the tide. Utilities have been given rate increases based on the amounts they spend incentivizing them to spend more to get desired increases with little or no regard for the effect on the consumer. Gas and oil were the fuels of choice because of economics and without a major reform of the utilities, the negative effect on affordability will be great.
- What steps - if any - are being taken to utilize the existing NYS HCR Weatherization Assistance Program network of subgrantees to advance the goals of the climate plan. Proper use of the WAP network in advancing those goals addresses local/community, LMI, MWBE, and equity concerns.
- With the time frames described on the recommendations, how does this coincide with an electrical infrastructure to provide sufficient electricity?
- We need a comprehensive, equitable transition plan for our homes and buildings with clear timelines. We strongly support the policy transition from gas to clean energy, including: Require that natural gas utilities create long-term, transparent, comprehensive plans that focus on alternatives to pipeline and distribution system expansion in alignment with the CLCPA, including addressing amortization rates, stranded assets, strategic asset retirement, and affiliate relationships. Reduce and eliminate subsidies for gas production and distribution, including incentives for expanding natural gas infrastructure, as well as provisions that build customer base. Planning, regulations, and legislation should allow the transition of gas utilities to combined gas and electric utilities, or renewable thermal utilities, that are able to wind down gas distribution operations in the public interest. Thank you.

- When electric grid goes down, it is not possible to heat a home with oil or natural gas either.
- Current technology and the trends of development do not provide for effective changes to non-fossil fuels. How are your timelines going to be affected?
- I come from a marginalized community as a child. I'm an African American/Native American member of the energy ecosystem. As an adult, my life work has been in helping to eradicate energy waste. I believe repurposing energy waste to provide clean energy access to marginalized communities. Working with businesses, utilities, grid operators, and NGO's could help educate on waste, empower businesses to make a difference, and impact their businesses and disadvantaged communities. I appreciate the State looking at the ecosystem from a holistic perspective to bring about a climate friendly economy for future generations.
- The electrical infrastructure in NYS is far behind the natural gas industry in terms of reliability. How does the time frame include improvement of the infrastructure to ensure reliability?
- I would like to thank the panel for their work. I am an engineer. I believe the panel's preliminary draft recommendations are relevant to and appropriate for our state's current social and economic position. As an engineer expected to provide unbiased and technology-agnostic consultation, and to advise that capital is used in a socially responsible manner, I agree with [NAME REDACTED] that we require a higher degree of specificity in legislation. We cannot advise building owners to do the right thing for the planet without a timeline in which to act. Further, in the interest of providing a clearer picture of each block and lot's options, I would appreciate if new construction required a scoping of the geotechnical properties of the site such that its potential for geothermal is established in order to inform the state's development of that infrastructure.
- Retrofitting existing homes/buildings is extremely complex (old houses are not standardized) and expensive - and heat pump installers consistently note that it makes no financial sense for homes with natural gas heat. However, the CLCPA requires GHG emissions be calculated with a 20-yr time horizon (not 100 yrs) and account for out-of-state methane leakage associated with natural gas extraction. We incorporated this new guidance in our most recent community GHG inventory and found this more than doubles the MTCO<sub>2e</sub> from residential natural gas. So some sort of significant investment will be needed to make conversions of these existing homes to truly reduce GHG emissions so as furnaces reach the end of their lives residents have a viable alternative rather than just calling the local HVAC service for yet another gas furnace or water heater. This also requires the materials and workforce sufficient for widespread conversions.
- I believe repurposing energy waste to provide clean energy access to marginalized communities, is a cost-effective approach to electrification for these communities.
- How do the recommendations and the time frames account for the potential loss of NYS residents and businesses who will find it far less expensive to be located in other states?
- There is no mention of the infrastructure needed for utilities or buildings.
- The recommendations are the right way to go, my concerns have to do with time frames that will not be sufficient for the development of technology or infrastructure.
- Literature shows incentives to encourage diffusion of sustainable building technology must go beyond financial incentives. These should include expedited permitting, density bonus, height bonus, technical assistance, and green building rating system certification mandate or equivalent.
- Thanks for a great presentation. [NAME REDACTED] will submit written comments later, but today I have a clarifying question: Does today's presentation from John Lee constitute the full preliminary draft recommendations of this advisory committee? If so, Slide 18 of the presentation references the need to "undertake a planning study and process" regarding the

managed and just transition of the gas system. Does the advisory committee have an expectation for who will undertake that study, and whether it will be overseen by a specific state agency? Is any such study already underway or this planned for the future?

- Where does asbestos abatement come into play to make room for piping insulation for better efficiency in smaller buildings?
- NYS Response: Labor Unions are critical and are involved in several Advisory Panels, eg 32BJ is participating on the Housing and Energy Efficiency Panel
- [NAME REDACTED] makes a great point here. I urge the Panel to look into this recommendation that gas per se is not the good: heating & cooling is the social good, and the use of gas for this is way outdated.
- [NAME REDACTED] also makes an excellent point: we need to be doing far more on education.
- Where it's possible to lock in permanent affordability, I'd encourage pairing housing trusts with the large investments that will be needed to retrofit many existing homes so any public investments don't exacerbate high housing costs that increase inequalities between existing homeowners and future homebuyers (many of whom are currently tenants with extremely high housing cost burdens limiting their ability to save for down payments and pay down educational and other debt to qualify for mortgages). Our local nonprofit INHS has been exploring the potential to help aging homeowners place their homes in their housing trust to reduce property tax increases, etc. during their lifetimes while helping future generations of residents.
- From a process perspective, I want to commend this team. I'm filling 4 panels and you are easily the best organized, with the most transparent process. That said, you appear to have staff resources that the others do not. As part of the learning process I hope that these matters are discussed. Funds for staffing and for stipends for all CBOs participants and NFPs with budgets under \$2m should have been part of the law. Together that would have created much more capacity and therefore more finished results.
- Why is there so little mention of the energy conservation methods needed between now and the end point?
- The incentives for this should have been started 20 years ago but that never seems to be mentioned. If you want private homes to be on a standalone basis you have to make your rhetoric influence municipalities to start with solar and geothermal systems now. The entire NYS education system builds with little regard from these issues yearly. Many municipalities will not add energy saving solar panels or geothermal systems when they build or renovate old structures. Why do they do this? True cost and it is not a priority as it is for private schools and industries. The state and municipalities must set the example before there is any projectable planning. You have already mortgaged the future of the NYS and now you add more debt. You might want to recommend a limit for power consumption for new homes and commercial buildings so that they begin to put the energy efficient systems into new construction and then use that data to create your future timeline.
- I wish to echo comments suggesting greater specificity & hard dates. Long term goals in the coming decade are necessary & appropriate and should include requirement that designated state entities are responsible for establishing and meeting interim targets. For example, Department of State responsibilities for regular three-year cycle building code updates. It is also necessary and appropriate that state entities provide regular reporting of progress relative to interim targets and long-term goals.
- There is a greater need for research to validate methods for people to adopt to save carbon emissions now and reduce the need for renewables in the future, building by building.

- Target dates have to be feasible. e.g., will it be practically possible to install all the required heat pumps in time? can electricity supply meet the new peak demand? etc. Failure to meet targets reduces credibility.
- Regarding [NAME REDACTED] comments: You need to push NYC about HFC refrigerant replacement ---- they don't even count it as an emissions item (I was told that by someone at City Hall).
- We need to encourage adoption of heat pump clothes dryers in order to provide an alternative to gas dryers and inefficient electric dryers. Heat pump clothes dryers are very popular in Europe and Asia but are virtually unknown in the USA. We need heat pump clothes dryers as yet another form of Beneficial Electrification.
- Thank you for this opportunity to give input to the Panel. I ask that ALL meetings of this panel be made open to the public. Further, as required by New York's nation-leading climate law, the CLCPA, climate and environmental justice must be at the center of this Panel's recommendations. New York cannot achieve the goals of the CLCPA without the just and equitable implementation of energy efficiency and decarbonization of our homes and buildings. I echo other's calls to set dates for the sunset of fossil fuels in new buildings, and date specificity for retrofitting buildings. NY should follow California's lead on building standards. New residential buildings in California by 2020 are required to be carbon free (or neutral), all buildings by 2030, and new residential buildings 3 stories and under must include solar by 2020. NY must also fix the Green Jobs Green New York program on residential energy retrofits. This program, championed by the working families party, had the great pot.
- It is essential to reach out to the unions that operate our buildings. In New York City, the 32BJ SEIU union operates a very large number of our building's heating/cooling plants. Also, 32BJ has a great training program for its members. It is essential to get them onboard with the problem of training people to operate non-fossil fueled heating systems and climate friendly buildings.
- There needs to be more actual 'stakeholders'.... like builders and developers on these conversations. These conversations are very one-sided.
- [NAME REDACTED] and [NAME REDACTED] both pushed HFC replacement. Our coil cleaning maintenance for cooling equipment is a necessary additional task that must be done for maximum energy efficiency for both refrigeration and AC. Both need to be pushed since ~17% of all electric goes to these units and systems.
- NYS Response: Regarding the observation that we need to ensure engagement with builders and developers, as part of this process, the EE&H panel hosted a number of roundtables with stakeholders including developers and building operators in the fall. We continue to be engaged with these groups as we develop the proposed recs.
- NYS Response: Hi [NAME REDACTED]. We have two pay for performance pilots in NYS - one focused on small business and the other on residential. Pls send me your email and I will send you information (janet.joseph@nyserda.ny.gov)
- Further to [NAME REDACTED]: inefficiently operating refrigeration and AC in need of maintenance are wasting ~9.5% of the natural gas going to electric generation.
- We need definitive ongoing research activities for conservation methods to include heating and cooling real-time heat load controls for equipment.
- There is no discussion of the need for infrastructure planning to meet the electric needs of the future.
- Very good point. Youth is unrepresented in the CLCPA process

- I think we should have a program that runs a "Rapid Electrification Makeover" Contest. Could be like the popular make-over shows and focus on different building types. We need to find ways to have rapid change overs and maybe have some fun with it!
- An important study on cooling equipment monitoring, optimization and maintenance: <https://k-cep.org/wp-content/uploads/2018/03/Optimization-Monitoring-Maintenance-of-Cooling-Technology-v2-subhead....pdf> . This needs to be added to HFC replacement as a strategy.
- NYS Response: [eehpanel@nyserda.ny.gov](mailto:eehpanel@nyserda.ny.gov)
- NYS Response: <https://climate.ny.gov/Advisory-Panel/Meetings-and-Materials>
- Let's be careful about painting all refrigeration systems with equal danger with high GWP numbers. Heat pumps that displace fossil fuels are almost always a net benefit to the environment even with significant leakage considerations. Yes, we need to put more emphasis on refrigerants but let's not slow electrification efforts while we develop better solutions.