

NYCHA Climate Mitigation Roadmap Presentation Q&A by Topic

Heat & Hot Water

Are the ASHP's that Tom showed heating and cooling, or cooling only? If the former what % of heating carbon emissions will come from ASHPs?

Both heating and cooling. As the grid becomes greener, the carbon emissions from ASHPs will decline.

Are there examples of projects (doesn't have to be NYCHA) where the cladding incorporated HVAC piping? Is this part of the EnergieSprong idea?

Some EnergieSprong projects in Europe did incorporate new utility services under the re-cladding (NYSERDA would be an excellent source of further information). In NY, I believe the RiseBoro RetrofitNY project runs its refrigerant lines under EIFS.

Can you say more about the relative benefits of centralized VRV heat pumps vs. individual window units. Costs? Maintenance? Assume those are air source so no condensate issues?

A suitable window-based unit does not yet exist, but the advantages of such a system over either multi-split or VRV systems are numerous: 1-hour installation; hermetic refrigerant loop so virtually zero GHG leakage; little or no disruption to the resident during installation; no need for soffits to cover linesets; no need to mount any equipment on a roof or wall; no danger of incorrect refrigerant charge and no need for time-consuming pressure and vacuum tests, nor the mistakes made during such tests; if one unit fails, the others are not affected; maintenance is much easier and faster; no need for an expensive crane to bring equipment to the top of the building; and resident receives cost signal from their monthly electric bill, encouraging efficient operation. Condensate can be an issue if the unit is not well-designed. Summer condensate can be dealt with via a condensate pump with minimal lift; winter coil defrosting can be handled via demand defrost and resistance-heated drain pan.

How closely have you looked the NYCHA emissions related to Con Ed steam (losses behind and in front of the meter)? Public data has indicated that the utility's steam system emissions are not as severe as other fossil fuel powered heating, even with the massive distribution losses. Are you skeptical about that (I am)?

Con Ed steam is a small part of NYCHA's energy mix. When we started the research, the proposed local law exempted Con Ed steam, and with LL97, we didn't look beyond the carbon intensity given by the legislation. That said, NYCHA hasn't prioritized replacement of Con Ed steam because Con Ed steam installations historically have been substantially more reliable than onsite boilers, and the plant itself requires less maintenance, although the in-building distribution and controls are no less prone to failure.

Most new technologies and approaches for electrification and efficient heating generates data, requires data gathering and analysis which means it needs to be online. Has the mitigation approach considered infrastructure for getting smart equipment integrated into NYCHA IT network?

There are already many systems at NYCHA that are variously integrated via a data warehouse. For building systems, NYCHA recently moved from our legacy BMS system to an interoperable, BACnet-Tridium Niagara system.

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Since such a large portion of the building stock is master metered, has consideration been given to contact switches for windows and doors to eliminate HVAC demand when windows or doors are left open?

No NYCHA building currently has electric HVAC systems that would benefit from a unit-level contact switch in the apartment -- the vast majority are steam-heated. Open-window-sensing controls have been floated in industry discussions, but we're not aware of any project implementing it in residential buildings.

The strength of NYCHA's heating operations had historically been a large degree of standardization of equipment. Your plan would seem to take NYCHA away from that. How do see this playing out?

Standardization of heating equipment may have contributed to keeping a well-maintained fleet of heating plants, but arguably a robust and highly capable heating plant operations workforce was a much more important factor.

Although ASHPs vary somewhat from mfr. to mfr., they are similar enough that maintenance should not present a major problem. One likely scenario would be for a given NYCHA development to have X% spare units on hand for instant replacement so that repairs could be accomplished at leisure.

Heat & Hot Water : Design-Build

Have contractors been chosen? Have you quantified size and cost impact desired on heating and cooling systems

Proposals with 30% design documents are due on Feb 12, 2021. These are "fixed price, best value" procurements, so all of the proposals for a given project will have the same cost, regardless of the technology they choose.

Have you awarded this important design build project? I am unable to find the award on your web site under Negotiation Number 85802 and the name "SMD_ Design-Build Services for Building Heating Systems."

Contracts have not yet been awarded. Proposals with 30% designs are due Feb 12, 2021.

How were the minimum GHG targets set for design build

The minimum GHG intensity was taken from the 2024 limit in LL97.

I'm interested in the tendering process Bomee talked about. Do you inform the tender bidders of the total contract value up front? And then do you pick the successful bidder based on innovation or CO2 metrics or other merits?

The budget, delivery deadline, and GHG intensity limit are among the parameters that were given to the RFP proposers. The RFP specifies a number of additional selection criteria in addition to GHG intensity.

If the approach to mitigation was to develop multiple approaches to electrification, is there a plan to also diversify the project approach from only Design Building for these GHG projects

Design-build is currently being used in a limited number of projects. Future projects may be design-build or design-bid-build, depending on project-specific goals and relative benefits.

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Is there talk about prioritizing MWBE contractors and/or offering NYCHA residents on-the-job training to do this retrofitting and efficiency work?

All NYCHA capital contracts, including energy efficiency work, must meet HUD Section 3 and NYCHA's Resident Employment Program requirements. NYCHA encourages MWBE participation, but does not use it as an evaluative criterion.

What are the projects [available to CM companies] that are immediate implementation at NYCHA for participation?

There are no active procurements for new participants at the moment, and all future procurements will come out through the usual channels. Please check City Record, or register for updates in NYCHA's iSupplier system.

Submetering & In-Apartment Consumption

Are there any policy hurdles to introducing more submetering? Example: In DC, submetering of residential units is not allowed.

Submetering regulations vary widely around the country and within a given State. Submetering electricity has been allowed in New York since 1976 and is generally encouraged. As climate change continues to affect municipalities, it's likely that regulations like DC's will be changed, just as NYC's have.

In areas where submetering is permitted, HUD policies (e.g. EPC, RAD, financing) may unintentionally limit the financial benefits of submetering. HUD PD&R will be publishing a report on this in 2021.

For electric submetering, do you intend to look at a meter on the incoming feed to each apartment, or to individual circuits in each apartment?

The existing submeters (discussed in the Roadmap) monitor the entire panel, not individual circuits. No other submetering project has been designed, but future projects would likely remain at the panel level.

Has induction cooking been implemented in any locations? Induction stoves require cast iron or SS cooking pans in order to function efficiently. Have residents required that NYCHA provide new pans? Sounds minor but could see it causing complaints and wasted energy using aluminum pans

No, not yet. It may turn out that NYCHA may have to provide induction-compatible pans or induction adapters when installing induction stoves. Contrary to popular perception, however, many existing pots and pans will work with induction stoves.

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How can you keep the electrification at 2 x 40 amps when everyone needs to run AC , etc.?

NYCHA reviewed the load data from several thousand NYCHA apartments that currently have shadow submeters (See the Roadmap about these shadow submeters) and found typical peak loads of only 2 or 3 kW (2 x 40 amps is approximately 9.5 kW). A 3-ton ASHP (which may actually be a bit oversized for most NYCHA apartments) with a 2-pole 35-amp breaker won't get anywhere near 35 amps almost 100 percent of the time; same with an induction stove with a 2-pole 40-amp breaker. The only time they might conflict is if the heat pump is going full blast on a design day in every room in the apartment and all the burners and the oven are energized on the stove. But even then, the heat from the stove would reduce the load on the heat pump in the winter. If someone decides to use a hair dryer just then, a breaker might pop. With an automatic demand control for each apartment, wholesale electrical service upgrades might be avoided.

In the example of Smart AC's or projects completed , can you provide insight on how local development and management handles regular maintenance or operations for newer technologies?

Long-term maintenance is an important consideration. With the current Smart AC pilot, relatively little maintenance is required (cleaning AC filters is about the extent). If there's any mechanical issue with an AC unit, it is removed and replaced with a new one under our installation agreement with the appliance vendor. Because it's a pilot project, a lot of NYCHA eyes are on the building and there are many opportunities for residents to flag issues.

Tom, Is the calculation for monthly \$ savings with electric submetering include new costs, for example, of cooking on an electric stove or electrically heated DHW

Utility allowances are designed to take account of each apartment's end uses (See <https://tools.huduser.gov/husm/uam.html>).

Other

Can we turn all the central plant footprints into community support centers and community engagement centers?

Central plants are in basement spaces, and not ideal for conversion to community uses.

How is NYCHA looking at carbon emission factors from future clean grid when electrification is taken in to account?

As a utility customer, NYCHA relies on the State to achieve the CLCPA grid decarbonization goals, and for capital planning purposes, assumes that this will be the case.

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Is there a particular ventilation strategy you're thinking about retrofitting? And any envelope improvements to go with it?

Many NYCHA buildings do not have mechanical ventilation. Those that do, have exhaust-only ventilation, primarily in the bathrooms, and the systems were not designed for whole-apartment ventilation. Where existing exhaust ventilation systems are addressed through a capital project, the scope includes clean-seal-and-balance, a direct-drive rooftop fan replacement, and connection to NYCHA's BMS for automated monitoring. This scope was tested in the EPC program.

There are no construction programs at this moment that address envelope performance improvements (vs. LL11). In any future program that substantially reduces the air infiltration, incorporating ventilation will become a central technical challenge. The projects in NYSERDA's RetrofitNY program, which has the explicit goal of tightening building envelopes, seem to be tending toward ERVs as part of their solutions.

Regarding the planned resident engagement strategy on: education on system operation, Resident Allowances and how they work, what sub metering will mean for residents, and how the transition away from central plants will impact their community and local landscape.

As outlined in the Roadmap, any submetering program or implementing new heating technologies will require robust resident engagement, such as what has been used in the NYCHA Connected Communities program.

What is the timeline for the Climate Adaptation plan that NYCHA plans to publish?

The climate adaptation plan is currently in development. Publication date has not been set.

Will NYCHA also be working with the social service agencies located in NYCHA buildings (e.g. senior centers) to inform and help residents with changes?

NYCHA's Resident Engagement department works closely with social service partners, and those organizations can certainly serve as trusted partners with residents and their representatives to raise awareness and guide decision-making.