



September 1, 2023

Sherri L. Golden
Secretary of the Board
NJ Board of Public Utilities
Via email: board.secretary@bpu.nj.gov

Re: Building Decarbonization (“BD”) Strategies

Dear Secretary Golden,

MaGrann Associates is pleased to offer these informal comments subsequent to the Gas Transition Technical Conference of August 2nd and utility stakeholder meetings of August 24th.

MaGrann is a New Jersey based sustainability engineering company focused on the energy performance of residential buildings – primarily multifamily new construction and retrofit. In addition to our 30+ year history of program support in New Jersey, we are extensively involved in building decarbonization initiatives from New York to Washington DC, and offer that experience as context for these comments.

First, we were particularly pleased to see a number of items addressed in the 2nd Triennium Board Order of July 26th which we had raised in our comments regarding the previous Straw Proposal. Based on our interpretation of the Board Order, these include:

- Requiring the utilities to coordinate BD programs and pilots with EE programs to avoid market confusion and lost opportunities due to competing outreach and scope overlap.
- *Not* requiring that BD programs achieve a cost-effectiveness ratio greater than or equal to 1.0 during the second triennium, irrespective of coordination with Energy Efficiency programs.
- Specifically identifying Multifamily as an area of focus, especially when it is beyond the scope of the Comfort Partners Program.
- Inclusion of support for electrification-readiness measures such as electric panel and load service upgrades.

In response to the request made at the Gas Transition Technical Conference, we would like to suggest the following questions for consideration as the BPU considers the development of BD pilots and reviews the BD program proposals that will be offered within the forthcoming utility filings:

- Multifamily buildings often incorporate a mix of residential and commercial attributes, including both centralized and individual HVAC and hot water systems. Therefore, *does the plan offer a single pathway for multifamily participation that is agnostic as to meter configuration*, so that the range of

NJ • NY • PA • CT • MA • MD • DC • VA

701 East Gate Drive • Mount Laurel, NJ 08054 • 1-888-MAGRANN • magrann.com



potential solutions is not limited by categorization of the property as “residential” or “commercial” (especially since the meter configuration may change as part of the solution).

- *Does the plan adequately address the major financial and non-financial barriers to entry?* One of the most significant steps a decarbonization initiative can take is to fully fund the cost of the building assessment and project development phases. Property owners are universally unwilling to invest in discovery and engineering “soft costs” that are not considered part of a project’s capital budget but are necessary for determination of project scope and viability. Multifamily building decarbonization strategies in particular are at the leading edge of engineering design and are far from being a commoditized service. The proper engineering essential to ensure positive outcomes can be complex and expensive – for example, as required for a switch from centralized hydronic distribution boilers to in-unit minisplit or VRF systems coupled with envelope improvements to reduce load, and hot water replacement with centralized or in-unit heat pump water heaters.
- *Are gaps in current incentive programs adequately addressed to support electrification?* Ideally, a multifamily decarbonization program would require and provide support for a comprehensive assessment of a property’s electrification readiness, including everything from the electrical supply capacity (e.g. do site interconnection and in-unit panels require upgrading?) to existing structural design limitations (e.g. can in-unit water heaters be replaced with heat pump water heaters given space and airflow requirements) to whether envelope upgrades would be necessary to ensure the desired energy, operating cost and comfort performance.
- *Have specific issues related to LMI and overburdened communities been considered?* More than 90% of multifamily units are rentals, the majority of rental units are in buildings over 20 units, and the majority of renters are low and moderate income households that are more likely to be located in overburdened communities. Lower income households are disproportionately burdened by high energy costs and by the health and comfort issues common in such buildings. Decarbonization efforts can contribute significantly to addressing these issues since these strategies are likely to involve equipment modernization, whole building performance upgrades, and substitution with combustion-free fuels. The multifamily affordable housing sector is an important target for such initiatives, but is unlikely to embrace the cost and disruption without significant financial and technical support. Therefore, programs should provide mechanisms for fully funding comprehensive, whole building based retrofit assessments and implementation in affordable housing – including both formally designated low income and “naturally occurring” low income properties, with outreach aimed at property owners and managers rather than tenants.
- *Do programs adequately consider the needs of tenants, not just the property owner?* Ideally, programs should provide a mechanism for tenant education upon occupancy by a new resident, or in the case of a decarbonization retrofit conducted with residents in place (or moved out and back), that education should occur both before and after the project. Support can be provided for property managers in the resident education effort. For the success of decarbonization at scale, we must provide a positive resident experience. This is best achieved by educating residents on the “what” and “why” of a decarbonization retrofit, and how to use new equipment for maximum efficiency and comfort from day one. Rental residents have no say in the systems they encounter in their apartment, and typically have little technical understanding of the systems they have (including what fuel they use or where they are located). Many new electrified systems, such as

ductless minisplits, have a long way to go in providing user friendly consumer controls and guides to best practice operation. Numerous strategies are available to more effectively prepare and educate residents through a combination of simple written/illustrated guides, allowing time for resident education at time of install, resident workshops and other approaches.

- *Are the potential financial implications for tenants addressed in the program and project design?* It is important to note that there is the potential for a significant cost shifting issue associated with electrification in the multifamily sector. Many larger, older multifamily buildings utilize centralized boiler systems such that heating fuel costs are paid by the property owner and incorporated into the rent structure. If these systems are replaced by individual in-unit systems, the direct cost shifts to the resident and may now include cooling when it did not do so before. If rents are not adjusted to correlate with the cost shift, tenants can end up effectively double-paying for heating. The addition of cooling may further add cost, but is likely to be more cost effective overall than old tenant-owned wall/window units and provide greater comfort – and the addition of efficient cooling in low income housing is increasingly important as climate change drives higher outdoor and indoor temperatures. There are many mechanisms for addressing this cost shift conundrum equitably through both technological and financial approaches, but it needs to be considered in any programmatic design.
- *Do pilot or program designs allow for a full range of technical solutions to be considered for any given multifamily scenario?* As sustainability consultants and engineers focused on multifamily buildings, MaGrann already has extensive experience designing for and implementing large scale decarbonization strategies in both new construction and retrofit projects. This includes numerous variations of air source and ground source heat pump space heating and water heating solutions deployed in individual, central and neighborhood configurations. Many technologies have a high degree of technical understanding and acceptance in the market with established track records of performance, while others should still be considered “emerging”. As an industry, we have learned a lot about real world energy and comfort performance, as well as operations and maintenance. Not all approaches perform as expected in all scenarios, emphasizing the value of pilots for emerging technologies. In general though, we can say with confidence that there is a viable decarbonization solution for virtually any new or existing building scenario if sufficient funding is available. We would be happy to discuss our experience and observations in detail with the BPU.
- *Are there additional considerations unique to new construction that could be applied to the NJCEP's current Residential New Construction program?* Bonus incentives for higher performance, full electrification and zero energy performance (not just zero energy “ready”) would all help to promote decarbonization objectives. In the future, such incentives could be more directly linked to carbon reduction through the establishment of a standardized, state specific calculation methodology. We particularly recommend consideration of new approaches, such as linking performance goals and incentives to newly available metrics such as the HERS Carbon Index which will shortly be fully integrated into HERS (Home Energy Rating System) energy modeling software for both single family and multifamily construction.

Finally, a word about how we define “decarbonization”. At its simplest, decarbonization in buildings encompasses the substitution of combustion based systems with electric alternatives. Ideally, this basic objective would be combined with:

- a) Beneficial electrification approaches, such that energy efficiency is maximized and operating cost minimized (substitution of high efficiency gas furnaces with electric resistance heating, for example, would not meet this criterion); and
- b) On-site or community renewable generation to avoid simply shifting that portion of the building’s greenhouse gas generation to the grid. The significance of this for any particular project will depend on the local grid’s generation profile and its transition to low or zero carbon resources.

It’s important to note that the decarbonization of existing buildings may need to accommodate an iterative process. However, we would like to reiterate three essential principles should be applied to any effort to address multifamily properties:

- 1. A single point of entry to avoid program overlap and cannibalization;
- 2. Holistic assessment, project design and deployment of incentives to avoid lost opportunities;
- 3. Market based implementation by qualified providers to build capacity and ensure positive outcomes.

Thank you for this opportunity to provide comments. The MaGrann team would be happy to engage in direct discussions with the BPU or utilities on these topics.

Sincerely,



Ben Adams
Vice President, Strategic Development
(609) 760-1184
benadams@magrann.com

CC: stacy.richardson@bpu.nj.gov