ICC Staff Thermal Energy Networks Workshop / Workshop 5

Comments of Commonwealth Edison Company – December 22nd , 2023

Commonwealth Edison Company ("ComEd") appreciates the opportunity to submit this second set of comments in advance of the Illinois Commerce Commission Staff's ("Commission") Thermal Energy Networks Workshop 5, to be held on January 3, 2024. These pertain to the Commission Staff's request for comments on "project designs that could maximize the value of existing State energy efficiency and weatherization programs and maximize federal funding opportunities to the extent practicable; whether thermal energy network projects further climate justice and emissions reductions and benefits to utility customers and society at large, including but not limited to public health benefits in areas with disproportionate environmental burdens, job retention and creation, reliability, and increased affordability of renewable thermal energy options; and approaches to thermal energy network projects that advance financial and technical approaches to equitable and affordable building electrification, including access to thermal energy network benefits by low and moderate income households."

Building on the initial comments ComEd provided on December 8, ComEd has deep experience in the implementation of energy efficiency programs and specifically, along with partners at State and local levels, in the delivery of comprehensive retrofits to low- and moderate-income customers (LMI customers). A large body of building science research has established the importance of approaching homes with a whole-building approach, which considers the building as an energy system with interdependent parts, each of which affects the performance of the entire system.[1] We recommend any demonstration project lay a foundation for success by first identifying and implementing appropriate building shell improvements (i.e., weatherization measures) as well as health & safety upgrades (common upgrades include roof repair, mold remediation, moisture mitigation, etc.).

The primary effect such an approach would have on a thermal energy network project would be to reduce overall building heating and cooling loads, potentially allowing the entire thermal system to be size-optimized, and allowing most buildings to reduce upfront costs by optimizing required heat pump equipment. Enhanced building shells may also allow many ground source heat pump systems to provide their buildings with 100% heating capacity even in extreme cold weather, eliminating the need for supplementary backup heating. Eliminating backup heating makes full building electrification possible, significantly reduces costs, protects customers from occasional bill spikes during extreme weather, and provides significant yet-to-be-quantified benefits to the electric grid. Lastly, the whole-building approach has the added benefit of dramatically improving occupant comfort and enhancing thermal resiliency in the case of extreme weather or a power outage.

[1] U.S. Department of Energy, https://www.energy.gov/energysaver/whole-house-systems-approach

The costs and barriers to implementing widespread weatherization are well known, but with long-running, robust State, local and utility-administered retrofit programs already in place Illinois is positioned to tackle the challenge.

As a leader in early efforts to conduct full home electrification retrofits for LMI customers, ComEd has also developed an understanding of upfront project costs as well as operational cost savings for customers. The relatively high costs of heat pumps and other necessary upgrades will impede the pace and scalability of efficient electrification unless creative approaches are implemented in a widespread manner. The thermal energy network concept is inherently equity-centric if deployed in communities with high densities of LMI customers as it reduces barriers to entry for homes that may not have otherwise been served through first-come, first-served-style program efforts focused on individual homes. It also provides the opportunity for creative models of ownership including thoughtful approaches to local or community ownership. A whole-block approach to geothermal resources combined with forthcoming incentives made available via the Inflation Reduction Act (which provide meaningful rebates for the full range of home electrification needs), plus the program administration experience and resources of utilities and State and local agencies, would be a powerful combination for scaling full home electrification retrofits.

ComEd looks forward to continue working with the Commission Staff and other stakeholders as it considers these and other issues related thermal energy networks.