



ICC Staff Thermal Energy Networks Workshop / Workshop 4
Comments of Commonwealth Edison Company – December 8th, 2023

Commonwealth Edison Company (“ComEd”) appreciates the opportunity to submit comments in advance of the Illinois Commerce Commission Staff’s (“Commission”) Thermal Energy Networks Workshop 4, to be held on December 19, 2023. These comments pertain to the presentations in the initial two workshops on November 15 and 29 and the Commission request for comments on “the appropriate ownership, market, and rate structures for thermal energy networks and whether the provision of thermal energy services by thermal network energy providers is in the public interest.”

ComEd has established significant engineering and implementation expertise related to ground-source heat pump technologies and deployment costs as a component of its energy efficiency portfolio. Through the ComEd Energy Efficiency Program, ground-source heat pump incentives have been made available to residential customers since 2016 and to commercial customers since 2019.¹ Over the past two years, ComEd has issued \$190,000 in rebates across 48 installations. ComEd partners with the Geothermal Alliance of Illinois to require training and accreditation for system installers and as of December 2023, there are 15 companies in ComEd’s approved network.

In general, ComEd has found that ground-source heat pumps can provide a reliable and highly efficient solution for home or business heating and cooling needs. However, it is also clear that the up-front costs and site requirements of installation have tended to limit the growth of the technology in Illinois.

Due to the higher upfront cost of ground-source systems, incentives from energy efficiency programs targeting energy consumption reductions measured in kWh or BTU are a necessary means to support customer adoption. As we look towards a low-carbon future where many buildings rely upon electricity for heat, for example, as shown by the E3 study² examining potential decarbonization pathways, ComEd’s system peak could shift from summer to winter. This means new generation resources will be needed in the early hours of winter mornings. During these hours, solar is not available and wind generation is not dispatchable; other clean options, such as hydrogen or long-duration energy storage are anticipated to come at a higher price. While this higher price is difficult to estimate with precision, it is a relevant consideration in valuing the winter peak shaving potential of ground-source heating systems. It is likely that the full future value of ground-source heat pumps to the grid is not fully accounted for in existing incentives. By the same logic, the eventual cost of air source heat pump

¹ Information on the ComEd GSHP offering is available at <https://www.comed.com/WaysToSave/ForYourHome/Pages/HeatingCoolingRebates.aspx>

² Mahone, Aas, Knapstein, et al. 2022 “Illinois Decarbonization Study: Climate and Equitable Jobs Act and Net Zero by 2050.” <https://www.ethree.com/wp-content/uploads/2022/12/E3-Commonwealth-Edison-Decarbonization-Strategy-Report.-December-2022-1.pdf>

operation may not yet be fully understood, particularly for leaky and under-insulated buildings with high winter thermal demand.

In light of these considerations, ComEd is very interested in the development of ground-source heat pump technologies and believes that these technologies are worthy of additional study. And, while ground source heat pumps can be deployed at the customer level, ComEd is also interested in the development of shared or community-scale geothermal systems, which have the potential to alleviate some of the adoption barriers that our analysis suggests are impeding ground-source heat pump deployment in Illinois. ComEd has served as prime applicant on two community geothermal proposals to the Department of Energy, the more recent of which included Region 1 Planning Council, Rockford Habitat for Humanity, IBC Engineering Services, Slipstream, Rockford Public School District 205, and the Plumbing and Pipefitters Training Trust Fund. While neither was selected, we continue to follow demonstrations such as the one at Eversource described in the November 29 workshop. As we also heard in the workshop, Blacks in Green (BIG) is leading a Chicago Sustainable Geothermal coalition study for a Woodlawn-based community geothermal initiative. ComEd has met with BIG to identify opportunities to support their community geothermal initiative and support the growth of the ground-source heat pump market in the ComEd territory.

There are several key questions that arise from the topical focus on community-scale geothermal deployments:

1. Under what conditions does a community thermal loop reduce costs relative to a single-building loop? Can these systems provide cost savings without waste heat access, or do they only make sense where wells can be augmented by other thermal resources?
2. What are the expected benefits to the local electricity distribution grid of such a system compared to more status quo efficient electrification approaches (e.g., cold climate air source heat pumps or individual ground-source heat pump systems)?
3. Is it more efficient in terms of development and maintenance for a single entity to be responsible for the entire system or should geothermal bores be deployed by property owners as thermal distributed energy resources (DER) interconnected to the loop?
4. Can the market mechanism be designed to encourage initial participation in the system to ensure that up-front deployment costs are shared?
5. What are the operational challenges of a shared system of this kind and what level of inspection, monitoring, and ongoing investment is required to ensure that the system is highly reliable?

ComEd hopes that appropriate demonstrations and pilots, as well as input from stakeholders, can assist the Commission as it considers these and other issues related thermal energy networks.