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RE: Thermal Energy Network Round 1 Comments

Dear ICC Staff,

Thank you for the opportunity to provide comment on the appropriate ownership, market, and rate structures for thermal energy networks and whether the provision of thermal energy services by thermal energy providers is in the public interest.

At The Accelerate Group, we are working on multiple initiatives regarding the design, analysis, and deployment of thermal energy networks, specifically related to the thermal energy networks involving community geothermal, and have worked over the past several years to evaluate and consider different ownership structures for such networked strategies.

We have been working to design the BETTER HEAT model, which uses geothermal energy, leveraging the Earth's temperature to heat and cool buildings, through shared underground loops that deliver heat to buildings 5x more efficiently than gas heat, and help cool those buildings in the summer. The Better Heat model develops community-scale geothermal networks in the public right-of-way that residents and businesses can opt-in to over time, when they are ready. As communities across the State pursue efforts to eliminate carbon and other pollutant emissions from buildings, it is essential to identify the most cost-effective and reliable methods for delivering carbon-free heat to dense urban environments and existing building stock.

Recently, we have helped Blacks in Green to launch the Sustainable Chicago Geothermal project, which recently received funding from the U.S. Department of Energy under the COMMUNITY GEOTHERMAL HEATING AND COOLING DESIGN AND DEPLOYMENT funding opportunity, and intends to deploy a community-scale geothermal heating network in the West Woodlawn community on Chicago's South Side.

As part of the scope of that DOE-funded work, the project will be engaging in deep analysis on system designs and customer-side investments designed around community input and community needs. Further, the project will undergo a design-focused process with stakeholders to determine options for the ownership of the geothermal system, as well as regulatory structures to enable the construction and long-term operation of the system. Further, the project will include a utility bill impact analysis for participants to identify electric and gas bill impacts (including the reduction of energy use for cooling or the enabling of affordable cooling for households that cannot currently afford space conditioning).

Importantly, this work is ongoing, and we don't have final conclusion at this stage. However, there are several key considerations that we would like to pose to the Commission and workshop participants.

## **Key Considerations for Thermal Energy Networks (and, specifically, Community Geothermal Networks)**

The following is a non-exhaustive list of some key considerations related to thermal energy networks, with a special focus on community geothermal networks, for the topics identified by the ICC. We will be identifying and tackling more topics throughout the course of our work ahead.

### **Ownership**

- **Thermal Energy Networks are not new in Illinois.** Thermal energy networks in Illinois are not new. In fact, an existing, privately-operated district cooling network that sources from the Chicago river has been in operation in downtown Chicago for decades. Similarly, campuses and hospital districts have operated district heating and cooling dating back almost a century.
- **Do not default to existing utility ownership.** An important finding in our work thus far has been that it is essential that policy and regulatory structures do not default to existing (electric or gas) utility ownership of new thermal energy networks. While a case can be made that the construction of such networks are beneficial to investor-owned utilities, it is not necessarily the case that investor-owned utilities are beneficial to such projects. While there may be some overlap in functionality around the distribution and collection of bills, there are significant knowledge and experience gaps between both power system planning, engineering, and repair and combustible gas distribution, with a locally-distributed pumped fluid operation. The physics and chemistries are fundamentally different.
- **Tax Credit considerations.** Recent guidance from the U.S. treasury regarding the applicability of federal tax credits for qualified energy property (such as geothermal heating and cooling systems) raises some important questions around ownership models.
  - **IRA tax credits.** The Inflation Reduction Act expanded and increased the investment tax credits for qualified energy property, providing the opportunity to see 30-50% of a project investment returned to a project.
  - **Tax normalization.** However, investor-owned utilities are subject to tax normalization rules, which require such tax credits to be realized over the operating life of the energy asset (which would be greater than 30 years), limiting the ability of an IOU to effectively monetize the ITC and depreciation. This is not a common challenge facing Illinois, as the state's IOU's do not own generation, but would pose challenges for new thermal energy networks.
  - **Elective pay.** Nonprofits and non-tax-paying public entities are now eligible to see financial benefit from federal tax credits through the new Elective Pay provisions under the Inflation Reduction Act. This means that non-profits, cooperatives, and government entities can be eligible to receive the 30-50% of project costs back as a payment from the U.S. treasury. However, such entities would not be able to monetize depreciation as readily.
  - **Eligibility tied to Complete Ownership.** Recent guidance from the US Treasury indicates that in order for any entity to see the IRA tax credits for energy property, all essential

components of a system would have to be solely owned by a single entity or jointly owned by multiple entities. If there were a project in which different components were owned by different entities (say, a heat pump owned by one entity and a district geothermal loop owned by another entity, both components being essential parts of the system), neither entity would be eligible for the federal tax benefits of the qualified energy property. While this may change in final rules, the current approach would mean that any entity that owns the geothermal system must also be able to own the “behind the meter” heat pump/air conditioning system.

- **Lease to Own Models.** To address this approach, it is likely a different ownership structure is required, and can even be leveraged, to support the deployment of geothermal heat pump-based energy networks. We are evaluating whether there is a structure that would allow a new entity that could both own the networked loop and the heat pump, at least temporarily, to monetize tax credits and support the medium-term finance of the customer’s new equipment. Through such a model, which could include a lease-to-own capability, the financial case could be beneficial to customers.
- **Local ownership opportunities.** One of the key differentiators for thermal energy networks as discussed is that they can be built and operated as stand-alone or interconnected, neighborhood-scale systems. They do not rely on a centralized radial or networked distribution system from energy source pipelines (gas) or substations (electricity). As such, projects can be designed around local community needs, and include opportunities for local ownership and wealth-building.
- **Financing and Access to capital.** New federal policy has created new opportunity to change the equation when it comes to access to capital for such large scale projects as well. Through the expanded authority under the US Department of Energy’s Loan Programs Office, new community geothermal projects can pursue low-cost loan guarantees at treasury rates (10-year rates are close to 3.8%), particularly if deployed as part of a large-scale, systemic change initiative in the billions of dollars. This opens the door to new types of owners of such projects that may not historically have had access to capital at such rates. Further, opportunities under the US EPA’s Greenhouse Gas Reduction Fund’s National Clean Investment Fund create an opportunity for start-up, pilot deployment and equipment financing for such systems as a near-term proof of concept loan.
- **Labor/workforce expertise does not depend on existing utilities.** Ownership recommendations are often made based on a perceived similarity in workforce capabilities of gas utilities. However, the workforce similarities to gas utilities’ actual personnel is limited. Community geothermal networks depend on a skillset that is largely established with contractors and others that employ on trained operating engineers, and not necessarily a skillset that is unique or prevalent with existing gas utility employees.

### Customer Participation

- **Meeting people where/when they are at.** It is important to approach the roll-out of a large-scale, transformational effort such as this by recognizing that people will have to find ways to make the switch when they are practically, physically, emotionally, and financially ready. A

deployment that relies on universal concurrent community investment is unlikely to succeed. That is why our work has focused on modeling and design modular approaches to deployment – block by block, household by household, and community by community. As such, systems might be more inefficient at the start, but gain efficiencies over time as concentrations of participation in a project area increase. Financial and ratemaking projections should account for this dynamism.

- **Community Voice.** It is essential for project deployments to be designed around community needs and desires. Communities should lead in this conversation, with them at the center of this conversation.

### Rate Structures

- **Therms are therms.** We are exploring rate structures for customers on geothermal heating and cooling networks wherein customers pay simply for the thermal exchange between their premise and the geothermal heating and cooling loop. In the winter, this would be therms of heat from the ground, and in the summer this would be therms of heat out of the building and into the ground. A fee could be based on the total energy transacted, including potentially by measuring the heat and volume of temperature into and out of a heat pump/air conditioning unit or other heating and cooling systems on a customer's premise. Basing rate structures on volumetric usage would continue to incentivize energy efficient behavior and accurately apportion costs to customers based on cost causation principles. However, such systems are new and potentially difficult to measure without additional metering devices.
- **Monthly fees.** Another option being considered would be simply to charge monthly participation fees to customers based on certain piped and size requirements for their systems. Such an approach is being considered as an option due to its simplicity, which may be beneficial for such a new technology. However, such a system would have the downside of disincentivizing additional energy efficiency, or accurately bill customers based on demand, usage, and impacts on the system.

We provide these key considerations for further discussion at the workshops, and look forward to working with the Commission and stakeholders to design a future heating system better able to serve customers needs.

Sincerely,

**Andrew Barbeau**  
President  
The Accelerate Group