

MMC Geothermal webinar Part 2 – Hybrid Ground Source Heat Pump (GSHP) Optimization and Thermal Imbalance – Questions and Answers

We're updating our green building standard to align with our climate change targets. It has been recommended by our consultant to achieve our targets we need to heavily rely on GSHP. Knowing this is only applicably to 90% of buildings, what alternative technologies are available? Is it just fully electric heating systems?

Air source heat pumps are one of the options to be investigated. Solar is another big one.

Heat pump technology in general will be critical to meet the climate change targets. Heat pump based solutions like closed-loop GSHP (being discussed), open-loop geothermal HPs (surface water, or ground water), wastewater energy transfer coupled to heat pumps, air source heat pumps, and other systems like biomass could be viable options.

Hybrid assumes natural gas boiler for peaking. If you use electric boilers instead do the calculations change?

It can assume a natural gas boiler, but the method is flexible. We have done the calculations with natural gas (most often) but also electrical, propane boiler, and maybe others. The calculations need to be tailored to the specific building.

How would you suggest monitoring the GSHP? Thermal energy meters?

A few simple thermocouples to monitor temperature, and perhaps flow meters, to monitor fluid flow, can tie into a Building Automation System, and provide the needed data. From that temperature and flow data, energy flows can all be calculated and checked as needed.