MOUNTAIN TOWNS 2030

WORKSHOP · WED, OCT 14 · 1:15-2:15 PM

The Heat Beneath our Feet: City of Boise Geothermal Program

Steve Hubble, Climate Action Manager, City of Boise; Katie O'Neill, Energy Program Manager, City of Boise

Boise runs one of the largest direct-use geothermal heating utilities in the world: 177°F water from a hot aquifer heats about 100 downtown buildings in place of natural gas, then goes back into the ground. City staff shared how the system works, what makes it hard to run and grow, and what any town with hot water of its own should sort out first.

KEY TAKEAWAYS

1. **Geothermal heat can replace natural gas directly.** Buildings pull heat from the water through compact heat exchangers and run their existing mechanical systems. Water is reinjected 3,200 feet down, so the loop is closed and nothing is consumed.
2. **Reinjection protects the resource.** Pumping without reinjection from 1983 drew the aquifer down and triggered a 1987 state moratorium. An injection well in 1999 restored it, but Boise still operates under those limits today.
3. **Price for the whole life of the system.** Boise anchored rates to natural gas and avoided increases. Now its 50-year-old concrete pipe is at end of life, federal capital funding is gone, and customer revenue has to cover replacement.
4. **Water rights, not demand, cap growth.** Developer interest is high, but connections are voluntary and production is capped. A donation of water rights from a local developer and new state flexibility opened room to grow.
5. **Metering is the key to affordable housing.** A Bloomberg Mayors Challenge pilot is bringing geothermal heat to a 300-plus unit affordable building, aiming to cut residents' heating bills by up to 80%.

WHAT LOCAL OFFICIALS CAN DO

- ☐ **Start with your goal.** Gas replacement, power, and cooling lead to different systems. At Boise's temperature, cooling takes about 5 times the water heating does; ground source may fit better if you want both.
- ☐ **Test before you commit, and meet water rights holders early.** Drill a test borehole to confirm temperature. In Idaho, water below 212°F falls under water rights; hotter water goes through IDWR permitting.
- ☐ **Set rates that fund capital replacement from day one.** Consider billing by energy delivered (therms or BTUs) instead of gallons.
- ☐ **Decide early who will own and operate the system.** As a municipal utility, Boise sets rates with council approval, not the state utility commission.
- ☐ **For multifamily housing, choose a billing method before design.** Options are unit submeters (about $5,000 each) or certified energy modeling, redone every 3 years.
- ☐ **Expand where density is coming,** and get in early with developers, architects and engineers. Pipe is expensive, so target infill and planned development.
- ☐ **Fly an annual thermal imaging flight** to spot leaks before they surface.

BY THE NUMBERS

1891
World's first geothermal heating district, in Boise

177°F
Water temperature at the wellhead

~100
Downtown buildings heated by the city system

7,000 to 10,000
Metric tons of CO_2 avoided per year (estimate)

~$300K
Cost to extend pipe one city block

466M gal/yr
Modeled sweet spot for growth, up from about 300M today

WATCH OUT FOR

- ! Boise's interconnected system doesn't qualify for federal geothermal tax credits under the "80/20 rule." Ground source systems generally do (sections 48 and 48E).
- ! In Idaho, borrowing requires voter approval, which limits utility financing.

RESOURCES

City of Boise Geothermal
cityofboise.org/departments/public-works/geothermal

Geothermal Rising
geothermal.org

Idaho Department of Water Resources
idwr.idaho.gov

Peer communities
Cascade and Stanley, Idaho, both exploring geothermal

Watch this and every SV26 session recording
mt2030.org/sv26sessions · Use the attendee password.

Summarized from the session recording and presenter slides. Figures are as presented; confirm with presenters before citing.

CONTACTS

Steve Hubble
Climate Action Manager, City of Boise Public Works

Katie O'Neill
Energy Program Manager, City of Boise Climate Action Team