

Geothermal, Straight: When It's Worth the Money – and When It Isn't.

"Some people see it as this magical unicorn that's going to solve all the problems. I can tell you with 20 years of experience that it's not."

Phil Pacak, Euroheat – designing and building geothermal systems since 2005

Whether geothermal is worth your money depends on the site and the project – not on the brochure. We design and install it, and we still talk more people out of it than into it. Both columns, on one page.

When geothermal wins

- **There's a pool in the project.** Heat-recovery geothermal takes the heat your air conditioning pulls out of the house and puts it into the pool instead of the sky. On the right project the payback can be as short as about 4 years – the best economics geothermal ever produces.
- **The site is noise- or space-sensitive.** Vertical bores are silent and invisible: no outdoor fan unit, nothing to hear over the fence, nothing to hide in the elevation. On tight or high-end sites that alone can decide it.
- **You can reach Perth's aquifer.** Perth sits on groundwater at a steady ~20°C all year. Winter air makes an air-source machine work hard; ~20°C water barely asks it to try. Where an open loop – pumping groundwater up one bore and back down another – is feasible, it is a genuinely superior energy source. Using it needs a groundwater licence and a return bore, and Perth's iron-rich water has to be designed for.

When it doesn't

- ✗ **The equipment typically costs ~20% more** than the equivalent air-source gear – before anyone has drilled anything.
- ✗ **The ground connection is the real premium:** indicatively \$30,000–\$150,000 depending on system size and site. Every hole is priced by the ground it goes through, not by the brochure.
- ✗ **A good air-source heat pump is already very efficient.** We once modelled a project where the geothermal premium would have taken about 150 years to pay back. We recommended air-source and walked away from the dearer sale.

Figures are indicative, from real Perth projects – every site prices its own. If a quote can't show you the payback arithmetic for *your* site, it isn't a recommendation, it's a wish.

THE RULE THAT DECIDES THE BILL EITHER WAY

The weakest link sets the bill – not the bore field.

A system's efficiency is multiplicative, link by link. A well-installed heat pump might turn every unit of electricity into three units of heat – call it 300%. Send that through a well-built floor at 80% and the whole system runs at 240%. Send it through a badly built floor at 50% and you own a 150% system. **Same heat pump, same bore field, 60% more electricity for the same warmth.**

300% heat pump, done right	×	80% floor, built right	=	240% the system you paid for
300% same heat pump	×	50% floor, built cheap	=	150% the system you got

A real project we were called into: geothermal heat pump, 10kW of solar on the roof, an owner expecting bills near zero. The actual bills: \$500–600 a month in summer – just making hot water – and over \$1,000 a month in winter. Every contractor blamed another one.

The geothermal side was working. The money was leaking somewhere nobody looked: a hot-water ring main – a loop of hot-water pipe around the building – cast through the slabs and walls, uninsulated, arriving back 11–12°C colder than it left – around the clock. The most expensive energy source money can buy, feeding a hole in the bucket.

On our Perth projects, ground or groundwater source runs up to about 40% cheaper than air-source – less on a mild site. Cheaper – **never free.**

If someone tells you a geothermal system will cost you nothing to run, they don't know what they're talking about – and you should ask what else they don't know. Pay the premium where the site earns it back. Keep the money where it doesn't.

Watch it explained before you drill.

No scripts, no studio – the engineer who builds these systems answering the questions people actually ask. The first one is the most-watched video Euroheat has ever made.

THE CORE ARGUMENT · 8 MIN

The weakest link of all geothermal heating systems – and how to avoid it

youtube.com/watch?v=_cx4nmJciyU

FOR ARCHITECTS · 25 MIN

Architects' guide to geothermal systems: key questions answered

youtube.com/watch?v=0wK18DqdhLY

THE MISTAKES · 11 MIN

The biggest geothermal pitfalls and how to avoid them

youtube.com/watch?v=q44d-MKT-2A

HEAR IT YOURSELF · 6 MIN

Is a geothermal system noisy? A live demonstration

youtube.com/watch?v=_6MunMamnFO