



The UK Ground Source Specialist

EARTHENERGY™

Geothermal Heating & Cooling

Reliable **Affordable** **Renewable**
Renewable **Available**



The UK Ground Source Specialist



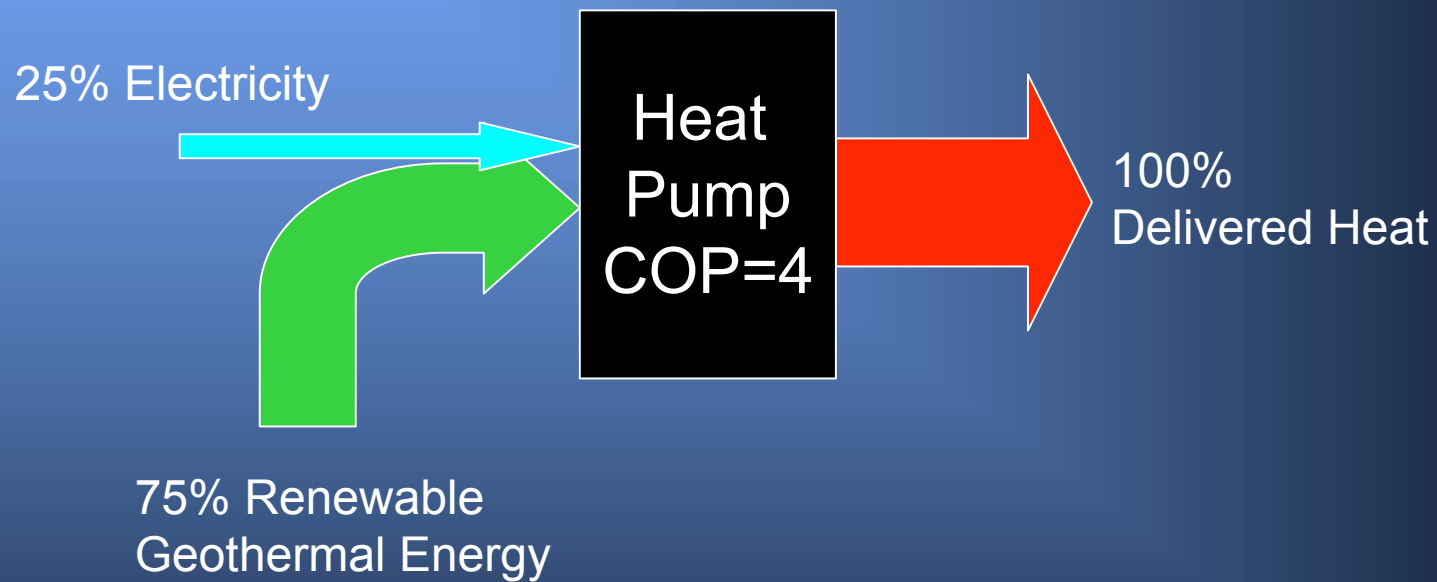
GeoScience Group

What is a Heat Pump?

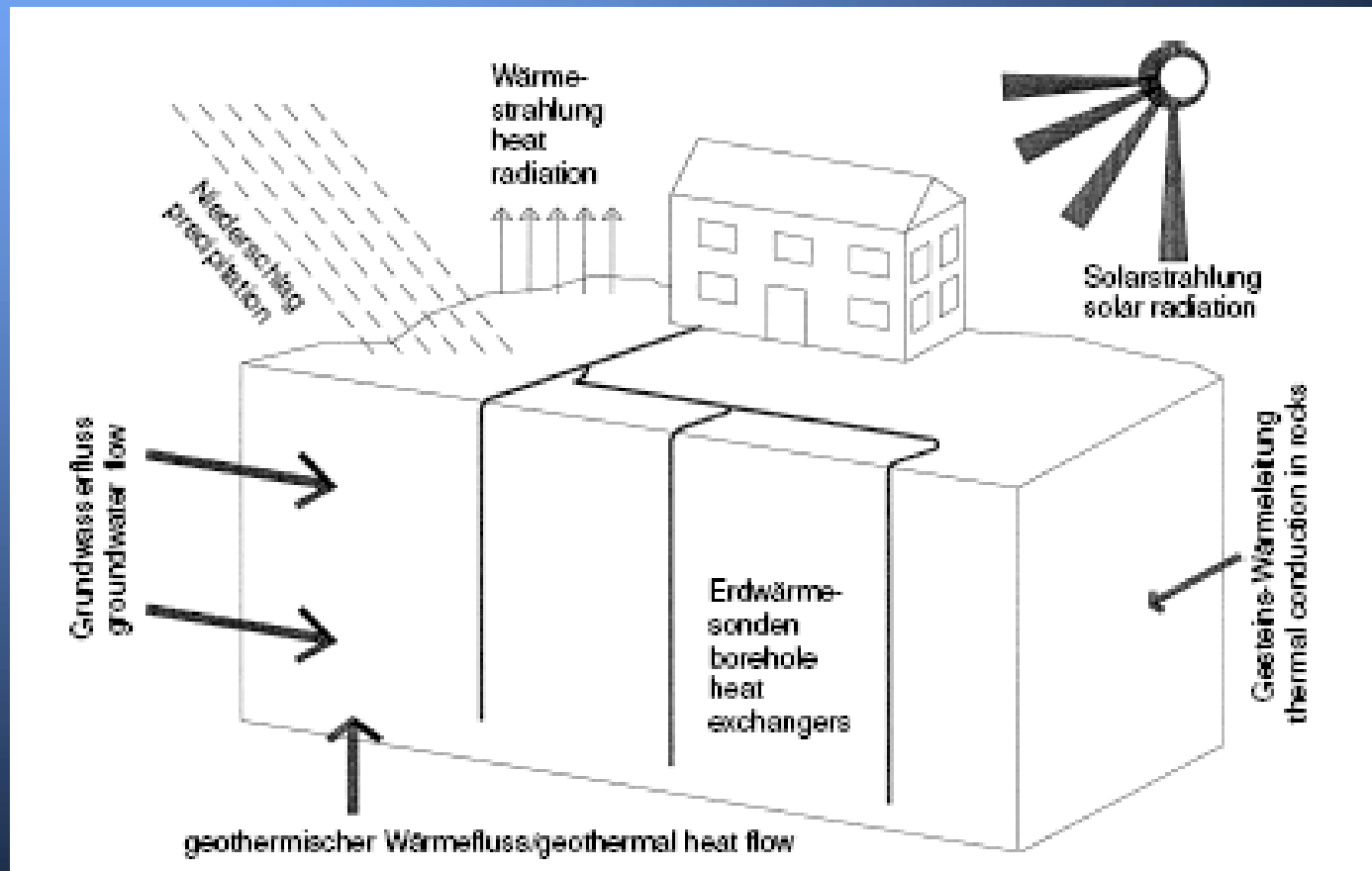
- Highly energy efficient solution for space heating and/or cooling and domestic hot water
- Able to convert solar energy stored in the ground, air or water into usable energy
- Low carbon emissions, low running costs



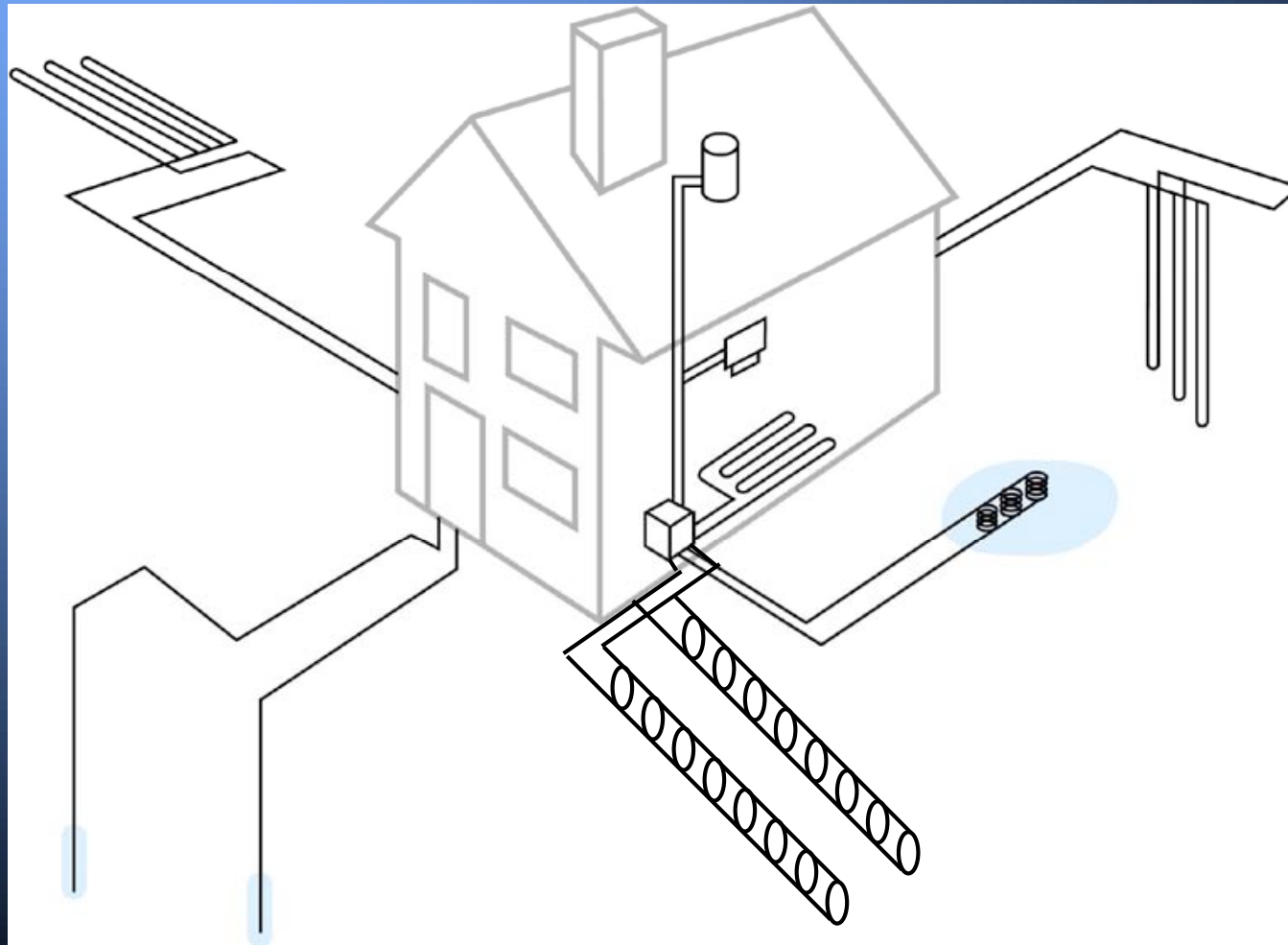
What is a Heat Pump?



Ground Source Heat Pumps



Ground Source Heat Pumps



Ground Source Heat Pumps



EARTHPACK™



Ground Source Heat Pumps



PONDLOOP™

Ground Source Heat Pumps

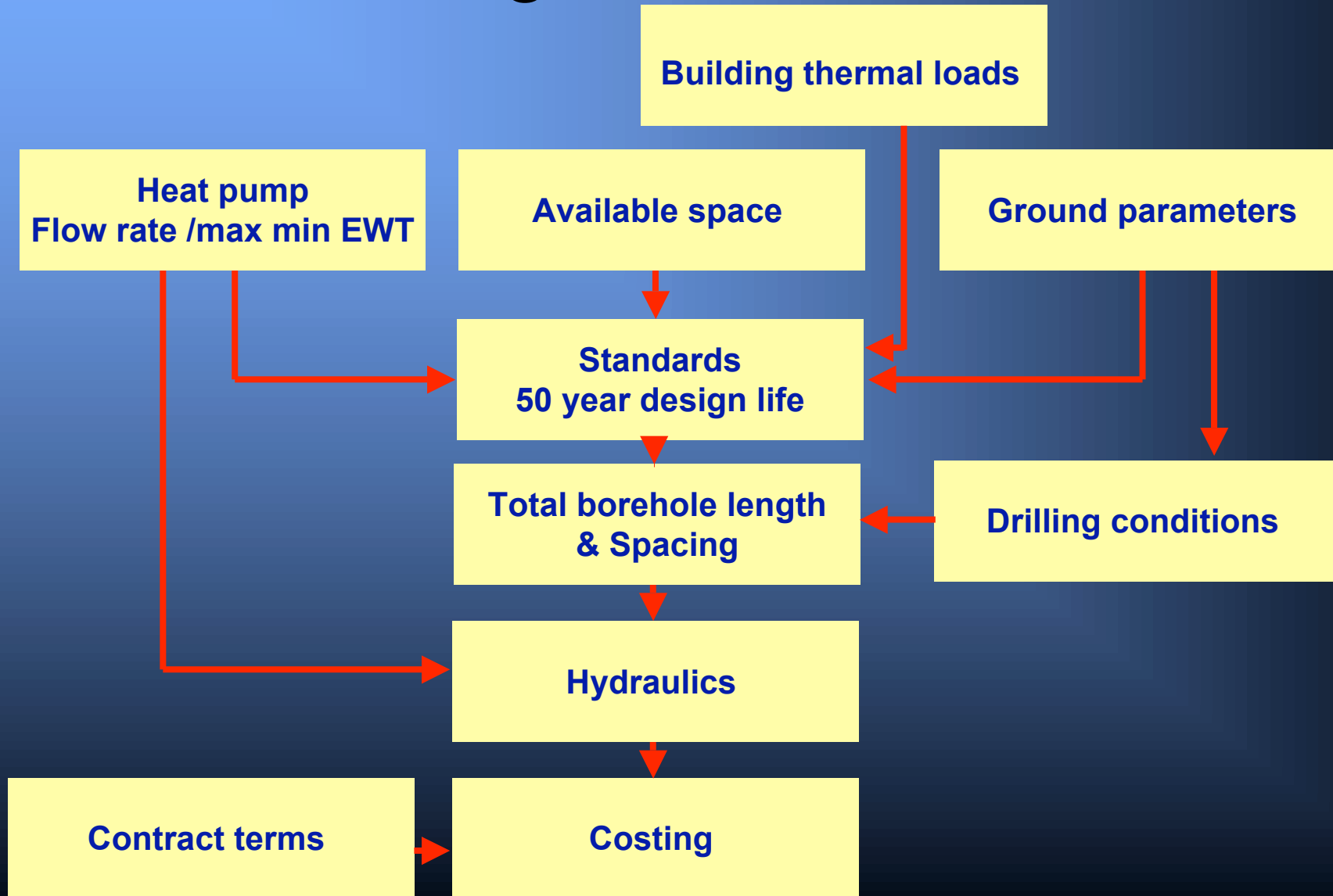
EARTHLOOP™



Ground Source Heat Pumps



Design Considerations



Technical Standards



UK Housing Overview

- 25m dwellings (80% houses, 20% flats)
- 180,000 new buildings per year
- Small footprints
 - Typical new build 3 bedroom house, 100-120m²
- Heating
 - 83% natural gas (mains)
 - 1.5million new gas boilers installed every year
 - Over 4million homes off the gas network
- Domestic hot water to 60°C very important
- High carbon intensity of electricity means high CoP needed to win against gas

Ground Source vs Air Source?

Ground Source

- Delivers good CoP's
- Is likely to continue to be popular with self builders and social sector who desire maximum efficiency
- Better suited to larger buildings (higher heat loads)
 - Schools
 - Non domestic
 - Blocks of flats
- Drilling costs significant
 - Marginal costs reduce for
 - large projects
 - Multiple housing

Important opportunities in certain sectors

Air Source

- Lower CoP's
- Needs full Govt endorsement to kick start
- Has potential to be much lower cost – ie compete with boilers
- Less expertise required to install
- Better suited to retro fit (bi valent)
- Noise is an issue

**Likely to be the largest sector
Japanese could dominate
(lower costs, higher efficiency through
inverter drives)**