Accelerating Geothermal in the UK

From policy signals to practical delivery

- **Ken Gordon** Chief Technology Officer
- Ambient Loops and Shared Ground Loops

ade

Heat Networks

AGENDA

- From potential to deliverable heat infrastructure
- Offshore capability transfer and lifecycle disciplines
- Geothermal topsides and heat network comparisons
- Policy, HNTAS and technical standards framework
- Network typologies: centralised, ambient and SGL
- Policy risks to deep geothermal and call to action

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From Potential to Delivery

Building on the analysis from

The International Geothermal Association

The National Geothermal Centre and Wood Mackenzie

Building on the momentum and analysis we've just heard.

The focus now shifts from potential → delivery.

How does geothermal become dependable heat infrastructure?

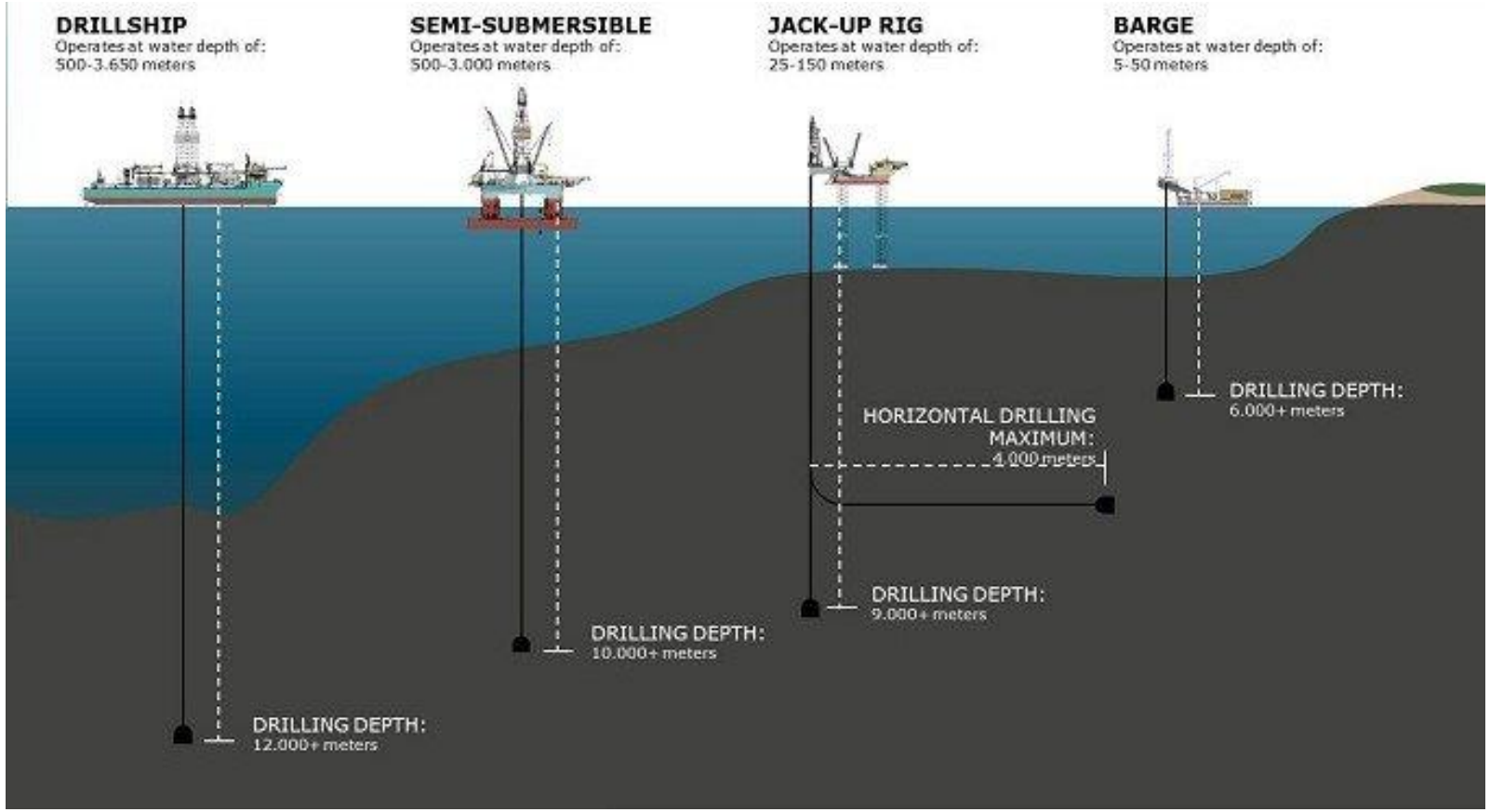
Offshore → Geothermal

The Transition: Same Disciplines – Different Energy Source

- Exploration
- Construction
- Production / Drilling Operations
- Decommissioning

Offshore → Geothermal

Exploration



GSF Arctic IV Rig © GlobalSantaFe

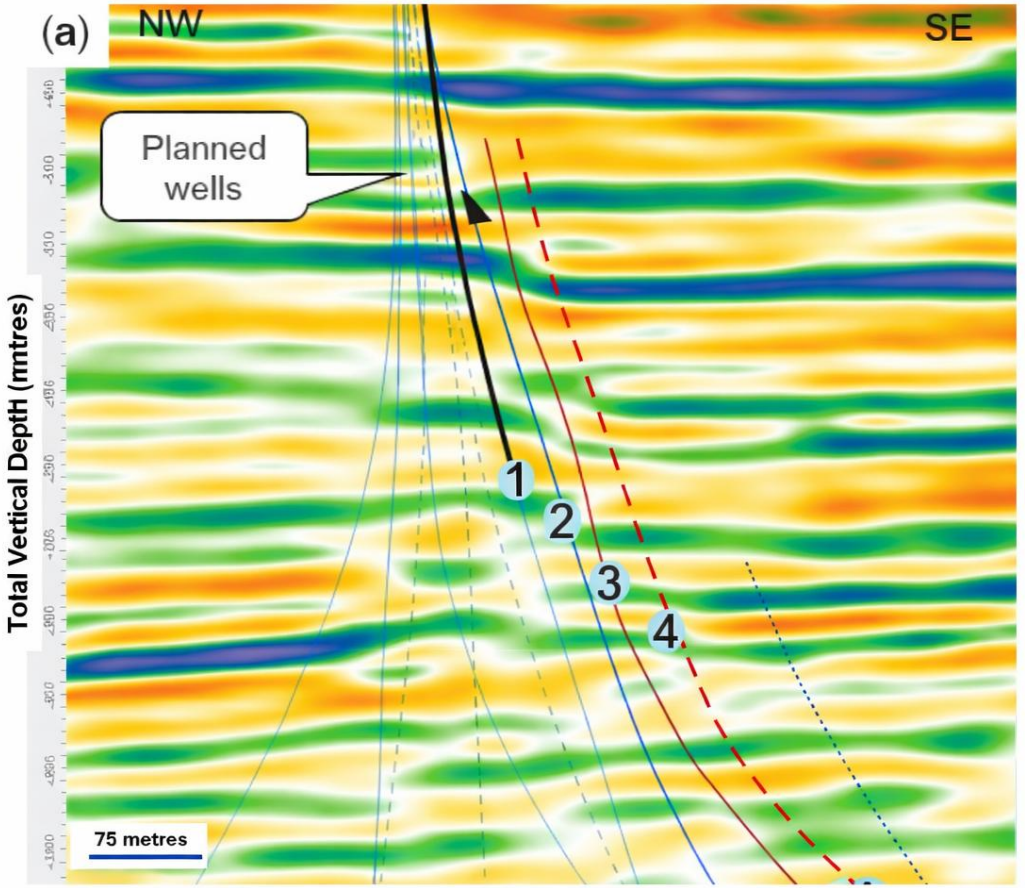
Offshore → Geothermal

Construction

Clair Ridge Platform Construction © BP KG Construction Supervisor Rotating Mechanical Equipment

Offshore → Geothermal

Drilling Operations



Clair Field structural geology and planned wells (after Ogilvie et al, 2015)

Ogilvie et al. – Structural geology and well planning in the Clair Field Geological Society Special Publication 421

Offshore → Geothermal

Decommissioning

Dunlin Platform Decommissioning © Fairfield Energy KG Technical Authority – Mechanical (Rotating Equipment)

Offshore → Geothermal

Offshore O&G Topsides ≈ Geothermal Heat Networks

Offshore O&G	Onshore Geothermal
Drilling & Exploration	Drilling & Exploration
Platform Construction	Energy Centres
Upstream Pipelines	Heat Networks

Offshore → Geothermal

Offshore O&G Topsides ≈ Geothermal Heat Networks

Onshore Geothermal	Stage of Development
Drilling & Exploration	Feasibility / Pre-FEED
**********	**********
Energy Centres	Detailed Design
Heat Networks	Detailed Design
Technical Standards	Out for Consultation
Technical Specifications	Out for Consultation
Assessment Procedures	Out for Consultation

Geothermal Heat Networks

Policy Governance

Department of Energy Security and Net Zero (DESNZ)

Energy Act 2023

GB Heat Network Regulatory Framework (pending secondary legislation)

Heat Network Technical Assurance Scheme (HNTAS)

Technical Standards

Technical Specifications & Assessment Procedures

Geothermal Heat Networks

Heat Network Technical Assurance Scheme - HNTAS

Department for Energy Security & Net Zero

"We are introducing regulatory technical requirements and a Heat Network Technical Assurance Scheme (HNTAS)

to help heat network operators demonstrate compliance with these requirements".

Heat Networks

Centralised Heat Networks

“will act as the primary technical reference point for the Heat Network Technical Assurance Scheme”

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Why Heat Network Legislation Helps

Network owners become utility-like organisations:

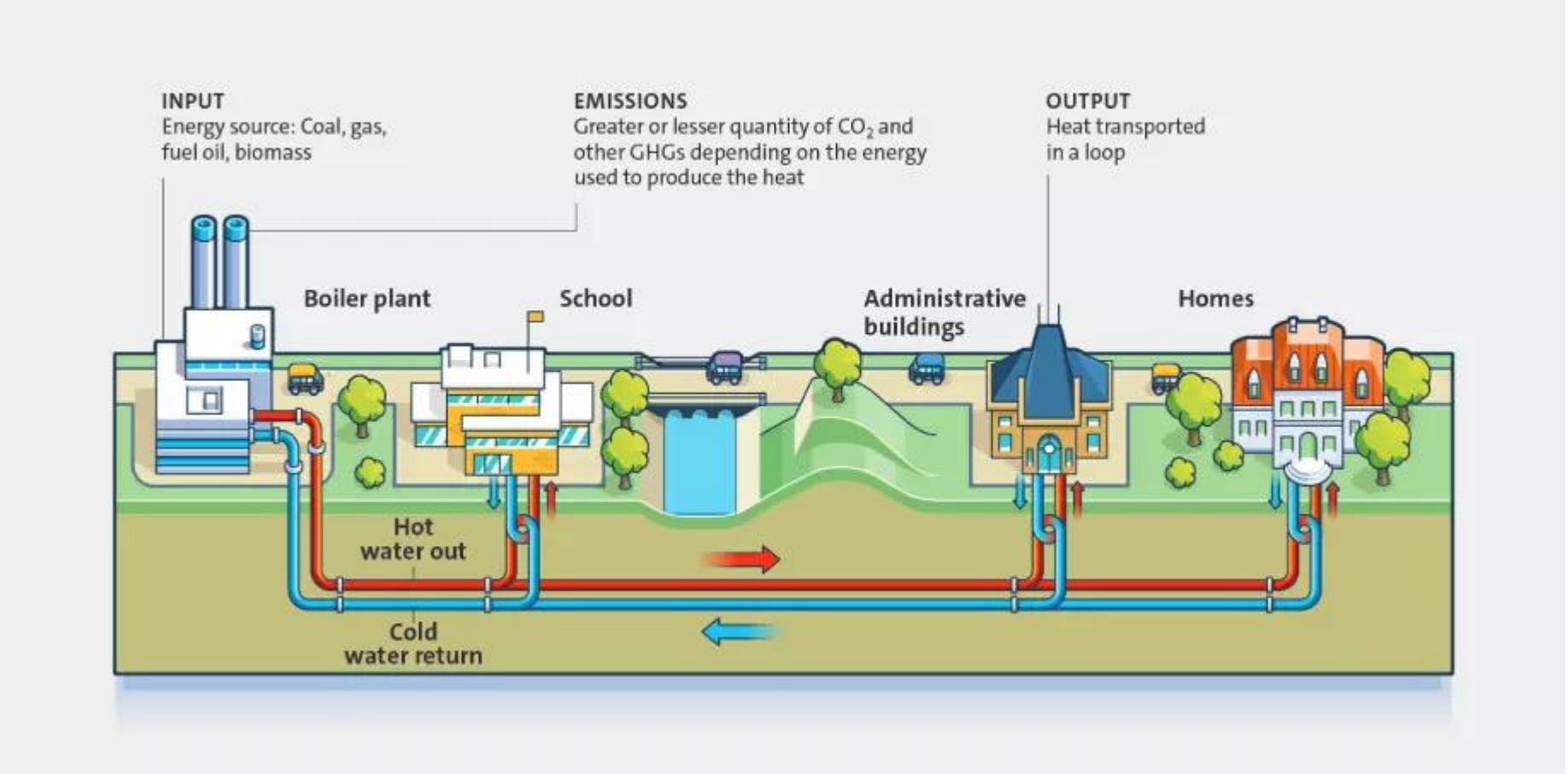
- Demand assurance for investors
- Technical performance standardised
- Consumer protection

Resulting in:

- Asset ownership baked-in
- Reduced investor risk
- Strengthened revenue predictability
- Lowered cost of capital

Heat Networks

Centralised Heat Networks – District Heating – High Temperature



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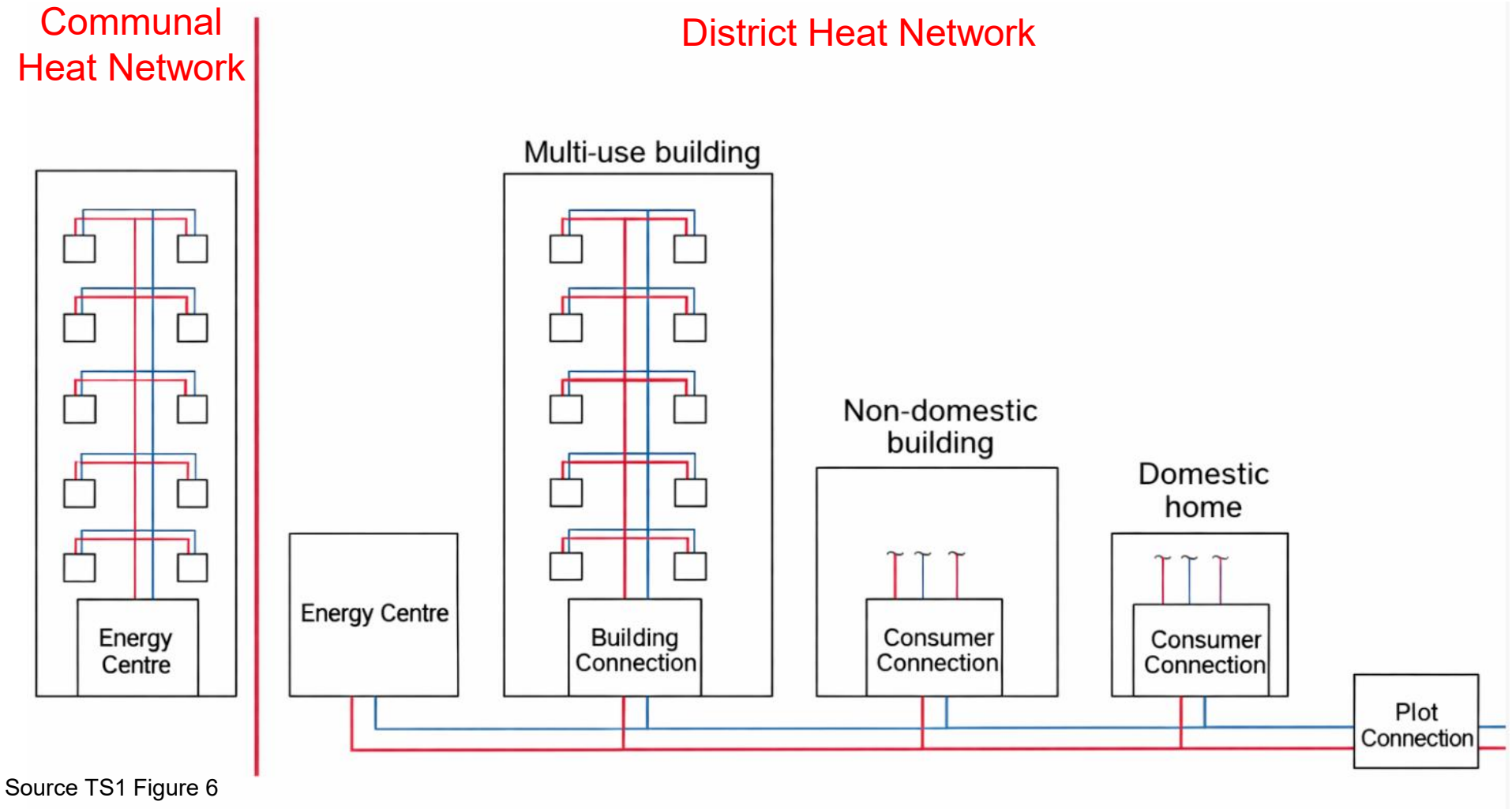
Centralised Heat Networks – District Heating – High Temperature



Source TS1 Figure 6

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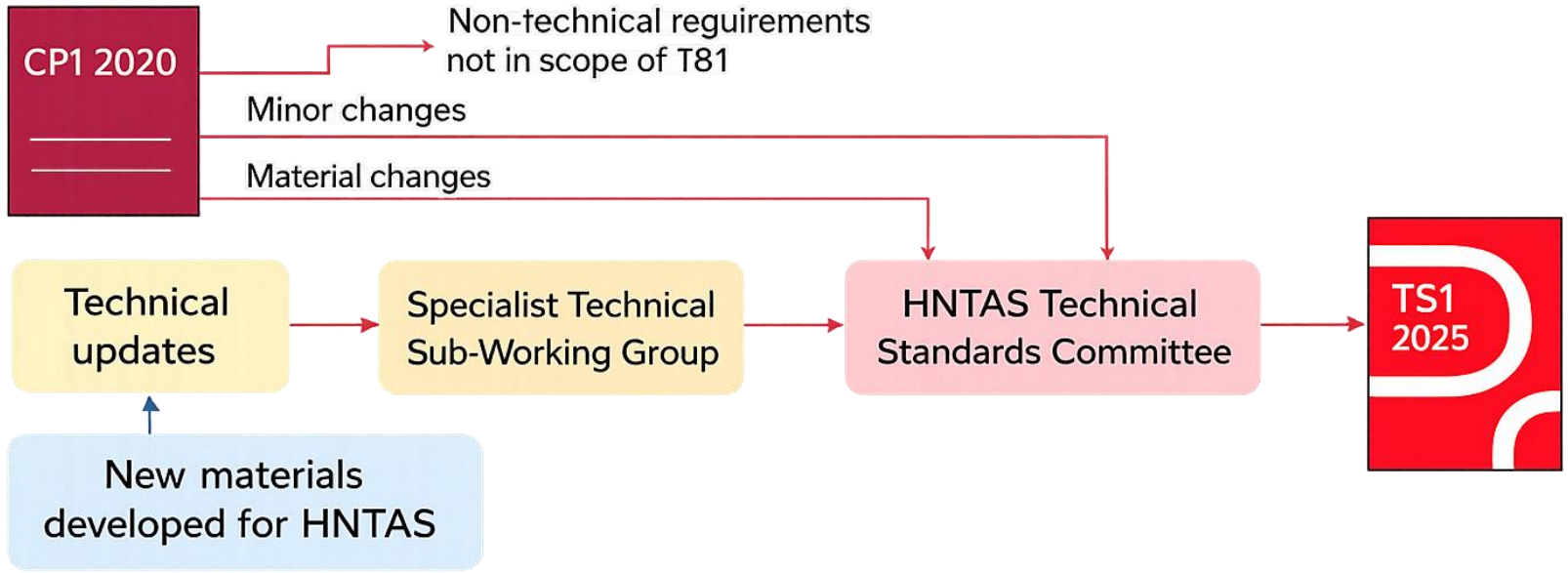
Centralised Heat Networks – District Heating – High Temperature

High-level summary of TS1 document development structure



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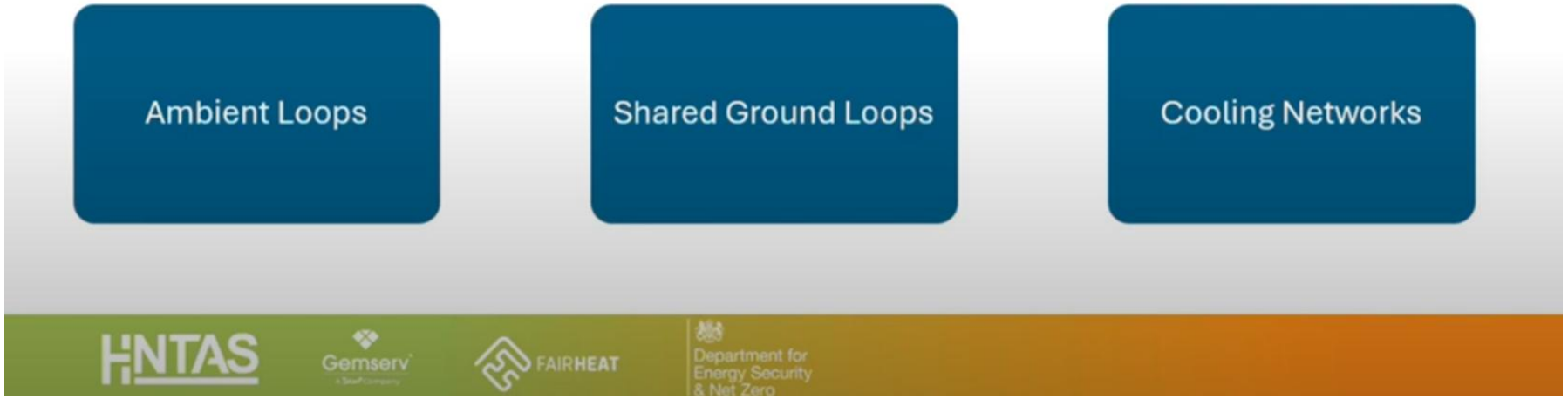
De-centralised Heat Networks – Low Temperature

Department for Energy Security & Net Zero



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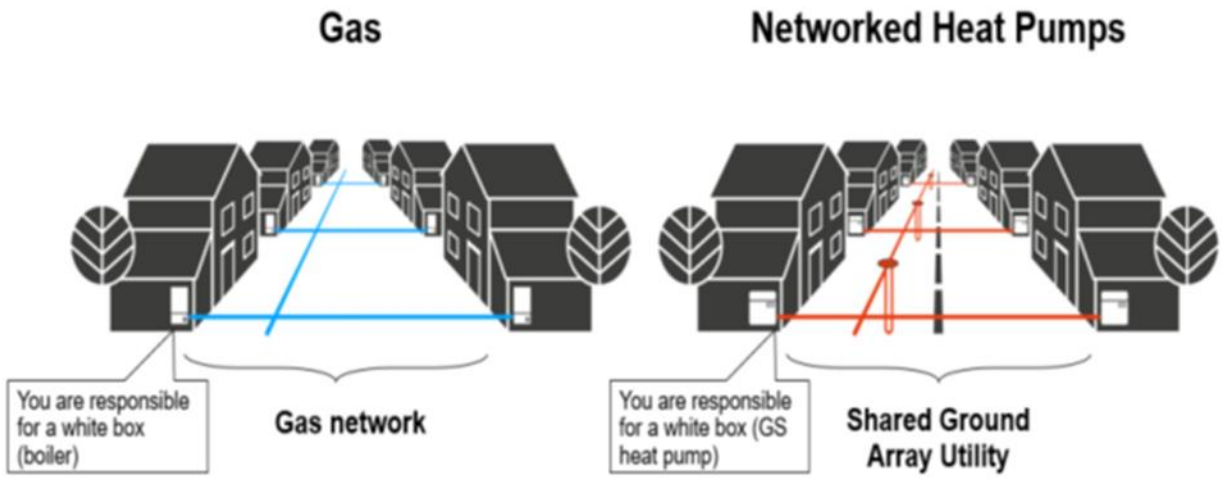
Shared Ground Loops - SGLs

SGLs to be classified as utilities in UK

Protected by consumer regulations

Fixed monthly standing charge for users

Predictable, stable heating costs



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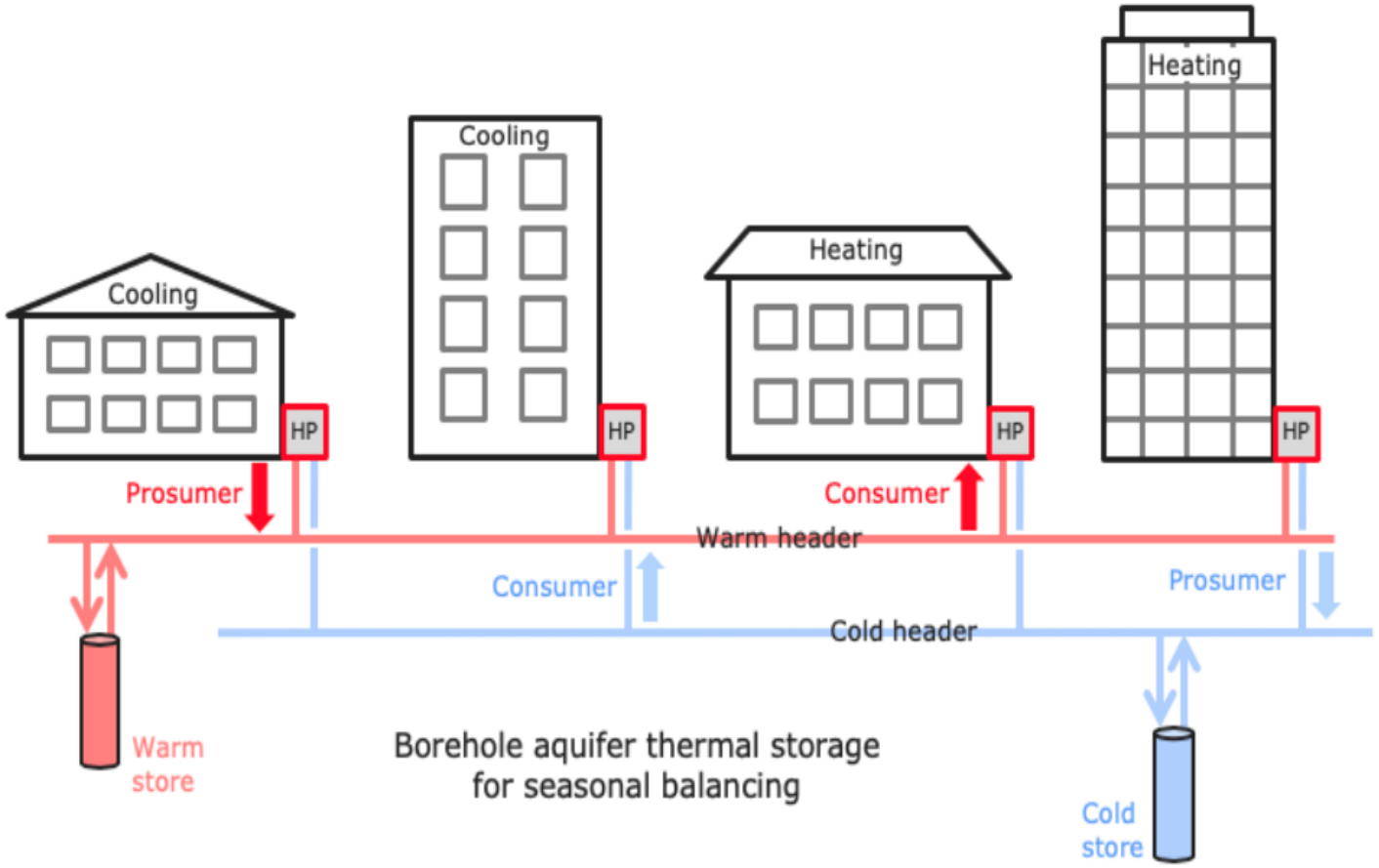
Ambient Heat Networks



Heat Networks Call to Action

What's Happening:

Legislation in development

Technical Standards being drafted

Risks to Deep Geothermal:

Legislation doesn't fit

What we are doing:

Supporting drafting of standards to achieve sound engineering practice

Lobbying to ensure policy foundations are in place to support robust technical standards