

An aerial view of an industrial site, possibly a power plant or refinery, showing various pieces of equipment, containers, and a large crane. The site is surrounded by a fence and has a dirt ground.

Turning Liabilities into Assets

Changing the way, we use Energy



What is CeraPhi?

- **CeraPhi Energy is a geothermal development company founded in 2020**
- **CeraPhi specialises in repurposing oil and gas wells to become sources of clean geothermal energy**
- **Offering asset owners, a longer lifespan for stranded non-producing oil/gas assets**
- **Mission: To provide baseload clean energy, decarbonise heat, and reach net-zero emission targets**
- **Where: Headquarters are in Great Yarmouth, with assets & operations in North Yorkshire**

Repurposing Opportunity



Millions of End-of-Life Oil & Gas Wells

Liabilities on companies balance sheet
Ultimate Responsibility is the Taxpayer
Environmental Issue

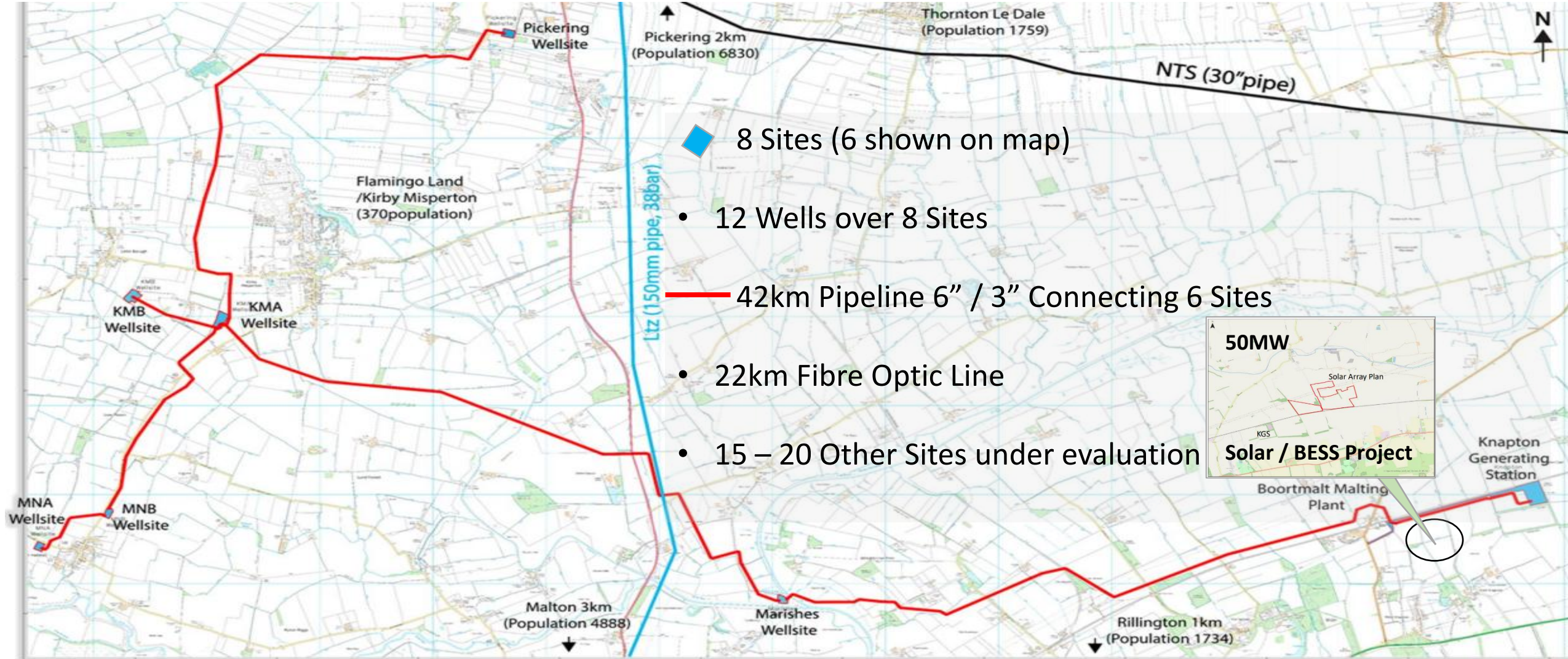
End of Life, No Value, Abandoned

Cost to Close, Zero Upside, Zero Incentive
Transfer of Liabilities
Deferring the P&A, No Capital to Rectify

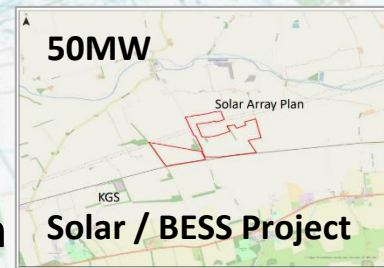
Change of usage to Clean Energy

Change of ownership
Change of usage, Re categorize Status
Supporting Energy Transition

North Yorkshire Assets

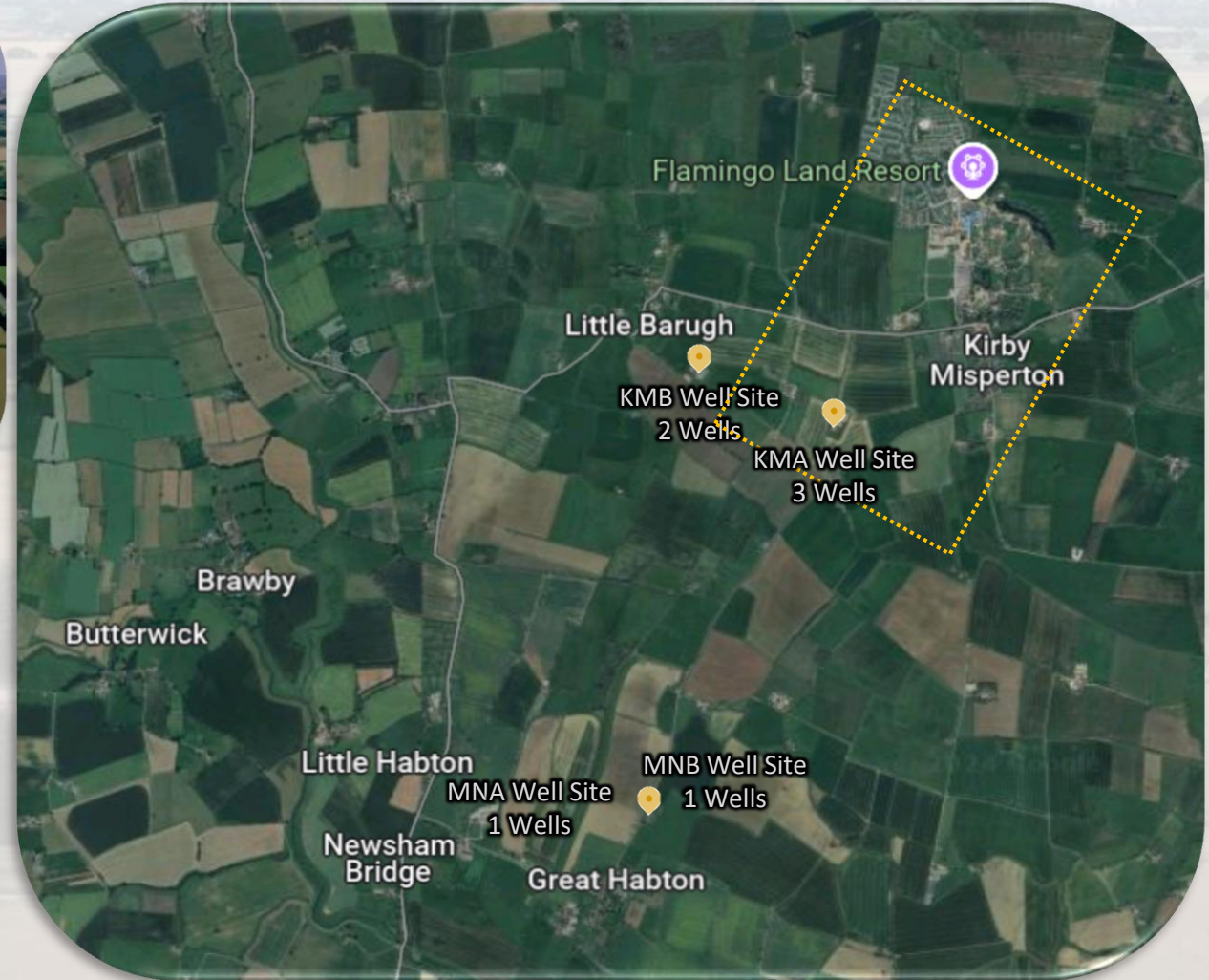


- ◆ 8 Sites (6 shown on map)
- 12 Wells over 8 Sites
- 42km Pipeline 6" / 3" Connecting 6 Sites
- 22km Fibre Optic Line
- 15 – 20 Other Sites under evaluation





- **Potential Projects for the sites**
 - Local Heat Networks
 - Rum Distillery/Cidery
 - Geothermal Centre of Excellence
 - Insect Protein
 - Mushroom Growing
 - Anaerobic Digestion

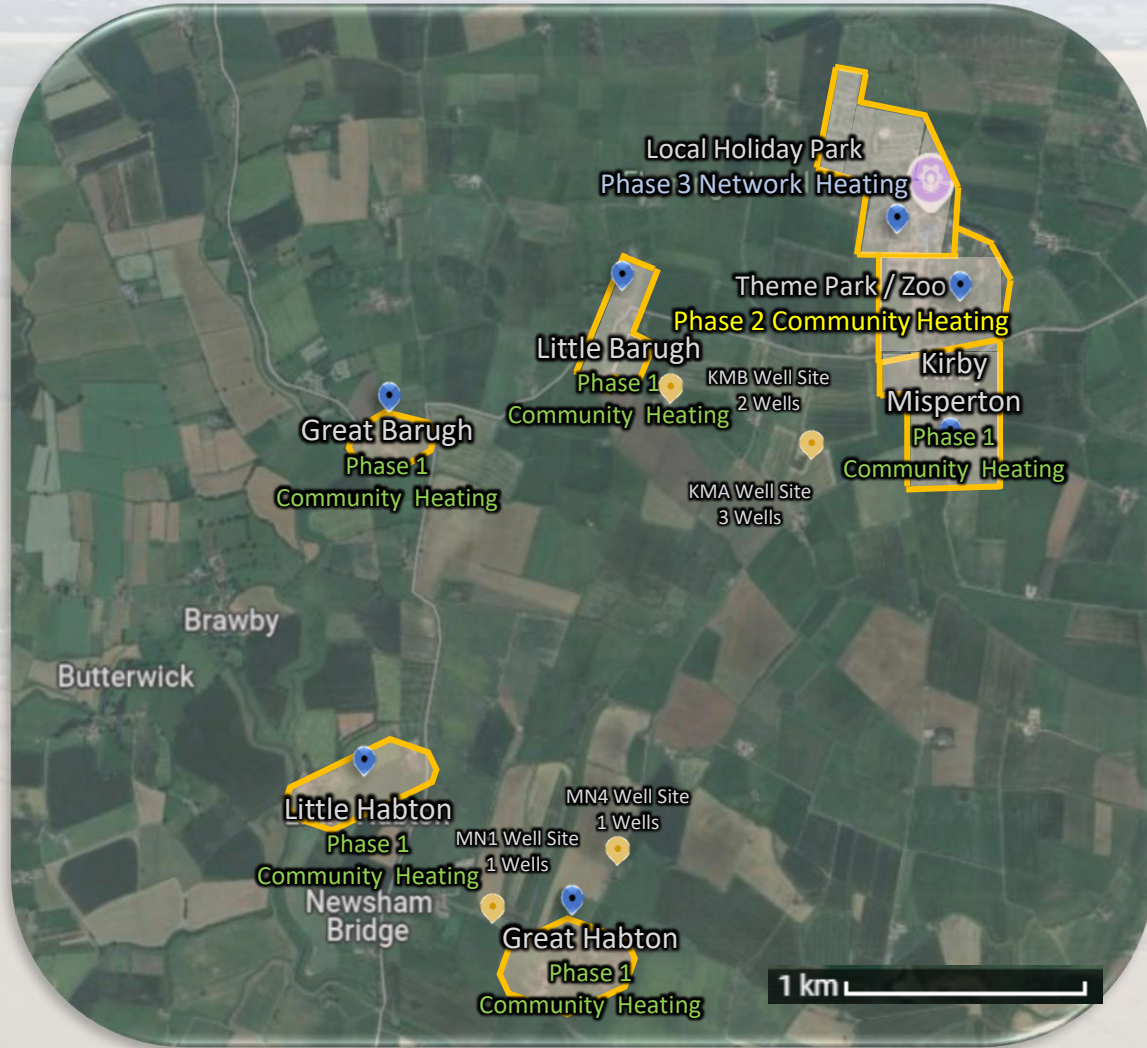


2026 Activities



- Three Geothermal Projects in the Vale of Pickering
 - Grants from the North Yorkshire Councils
1. Kirby Misperton Heat Network
 - Phase 1 - Repurposing KM8 well to the village
 - Phase 2 - Repurposing KM3 & KM7, demand dependant
 2. Pickering Leisure Centre
 - Front-End-Engineering Design
 - New Wells to supply thermal energy to heat the local swimming pool and surrounding buildings
 3. Pickering Town Centre
 - Feasibility Study
 - Local businesses and Civil Buildings
 - Pickering Church

Community Heating



Operational Stats

Phase 1

- Ambient Loop Network 20-30C°
- >600 Domestic Connections
- 3.9 GWth p.a

Phase 2

- Ambient Loop Network 20-30C°
- 2 Commercial Business Offtakes
- 5-4 GWth p.a.
- Adding Additional Wells Existing Sites

Phase 3

- Ambient Loop Network 20-30C°
- 1 Local Holiday Park
- 2 GWth p.a.
- Adding additional Wells Existing Sites

Commercial Stats

Phase 1

- 18 -24 Months
- CAPEX £18.5m
- Target LCOH £0.10p kWh

Phase 2

- 12-18 Months
- CAPEX >£30m
- Target LCOH <£0.8p kWh

Phase 3

- TBC
- Under Negotiation

- Repurposed a 550m well originally drilled for a conventional geothermal system
- Installed a dual loop system
- Built and connected an Energy Centre which houses the circulating and heat pumps



- Provided heating to two hospital buildings; one is an outpatient's centre the other an accommodation block
- New containerised Energy Centre connected
- Commissioning handover was yesterday (18th March)
- Grounds restored prior to trenching
- Producing ~45-50kW of thermal Energy

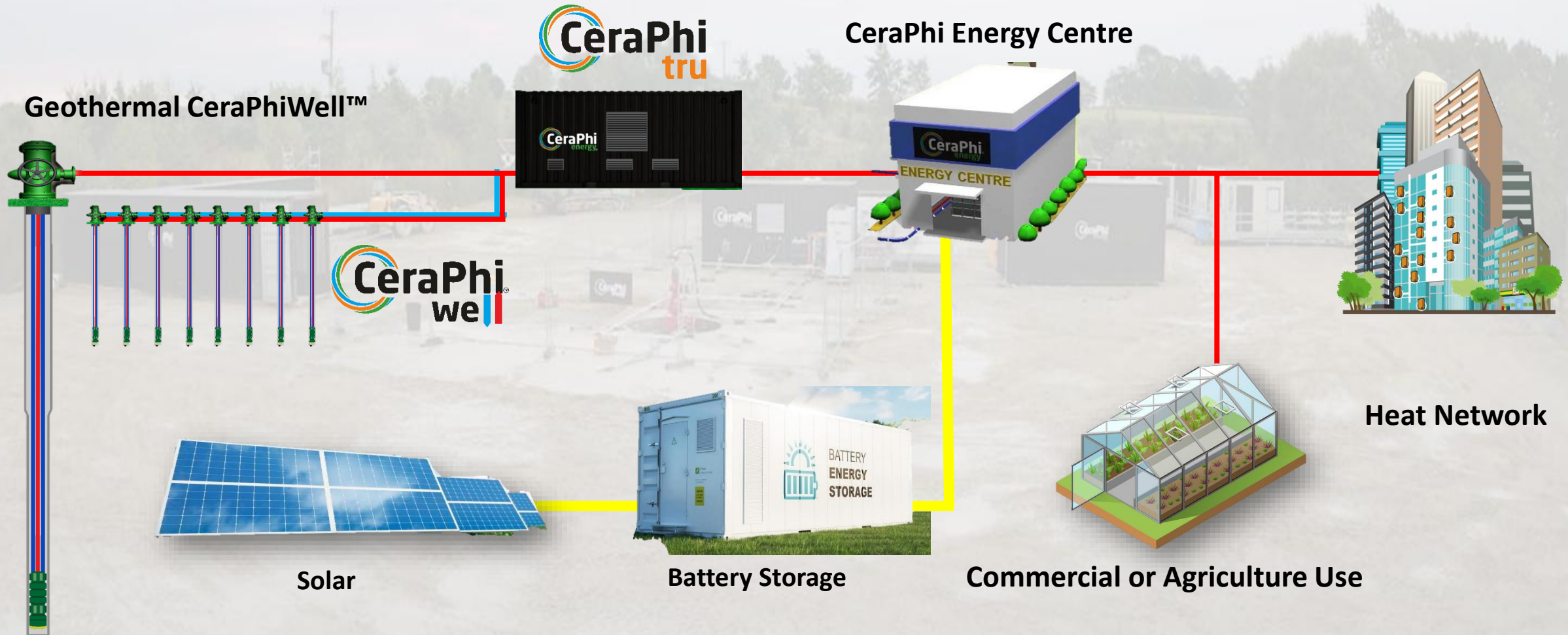
Kentwell Hall

- 16th Century Red Brick Tudor Mansion
- Insufficient heating – causing damage due to humidity and freezing
- Grade 1 Listed property restricts the amount and type of work permissible

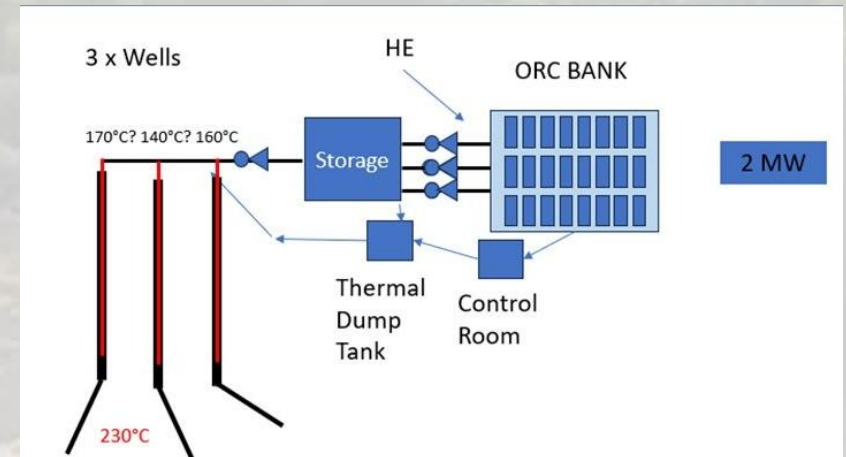


- New wells to be drilled in the estate's ground
- Increased complexity, Kentwell Hall is surrounded by a moat
- Separate temperature zones for residential and preservation
- Additional buildings, café and hire venue, to be included

Community Heating Design

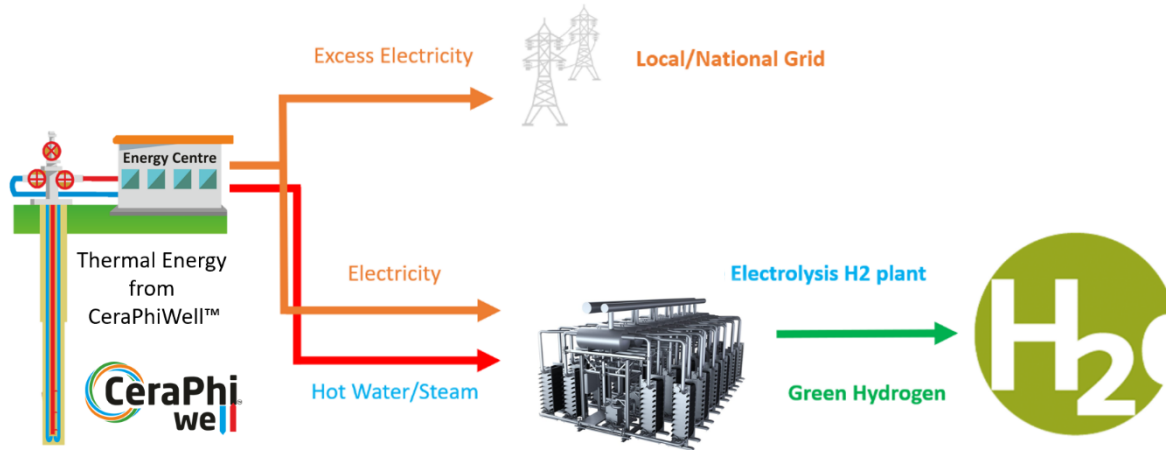


- **Government Backed Joint Development Agreement**
- **80% CeraPhi Owned SPV**
- **400 Acre Geothermal Development Licence**
- **Power Purchase Agreement for 25 Years**
- **Phase 1 - Three Wells Producing >2 MWe using ORC's**
- **Phase 2 – Additional 15 MW Power Green Hydrogen Development for Cruise Ship Industry**



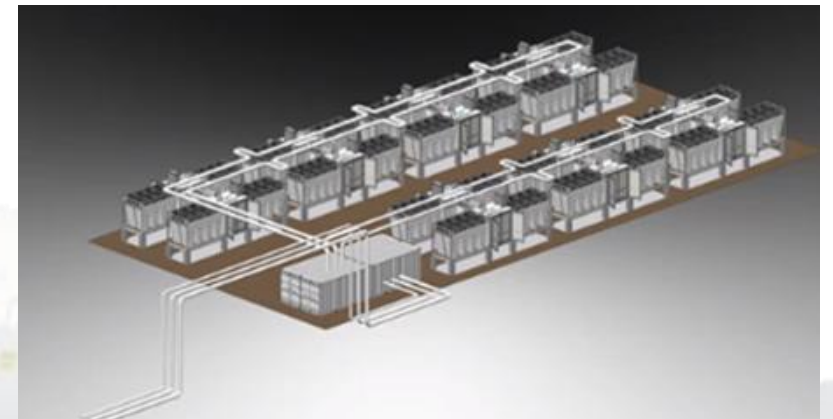
Green Ammonia / H2 Projects

Research continues to provide a 24/7 Hub for green H2 production to be located anywhere with scalable and plug and play solutions. Ongoing projects with Centrica and Manchester University.



HYDROGEN SURFACE EQUIPMENT

- Electrolyser Packages
- Gas Compression Package
- Gas Storage Plant



Footprint of 20 MW Power Plant: Approx. 40 x 60 m

SUBSURFACE

- Drilled Depth : 5 – 7 km TVD
- Temperature BHST : >200 °C
- Manifold Temperature : >150 °C
- MWe per well : >1.5

SURFACE POWER EQUIPMENT

- Heat Exchanger
- ORC Units
- Interconnection

Offshore Geothermal Pilot

2023: CeraPhi undertook a feasibility study to look at offshore geothermal in conjunction with the Net Zero Technology Centre, Petrofac and EnQuest.

Conclusion:

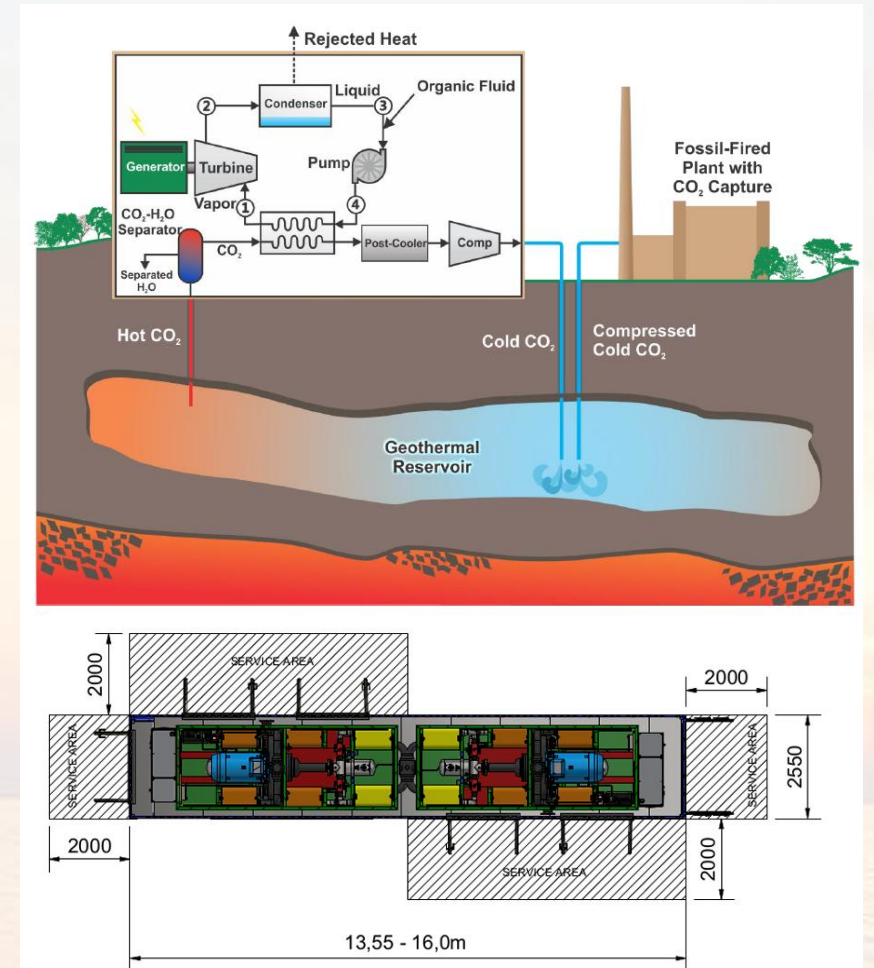
Potential energy reduction was assumed at between 10% of the Magnus demand and would be subject to design and retrofit space being available.

On the low side 2.7 MWe, generating 23,652 MWh per annum and saving 15,540 tons CO₂eq per annum.

Next Step:

Seeking collaboration to undertake a JIP Joint Industry Project to produce a pilot demonstrator from an Offshore well using both:

- Retrofit - Well Repurposing for End-of-Life Wells
- Co Production Well Implementation





Partners and Supply Chain...

1. Downhole Borehole Construction

Intervention & Workover
Casing & Tubing
Drilling Fluids & Mud
Cementing Solutions
Logging & Wireline Solutions

2. Topside Equipment & Technology

Heat Exchangers
Geothermal Pump
Binary Cycle & ORC Turbine
Wellhead & Valve

3. Infrastructure

Piping & Insulation
Heat Transfer Fluid
Heat Distribution Substation
Smart Metering & Monitoring

4. Power Generation & Grid Integration

Electrical Equipment & Transformers
Control & SCADA Systems
Solar Battery Storage
EPC Contractors
Pipeline & Civil Contractors
Facility Construction



Partners and Supply Chain...

6. Environmental & Permitting

Environmental Impact Assessment (EIA) Consultants –Planning
Regulatory Compliance & Legal Advisors

7. Financing & Investment

Green Energy Investment Partners
Carbon Credit & Renewable Energy Certificate (REC) Traders

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