

Geon Energy

Potential for the installation of a Deep Geothermal Single Well at the new Aberdeen Exhibition and Conference Centre

All Energy 2016
Ryan Law - Director

www.geonenergy.com



Partners and support

GEL

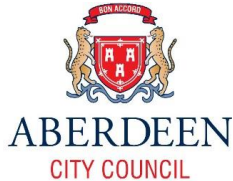
Geothermal Engineering Ltd



University of St. Andrews

ARUP

Ove Arup and Partners



Deep Geothermal Single Well (DGSW)

Aberdeen Exhibition and Conference Centre

Feasibility Report for the Low Carbon Infrastructure Programme (LCITP)

February 2016

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Low Carbon Infrastructure Transition Programme (LCITP)

Geon Energy – Introduction

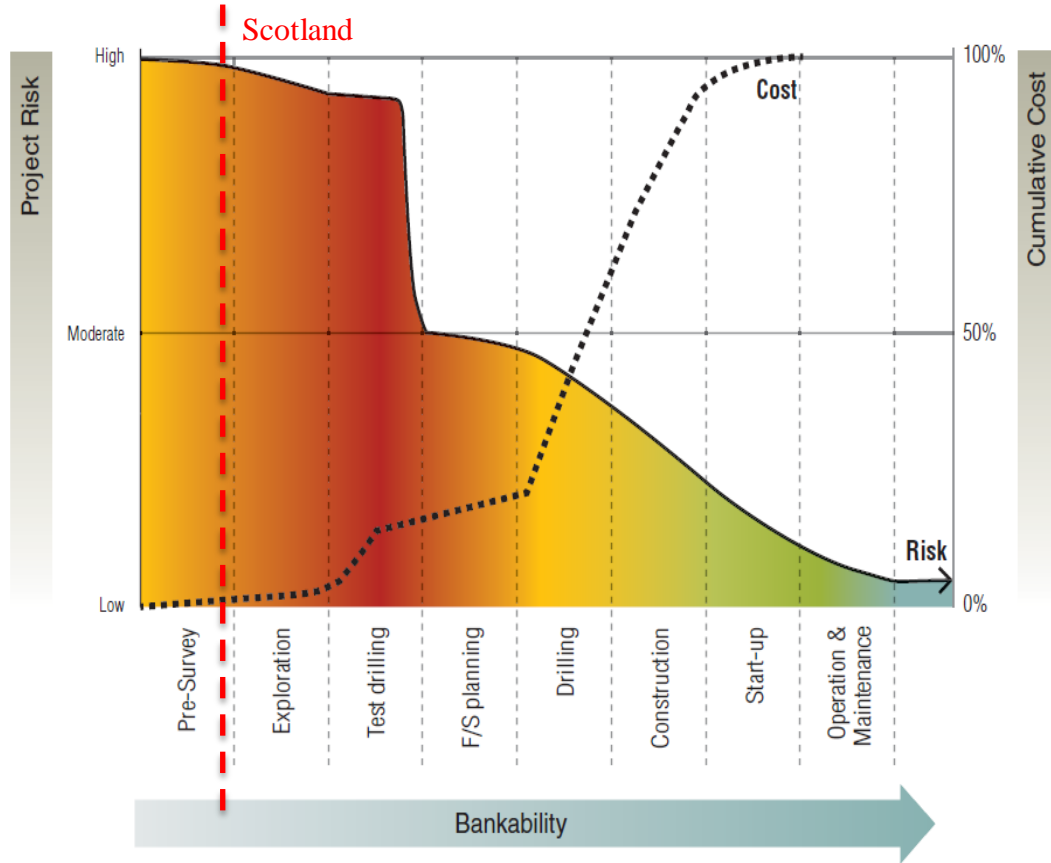
Joint Venture between Ove Arup and Partners Ltd and Geothermal Engineering Ltd

- Formed in 2016. Aim to roll out deep geothermal heat projects in the UK. Currently working to develop projects across the UK.
- www.GeonEnergy.com

- Small developers in the UK have not been able to realise projects
- Geothermal development requires cash flow
- Developer of heat projects needs to be able to mix geological expertise with building/ heat network integration/ contractual and legal knowledge along with financial credibility for long term Heat Purchase Agreements
- Need to work across the UK with local authorities and building owners/ developers

- **ARUP**: Firm of more than 12,000 engineers, > £1bn turnover, staff in 92 offices across 40 countries
- **GEL**: Award winning start up firm, geologists, well design experts and engineers

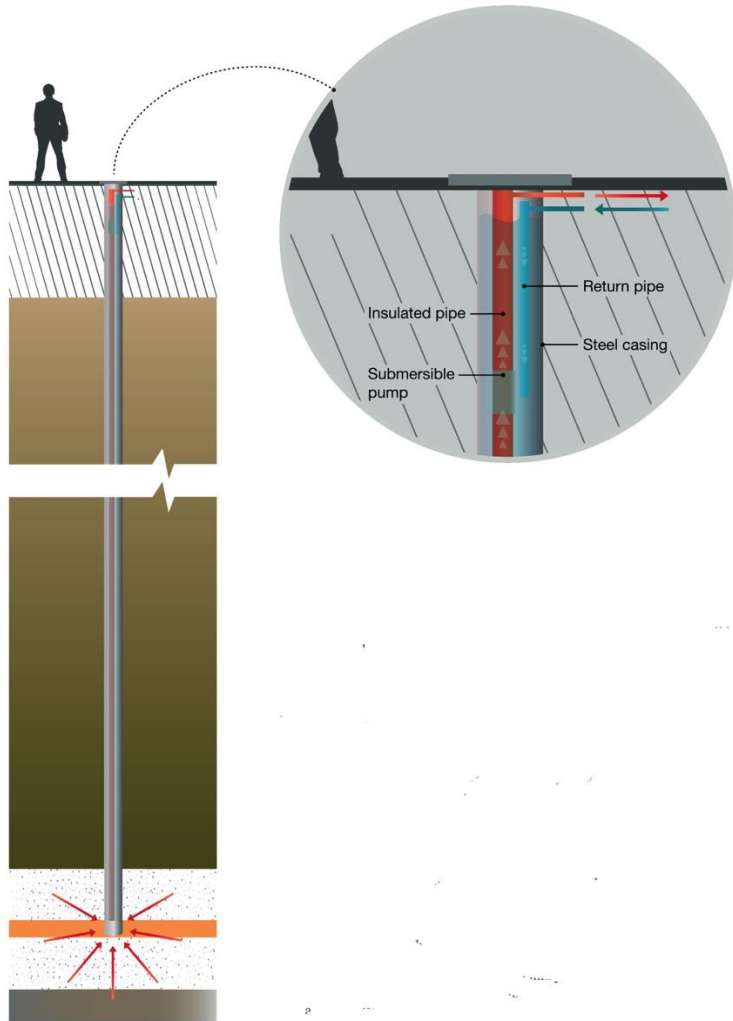
Why is there no geothermal heat supply in Scotland?



- **Risk/ Return**
- Lack of on-shore data at depth
- Cost of deep drilling in hard rock
- “Fracking” in urban areas?
- No licence structure or heat ownership
- Lack of existing heat networks

How to move forward with geothermal in Scotland

- Reduce risk – drill wells and gather data
- Reduce cost – early stage projects need to be simple and low cost
- Drill wells and actually supply some heat to attract investors and prove that systems can work
- Show the community that geothermal drilling and heat supply is beneficial
- Do not “frack”/ stimulate/ inject into rock under pressure for early stage projects – need to keep the public on side
- Control drilling contracts and costs to avoid high profile failures
- Do not over promise for early stage projects



“Single Well” Technology

Reduced technical risk – not relying on enhanced permeability

Single well reduces cost (suitable for early stage projects)

Even if no permeability encountered, heat can still be supplied and topped up with a GSHP

Suitable for single end users with small heat networks (circa 0.4MWth).

Reduced complexity of HPAs (single owner). Ownership of heat is clear.

Low flow rates required

No “fracking”, no risk of induced seismicity through water injection

System trialled in 2014 via a DECC funded project Geon Energy

New AECC site



Proposed DGSW location

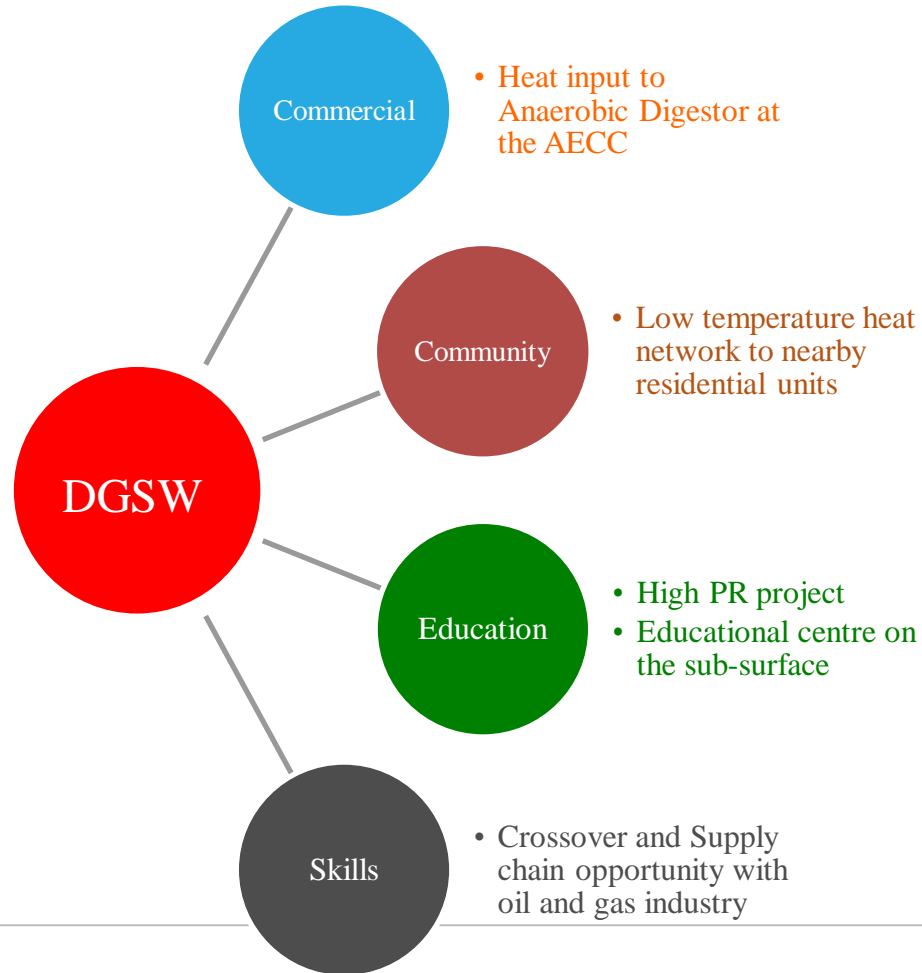
Heat supply to AD unit

Return flow to well

Return from AD unit

Heat supply to dwellings

Why the AECC?



The AECC is an opportunity to move the deep geothermal industry forward in Scotland



- Generate public interest
- Increase community trust
- Improve public understanding of technology and sub-surface
- Deliver heat – demonstrate deliverability to public and investors
- Kick start deep geothermal heat industry by starting ‘small’

The next steps are to achieve all permitting and agreements, drill a Deep Geothermal Single Well at the site and demonstrate the complete system.

Website: GeonEnergy.com

Email: info@geonenergy.com