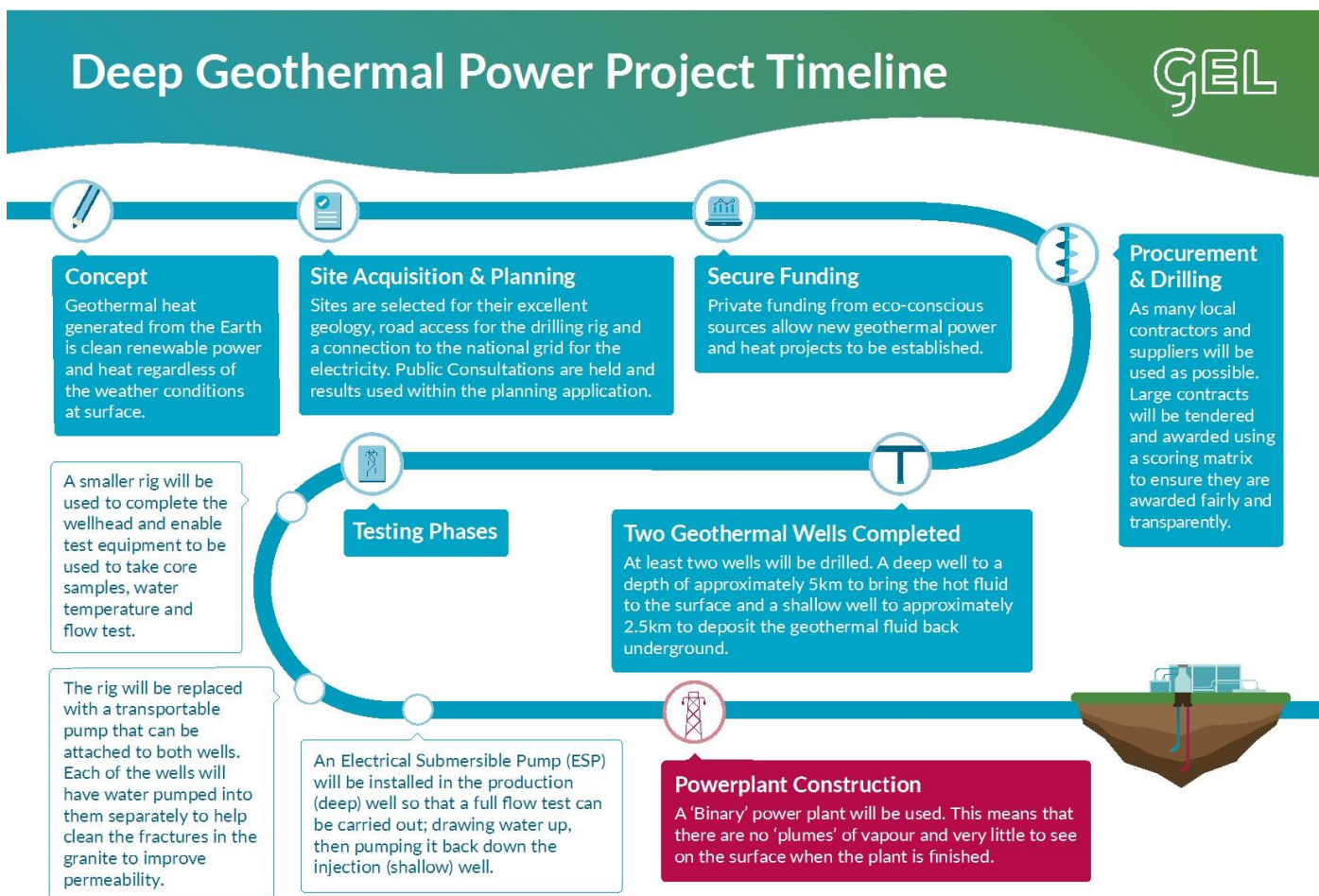


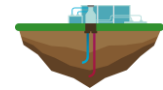
Introduction

Geothermal Engineering Ltd (GEL) is the developer and operator of deep geothermal power, heat and lithium extraction projects. Founded in 2008 by Dr Ryan Law, his vision was to produce clean, green, sustainable power from the natural heat stored just a few kilometres below the surface of Cornwall. After many years trying to raise funds a European Regional Development Fund (ERDF) grant was awarded along with funding from Cornwall Council, Thrive Renewables and some private Investment, the United Downs Deep Geothermal Power project started in 2017 with planning consent being granted and ground works beginning. Drilling of the deepest and hottest Well in the UK commenced in 2018 followed by a shallower well. The drilling phase was completed in the summer of 2019 with an impressive zero accidents or incidents occurring. Since the Wells were drilled, there have been many world events that have delayed the project. Firstly, the Covid-19 Pandemic, which caused multiple lockdowns over a 2-year period, next came the war in Ukraine and then the troubles in the Red Sea, causing shipping diversions. Throughout all these challenges, GEL has kept going and in early 2024 groundworks started for the installation of the first UK geothermal power plant. Electricity production onto the National Grid is expected late 2024/early 2025.

Geothermal Project Timeline



A geothermal power project should take approximately 3 years from braking ground to generating power (providing there are no major world events).



Electricity generation, output in MW, total annual in MWh

Site Name	2024 Status	Max power output 3Mw	Max power output 5Mw	Est max annual electricity output
United Down	Power plant under construction	✓		26,000 MWh
Manhay	Planning permission granted		✓	43,000MWh
Penhallow	Planning permission granted		✓	43,000MWh
Tregath	In planning process		✓	43,000MWh

Further sites are currently being considered and will be announced as they progress into the planning process, all will be approximately 5Mw power plants.

Geothermal Power Plant Lifetime Expectancy & Decommissioning

In the UK binary otherwise known as Organic Rankine Cycle (ORC) power plants are installed, this kind of system requires at least 2 Wells to be drilled one to bring the hot geothermal fluid to the surface and the other to deposit the cooled fluid back underground to percolate through the Cornish granite to reheat. Similar power plants in Europe have been in operation for 50 – 60 years, so it is not foreseen that the UK will be different. Planning applications include a decommissioning plan where the land is returned to its original state.

Planning Procedure

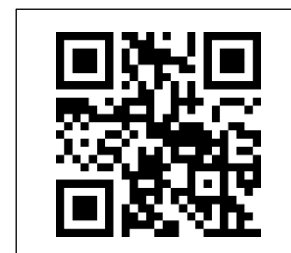
A geothermal power plant planning application not only has details of the drilling phase and the completed power plant, numerous assessments are also included such as ecological, archaeological, highways, visual impact and noise. These are then scrutinised by experts and feedback is given to the planning department. GEL prides itself on comprehensive community and stakeholder engagement working with local town and parish councils and those who live, work and are educated in the area close to a prospective geothermal power project. Feedback from all of these demographics is assessed and where appropriate amendments are made to the planning application. This process can be time consuming, however, GEL acknowledges that it is a worthwhile and productive process and helps gain local authority and community support.

Visit the United Downs Geothermal Project Site

GEL has a dedicated visitor room which can accommodate between 10 - 35 people for group talks and presentations including school visits. The roof of the room is a viewing platform for a birds-eye view of the 1st UK geothermal power plant. If you would like to book a group or school visit, please contact community engagement and education (email address below). Alternatively, look out for our public open days, which are free and family friendly.

Find out more

If you would like to know more about geothermal projects in Cornwall, take a look at our website <https://geothermalprojects.info/> follow us on social media (see below) for up-to-date information. If you would like to contact GEL, email Jane Charman – Community Engagement & Education Manager j.charman@geothermalengineering.co.uk



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