



EXERGY AND GEOTHERMAL ENGINEERING LTD. (GEL) SIGN CONTRACT FOR UK'S FIRST DEEP GEOTHERMAL POWER PLANT

- ***Located in Cornwall, at the United Downs site, the power plant will start producing 3 MWe by late 2024 to deliver renewable baseload power to help meet local net-zero targets.***
- ***This new order raises the Exergy portfolio to over 500 MWe total capacity and consolidates its position as the second leading geothermal binary system provider worldwide.***

Olgiate Olona, Varese (Italy), United Downs Cornwall (UK) xx April 2023 – Exergy International srl, a global provider of new generation Organic Rankine Cycle (ORC) power plants, and Geothermal Engineering Ltd. (GEL), the UK's leading developer and operator of geothermal plants, signed a contract for the supply of a 3 MWe gross capacity ORC power plant at the United Downs site, in Cornwall. This represents the first integrated deep geothermal project in the UK which will deliver by late 2024 around 3 MWe of baseload renewable electricity and up to 10 MWth of zero carbon heat for a large housing development at Langarth Garden Village, a project being developed by Cornwall Council.

The turnkey EPC contract awarded to Exergy will include the design and engineering of the ORC system, the manufacturing of the equipment and the erection of the power plant. Exergy's technology will utilize the highly efficient Radial Outflow Turbine to produce electricity exploiting the heat of the geothermal fluid. The condensing system chosen is air-cooled to avoid any water consumption. Being a closed loop cycle, the power plant will not release any vapour into the atmosphere and will have a small footprint and minimal visual impact. The system will be delivered in 18 months, with commissioning of the plant expected by late 2024. Once in operation, this installation will save more than 6,500 tonnes of CO₂ emissions per year compared to the production of conventional fossil fuel power.

Luca Pozzoni, General Manager of EXERGY INTERNATIONAL commented: *"We are excited to embark on this journey with GEL. The United Downs project will be a milestone in the development of the geothermal industry in the UK and will give us the valuable opportunity to contribute with our technology and expertise to kick-starting geothermal power generation in the country. Under a structured long-term agreement with GEL, we will be able to partner for the development of future geothermal initiatives to unlock Europe's largely untapped geothermal potential and support the decarbonization of our energy systems."*

Ryan Law, CEO of Geothermal Engineering Ltd, said: *"Geothermal heat is an untapped renewable resource with the potential to provide huge amounts of energy-efficient and carbon-free electricity and heat. Exergy is well known globally for their competence in the binary geothermal power sector and we are very pleased to be working with them on this landmark project in Cornwall. Our long-term agreement with Exergy will also enable us to develop a number of additional projects both in the UK and abroad."*

GEL and Exergy's partnership

The United Downs power plant is expected to be the first of many projects to be developed under a partnership and cooperation agreement signed between Exergy International and Geothermal Engineering Ltd. (GEL).

United Downs Geothermal Project

The United Downs Deep Geothermal Power project will be the home of the first geothermal power plant in the UK. The geothermal site, located near Redruth in Cornwall, utilises the naturally heat producing granite which underlies most of Cornwall. Two deep, directional wells have successfully been drilled for the purpose; the production well to a measured depth of 5,275m – the deepest onshore well in the UK - and the injection well to 2,393m. The naturally-heated geothermal fluid will be pumped to the surface, passed through the power plant to produce electricity, then returned underground via the injection well (Fig.1) where it will percolate through the granite to reheat. This process means that geothermal energy produces clean, green power with no waste product.

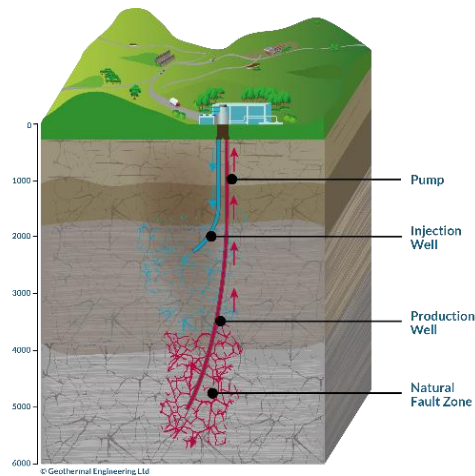


Fig 1 – GEL’s novel geothermal doublet with a deep production well and shallow injection well.

Organic Rankine Cycle geothermal power plant – How it works

An ORC or binary power plant consists of a closed loop cycle which extracts the heat of the geothermal fluid coming from the production well, transferring it by means of heat exchangers to an organic fluid. The organic fluid is first heated in the preheater and then vaporized, absorbing the heat from the geothermal fluid. After being superheated, the vaporized fluid drives a turbine coupled to a generator to optimize the production of electricity. The vapour exhaust returns to liquid state through a condenser, thereby retaining the organic fluid within the closed loop system.

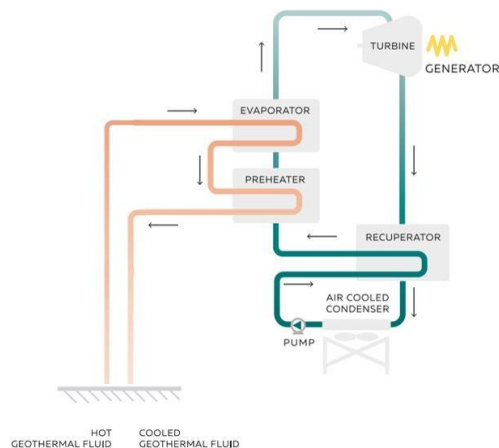


Fig. 2 - Binary ORC power plant



ABOUT EXERGY INTERNATIONAL SRL

EXERGY INTERNATIONAL Srl is a leading provider of clean energy technologies, expert in the design, engineering, manufacturing of Organic Rankine Cycle (ORC) systems with the pioneering Radial Outflow Turbine. EXERGY's technologies, covered by several patents, allow for highly efficient energy production via the exploitation of heat sources from geothermal, waste heat from industry, biomass and concentrated solar power. EXERGY portfolio counts around 500 MWe and the second largest geothermal binary fleet worldwide. From the headquarters in the north of Italy (Milan), EXERGY export and implement its technology worldwide with a particular focus on high growth potential markets. Website: <https://exergy-orc.com/>

ABOUT GEOTHERMAL ENGINEERING LTD

Geothermal Engineering Ltd was founded in 2008 with the aim of harnessing geothermal heat and power in the UK. The company acts as both Developer and Operator of geothermal projects, using 21st century techniques to tap into the ancient resource of geothermal energy. GEL has always had a vision to use the geothermal resources beneath our feet, no matter where in the world, for zero carbon electricity, heating and cooling. A company built by a group of like-minded people who believe in sustainability and that geothermal should fill the gap for 24/7 renewable energy production, regardless of the weather. The GEL team mesh together many years of experience with young fresh ideas, enabling innovative, productive, and successful projects.

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