



EnerGeo Newsletter

Count Down Net  Carbon

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CEO Message:

The Future is Geothermal!

Karl Farrow
- CEO CeraPhi® Energy

Welcome to the summer and the second half of 2023!!

It's a very exciting time because we're witnessing a shift from table-top discussions on geothermal to action. The shift is perceptible to the public, government, investors and to industry.

We're currently seeing several developments. The Eden Geothermal Energy Project, providing baseload heat to its biomes, has been launched. Eavor are currently planning their Eavor-Loop Project at their Geretsried site in Germany. The United Downs Deep Geothermal Power Project has secured capital to start construction in Cornwall.

As for CeraPhi, I'm delighted to say that we've arrived onsite at our Yorkshire Demonstrator, in the Vale of Pickering. We're now on track to have the site open and in full demonstration mode by early September. This project is very important to us since it's a visual demonstration of the benefits of deep geothermal. It's easy for many to overlook geothermal as a clean baseload energy source since the magic happens underground and out of sight. The demonstrator will create a visual access point for the public and industry, showcasing what a deep geothermal well can provide by way of commercial scalable energy. Our hope is to show the versatility of geothermal and the many ways it can support efforts to decarbonise energy, providing energy security for everyone, everywhere.

Rystad Energy "Geothermal Market Outlook" Report

According to the Rystad Geothermal Market Outlook Report released last month, there is an expanding scale of opportunity within the geothermal sector, particularly in the heat sector.

Geothermal heating market has been experiencing notable growth in recent years and it shows no signs of stopping. It has a projected cumulative annual growth of approximately 7.6% towards 2030.

Asia is now the leading region in the geothermal power market. Indonesia, with an installed capacity of 2.4 GWe is the world's second largest producer of geothermal energy, only eclipsed by the US. By 2030 the anticipated installed capacity for geothermal power generation is estimated to reach close to 32 gigawatt-electric (GWe) globally - nearly double the installed capacity of 16.9 GWe today.

Europe is home to over 10,000 district heating networks. Many of these rely on fossil fuels such as coal and natural gas as a primary energy source. There is an obvious opportunity for geothermal to play a larger role in the European heating market. Countries are scrambling to secure fuel supplies to weather cold winters. Plus, there is an increased push for decarbonisation. Together this means that interest in geothermal could see a huge rise in the European heating market, providing emissions-free and reliable heat to homes and buildings.

Rystad Energy anticipate that in 2023 there will be a significant increase on expenditure on geothermal projects. Indeed, estimates are that it will hit a record high of \$1.1 billion.

Dig Deep Report:

The Dig Deep report came out in May highlighting key government findings and an acknowledgement that geothermal has a place in our energy mix. The report acknowledges that geothermal can play a significant role in the decarbonisation of energy in the UK as an unlimited baseload energy source. The report found that:

- Deep geothermal heat and power is an established renewable energy technology
- Many countries in Europe with comparable geology have well developed deep geothermal sectors including France, Germany and the Netherlands
- The greatest potential in the UK is for developing deep geothermal heat
- There are strong overlaps between those areas with high potential for realising deep geothermal heat and areas in need of levelling up
- Given the similar skill sets and techniques used, a UK deep geothermal industry can support the North Sea transition

- In contrast to comparable countries, government support for developing the industry in the UK is limited

This is a significant shift from where we were 12 months ago. Hopefully this inspires confidence that this space is growing, that it's scalable, and that it will be very profitable long-term.

In Conclusion...

There are reasons to be optimistic as we enter the second half of 2023. There is growing acknowledgement of the important role that geothermal can play in reaching net zero. There are positive projections for the growing geothermal heating market. We can see action on the ground taking shape and increasing awareness of what geothermal is and the opportunities it provides. For now, we keep momentum going and keep working hard to ensure that geothermal can realise its great potential.

Industry

Expert

Andy Wood contributes to GeoConvention in Calgary

In May, the Geoconvention in Calgary highlighted CeraPhi Energy's potential for helping small, remote communities.

Catherine Hickson and Emily Smejkal of Terrapin Geothermics discussed the challenges of sourcing energy solutions for remote settlements. They spoke of Nahanni Butte, a small community of under 100 people in the northwest territories of Canada. The community's electricity needs are currently powered by a diesel generator. Oil fired furnaces, oil fired hydronic systems, and combustion of wood are heating sources. Remoteness and hostile weather conditions make these settlements very difficult to reach. They are accessible only by ice-road at certain times of year. This makes their diesel generated electricity amongst the most expensive on the planet.

The team evaluated geothermal energy as a way of increasing energy stability and reducing carbon emissions. They found that whilst geothermal gradients are favourable, the local geology does not meet open loop geothermal solution requirements. The geoscientists at Terrapin concluded that a CeraPhiWell™ would be a better solution.

The Nahanni Butte study is a wonderful example of how geothermal can answer many energy problems. Often, it's just about finding the right size solution for each case. We anticipate geothermal - and specifically the CeraPhiWell™ - helping many remote communities in the years ahead.



CeraPhi Energy referenced in Rystad Energy's Energy Transition Report

'CeraPhi Energy were celebrated in the Rystad Energy Transition Report for acquiring further funding.

The **report** noted that "CeraPhi Energy was also awarded funding for a study to demonstrate their proprietary CeraPhiWell™ technology to extract geothermal heat from the offshore Magnus Platform, operated by BP in the UK.



Global Update



Our CEO travels to Washington for Geothermal Capitol Hill Day

CeraPhi Energy represented the UK in Washington, D.C. on June 5-6 as part of the inaugural global Geothermal Rising event, Geothermal Capitol Hill Day. The event was co-hosted by Geothermal Rising, Project InnerSpace, HEET and the Texas Geothermal Energy Alliance.

Karl Farrow attended the event, which was an opportunity for geothermal energy leaders to rally together to educate, inform, and share insights with key policymakers, think tanks, and regulators, in Washington. The hope is that thought leaders on geothermal can share policy solutions to empower the geothermal industry in the clean energy transition.

There was a wide array of topics on the table, such as the scalability of geothermal energy, providing market security and encouraging commercialisation. There was plenty of input from industry representatives and over 50 congressional delegations representing a large proportion of US states attended the event.

CeraPhi Energy was incredibly excited to be part of the fruitful discussions and looks forward to future iterations of the event.

Our Commitment to ESG

Ceraphi published first ESG report

In May, CeraPhi Energy published our first Environmental, Social, and Governance (ESG) Report. ESG is embedded in everything CeraPhi does; our mission is to help the world achieve net zero whilst caring for people and the planet in fair and ethical ways.

The report represents an important milestone in our commitment to transparent and responsible business practices. In it we provide a comprehensive overview of CeraPhi Energy's sustainability approach, highlighting our core values, strategic initiatives, and main achievements throughout 2022. We recognize the importance of aligning our business practices with the United Nations' Sustainable Development Goals (SDGs) and have integrated our contributions towards these goals into our report.



We are proud to share this report which you can [read in full here](#), signifying our commitment to transparency and accountability.

More trees pledged through Ecologi

CeraPhi Energy recently strengthened their pledge to the Ecologi platform, making a donation of 100 more trees.

As part of the company's commitment to sustainability, we have now donated 350 trees through the Ecologi platform as part of our "Plant a Tree with CeraPhi" initiative.

The Ecologi platform aims to inspire and empower businesses to help accelerate global collective climate action. The platform is a growing community of over 19,000 businesses and 40,000 members of which CeraPhi is proud to be one. Since signing up to the platform, CeraPhi have been proud to help fund responses to the climate crisis. One project CeraPhi supports involves planting forest gardens in Tanzania, supporting biodiversity and much-needed reforestation efforts.

CeraPhi have funded the planting of trees in nine countries, offsetting the team's carbon footprint and supporting a variety of global climate projects.



On Going
1,500MW



Negotiating
7,666MW



CAPEX Value
£10,600,000,000



tCo2e Savings per Annum
5,475,000



Trees Planted
350

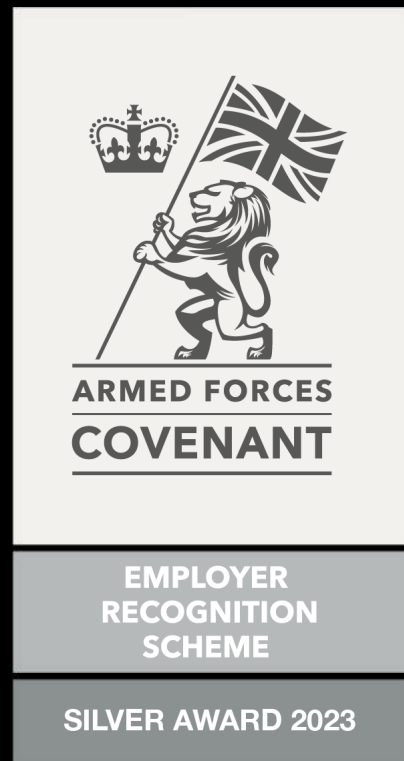
CeraPhi Energy celebrated for our inclusivity

CeraPhi Energy is delighted to announce that the Ministry of Defence Employer Recognition Scheme has celebrated our inclusivity work with a Silver Award.

The Award is presented to organisations that pledge, demonstrate or advocate support for defence and the armed forces community. It's awarded to organisations such as CeraPhi who proactively demonstrate that the armed forces community are not unfairly disadvantaged as part of their recruitment and employee processes.

CeraPhi prides itself on our inclusive team. We currently have two team members who are veterans, Gary Williams and Richard Nugee, of whom we are incredibly proud.

The CeraPhi Energy team will be awarded at a presentation event in Cambridge on Thursday 19th October 2023.



CeraPhi donates to British Army Charity Event

CeraPhi Energy was recently pleased to have the opportunity to support the Army Benevolent Fund and Royal Signals Charity.

The 30th Signal Regiment in Nuneaton challenged themselves to push an Armed Forces Land Rover, in teams, as far as they could over a 24-hour period. They managed to push the vehicle a staggering 151.5 miles in that time.

CeraPhi Energy sponsored the 30th Signal Regiment and the whole CeraPhi team say congratulations to them. A great effort for a great cause.

Ceraphi supports Queens Hill Primary in F1 competition

CeraPhi Energy supported Queens Hill Primary School at the Formula 1 in Schools competition at University of Leeds on 29 June - 1 July.

Engineers of the future from Queens Hill Primary School were proudly sponsored by CeraPhi Energy after regional heats. They competed with 22 other regional winners. The schools' team won in three categories, Primary Class Pit Class award, Fastest Response Time Award, and the Marketing Award.

Karl Farrow, who attended the event, commented, "It was a great effort from all the brilliant engineering and creative minds. Making it to the national finals is no easy task and to participate is a huge recognition of achievement".

F1 in Schools is an annual competition with teams competing globally in Regional, National and World Finals. The lucky winners gain an exciting opportunity to enter into the world of Formula One on a scholarship program.



Community Engagement Event in Malton

CeraPhi Energy has been in discussion with residents in Yorkshire to help communities understand how geothermal can support local energy supplies.

Gary Williams & Ilse Bermudez of CeraPhi Energy attended Ryedale Eco Fair on 10th June to discuss with local residents the Malton Demonstrator project and how geothermal can impact local energy supplies. The event was run by Ryedale District Council in partnership with The Climate Coalition, of which CeraPhi Energy are a member.



Malton is a beautiful town in Yorkshire where CeraPhi Energy are repurposing the Third Energy well on-site near Kirby Misperton as part of The Net Zero Technology Centre project. It's really important to CeraPhi that the local community understand what repurposing the Third Energy well involves and the benefits it can have. The team found local community members keen to understand geothermal energy production and to discuss the minimal environmental impact of repurposing the nearby well.

It's great to be part of local events, highlighting the renewable energy options available to meet needs. It was especially heartening for the CeraPhi team to hear the obvious sense of local pride residents felt at being pioneers in geothermal technology.

Project Update

CeraPhi Energy is happy to report that we are undertaking studies with a number of high-profile organisations and institutions around the world. As geothermal technology's reputation grows, we're finding that organisations are increasingly keen to discuss our work and how our technology can support their efforts to decarbonise their energy supplies. We will share more information about these exciting global projects as they develop.



KM8 Demonstrator Project

One of the most exciting geothermal projects in the UK has gotten underway in North Yorkshire.

In the last few weeks, CeraPhi Energy arrived on the Third Energy well site in the Vale of Pickering, Yorkshire with our bespoke CeraPhiTru thermal response unit. Over the next month we will be deploying equipment into this 3000m well which was originally drilled for shale gas. Once installed, our CeraPhiTru unit will run continuously for months gathering data.

The project aims to prove the viability of re-purposing existing onshore oil and gas wells which have depleted their reserves, and no longer provide economic benefit. CeraPhi Energy was chosen for this Net Zero Technology Centre contract due to its innovative technologies in the

CeraPhiWell™ system. Through CeraPhi Energy's bespoke software, CeraPhiPro, and the unit's data gathering system, our team will demonstrate the economic business case for extracting deep core thermal heat for use in commercial and residential applications.

From late September, we will welcome visitors on-site to demonstrate how this approach can be deployed and developed for many commercial applications.

CeraPhi Energy give huge thanks to Net Zero Technology Centre for their support for this important project. We are immensely proud to be driving this project and the whole team is excited by its possibilities. Indeed, we're drawing lots for which one of us will get to press the 'on' switch when the time comes!

If you would like to be part of the experience and see the demonstrator in action, we are planning site visits from September.

Please register your interest at visitdemosite@ceraphi.com putting the subject heading as, "I want to see it".

Announcing

New

Appointments

Welcoming New Members to the Team

Peter Leach - Advisory Board

CeraPhi Energy is pleased to welcome Peter Leach to the team as the US Energy Transition Advisor. Peter is based in Houston and will be helping to grow our US business.



Peter comes from an energy industry background having worked in Upstream Oil and Gas for 42 Years, starting in South America. Over the years he has lived and worked in Aberdeen, Norway, Dubai, Mexico and now in Houston, Texas.

Originally a Petroleum Engineer, he has extensive operational and commercial experience. He has gained valuable experience in start-up organisations as a founder. He also has extensive experience with major oil and gas operators and service companies, translating directly into the Energy Transition and Geothermal development space. He continues to work as an independent consultant with an increasing focus on Energy Transition projects.

Of his new appointment with CeraPhi, Peter says, 'I'm very pleased to join the CeraPhi team and am excited by the scale of the opportunities in the US. The US is starting to realize the possibilities for geothermal energy development. I was drawn to CeraPhi by its size and agility and the obvious passion of the whole CeraPhi team for the mission we're on'.

Ruby Smith - Intern

CeraPhi Energy has recently welcomed Ruby Smith as an intern. Ruby is in her final year of a BSc in Environmental Geoscience at Durham University.



Whilst with the team, Ruby will be learning about the geological nuances of closed-loop geothermal energy and how we use geological data and knowledge to contribute to CeraPhi's projects. Ruby will be contributing to our geoscience work and learning a great deal about wells.

Andy Wood says "Higinia Torregrosa and I are delighted to welcome Ruby to the CeraPhi Geoscience team. It's imperative for the healthy future of energy industry that new talent is encouraged and nurtured. Ruby will benefit hugely from her time working in one of the world's leading Advanced Geothermal Systems companies"

Ruby commented that she's particularly pleased to be gaining experience with CeraPhi Energy since her interest lies mainly with geothermal energy. Ruby said, "I'm looking forward to gaining knowledge and insight from industry specialists and the skills that will make me more prepared for the energy industry of the future".

Andy Wood commented "After just a few weeks, it's clear Ruby has a bright future in the energy business". The whole CeraPhi team look forward to working more with Ruby.

Tania Farrow Jumps for Charity

Tania Farrow will be bravely jumping out of a plane to raise money for Walking with the Wounded.

The fundraising event, organised by our friends, EEEGR, aims to raise thousands for the charity which helps ex-military personnel. The Walking with the Wounded cause is close to CeraPhi Energy's heart since the energy industry employs a huge number of ex-military. As the geothermal industry grows, it's anticipated that many more service leavers will join. It therefore seems fitting that we give back and support our ex-military men and women who find leaving the forces a difficult transition. The money will support employment and mental health support. Every £86 raised could fund a 1-2-1 mental health session for a veteran or a family member that might save a life.



Tania is part of the CeraPhi Energy family – she is, of course, our CEO Karl's wife and a well-loved member of our extended team. The whole CeraPhi family wish Tania all the best for the jump and some will be cheering her on...from the safety of the ground.

Please consider donating whatever you can to [this fantastic cause](#).



Richard Jenkins

The CeraPhi team are proud to support Richard Jenkins as he takes to the racetrack at Snetterton on 13th August, following his recently announced retirement at the end of July.

Richard has been with the CeraPhi Energy team as Projects and Tenders Manager for nearly three years. He has been an incredibly valued member of the team and a very experienced senior figure in the local energy sector. His contribution to CeraPhi has been huge and many processes implemented by Richard will remain his legacy.



A man of many interests, Richard has been racing for over 20 years. He is excited to be taking part in the 750 Motor Club Car Championships at Snetterton. Richard commented "This championship is notable as the oldest continually running race series in the world, and is actually older than Formula 1". "I like the engineering challenges of maintaining and upgrading my car and I enjoy the friendly camaraderie with my fellow racers at a meeting"

Richard has been successful over the years both in and out of work. So far on the racetrack he has achieved various race wins, podium finishes and fastest laps. The whole CeraPhi team wish Richard luck both in the race and in retirement.

We will be cheering him on in August.

Past

Events



SNS2023

24 & 25th May, Norwich, UK

CeraPhi Energy were delighted to exhibit at the annual Southern North Sea (SNS) Conference and Exhibition on the Norfolk Showground in May.

The SNS is the annual flagship event hosted by EEEGR. The event attracts over 70 exhibitors to Norwich celebrating the extensive capability of the region's supply chain. CeraPhi Energy's own Karl Farrow was warmly welcomed to host a discussion on geothermal and associated technologies in the renewable energy mix alongside Sital Joshi of Umbra Energy and Steve Mason of Third Energy.

It was a great opportunity to hear what the region has to offer in terms of energy production and CeraPhi Energy were pleased to inspire discussions and a deeper dive into geothermal's role in the energy mix.



Ryedale Eco Fair

10th June, Malton, UK

CeraPhi Energy attended the Ryedale Eco Fair on 10th June. The event was organised by Ryedale District Council along with The Climate Coalition. CeraPhi attended the event on a community engagement level to inform the local people of Malton about geothermal energy production and the minimal environmental impact of repurposing the Third Energy well on the KMA site near Kirby Misperton.



NOF Energy Transition Networking Event

21st June, Humberside, UK

CeraPhi Energy were delighted to attend the Energy Transition Networking Event, hosted by NOF, working in partnership with North Sea Transition Authority.

The event brought together key energy clients to inform UK suppliers about current and future projects with opportunities in the energy transition. The CeraPhi Energy team loved being there, sharing updates on the Yorkshire demonstrator project, and meeting so many organisations and individuals committed to the net zero targets and decarbonisation.

The Yorkshire demonstrator project is our opportunity to demonstrate the use of deep geothermal for large scale decarbonisation of heating across a variety of spaces, including industry, agriculture, and residential developments. The CeraPhi Energy team are passionate about this project, so if you have an interest in what we are doing please get in touch.



Royal Norfolk Show, Innovation Hub

28 & 29 June, Norwich, UK

Norfolk Showground, Dereham Rd, Norwich NR5 0TT

Members of the CeraPhi team really enjoyed being part of the Royal Norfolk Show at the end of June, discussing the possibilities of geothermal for UK farming.

From its beginnings in 1847, the annual Royal Norfolk Show is now the largest 2-day agricultural event in the country. CeraPhi Energy were exhibiting in the Innovation Hub, now in its 9th year at the Norfolk Showground event. The team were keen to demonstrate how, unlike variable solar or wind power, geothermal energy can be used on-farm to provide consistent, 24/7 sustainable energy for heating, cooling and power. We were keen to share the message that geothermal is an energy solution that will enable UK farming to significantly reduce the amount of imported food.

The team were excited by the great deal of interest in geothermal and we are already looking forward to next years' event.

Upcoming Events



Geothermal Rising Conference

1-5th October, Reno, Nevada

CeraPhi Energy are excited to be invited to exhibit at Geothermal Rising Conference taking place at Peppermill Resort Spa Casino in Reno, Nevada in October.

The GRC is the geothermal industry's flagship annual conference, reflecting the global nature of the geothermal industry and bringing together people in industry, academia, government, and the general public.

This year's conference, the highest attended in more than a decade, features a sold-out exhibit hall, engaging technical panels and sessions and informative plenary sessions.

The event will run 1- 5 October in Reno, Nevada and the CeraPhi Energy team are looking forward to the opportunity to discuss all things geothermal with valued colleagues and collaborators from around the world.



Futurebuild 2024

5-7th March, London, UK

Following a truly successful attendance at Futurebuild 2022, CeraPhi Energy are delighted to announce they will be exhibiting there again in March 2024.

Futurebuild is an annual trade event where like-minded organisations come together to build a better future for the environment. CeraPhi's attendance at the 2023 event provided the opportunity to share inspiring conversations and innovative solutions, driving sustainable construction in the effort to reach net zero.

Global Energy Developer Delivering Integrated Geothermal Energy Solutions



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