

3 THINGS to Know About Me...

1. I recently met King Charles III during an event at Buckingham Palace ahead of COP27.
2. I have been fortunate enough to travel the world for work, from the UK and across Europe, to the likes of India and Pakistan, with some interesting adventures along the way.
3. I'm proud to have played a key role in the development of the Allam-Fetvedt Cycle (AFC), working on this exciting technology for over a decade. It is the first power cycle since WW2, and could prove pivotal in decarbonising energy supplies. I feel privileged to have been the first engineer, after the inventor, to see the potential of this technology and help harness it.



Steve Milward 
SVP of Engineering & Operations
8 Rivers Capital

Q & A

The Path to Decarbonizing Global Power

Who is 8 Rivers?

8 Rivers is a deep decarbonization technology developer. We have programs across hydrogen, CCS, ammonia and solid fuels with a focus on developing new technologies and taking them through to the readiness cycle. Our mission is to deploy first-of-a-kind solutions and then sell the licenses to help the global economy decarbonize in line with the Paris Agreement. We've seen with the latest COP27 negotiations just how critical it is that at all levels we continue to innovate to find decarbonizing solutions that can be rolled out around the world.

What exciting developments does 8 Rivers have coming up?

We are working with our partners Sembcorp and NET Power to bring the first near net zero emissions power station to the UK, a project called Whitetail Clean Energy that will be based in the north east of England. This will deploy the Allam Fetvedt Cycle, powered by natural gas and exclusively licensed to NET Power, and prove the unique ability of this process to deliver reliable and clean energy that can be scaled rapidly to help countries meet their net zero goals. Pioneered by 8 Rivers and further developed by NET Power, this technology was first backed by the UK government in 2012 for research and development. It will combust natural gas with oxygen rather than air. This means we can generate a very pure CO₂, which is supercritical and drives a turbine to produce electricity. One power plant can produce 350MW, which is enough to power c. 600,000 homes. The carbon dioxide is then sent for sequestration and geological storage. In 2020, the UK Government backed a pre-FEED study which enabled us to design a model plant that can be easily scaled. We are delighted to be developing this ground-breaking technology, especially given the huge expansion opportunities to deliver this rapidly, to reduce global emissions. In the midst of the pandemic, I actually relocated to our headquarters in Durham, North Carolina, to help drive this exciting project forward. From there, myself and the 8 Rivers team are gearing up for the international rollout of this unique technology.

What's the potential global impact of the technology underpinning Whitetail Clean Energy?

This is a much smaller, cost competitive and efficient alternative to post-combustion carbon capture for a CCGT plant. The AFC technology underpinning Whitetail Clean Energy fills a gap in the market for technology that efficiently utilises gas as an energy source, whilst removing harmful emissions. The world needs zero emission power solutions that can be rapidly scaled. This uses tested technology that within the next few years can deliver a tangible solution to global net zero needs. There are many potential decarbonising technologies out there, but few which can be realistically scaled to meet demand within this decade. If you take the UK as an example, gas currently makes up around 40% of the energy mix and will continue to be a pillar of grid supply for decades to come. In other nations gas makes up an even higher proportion of the energy mix. The prospect of being able to maintain that energy source as a base supply, whilst removing emissions, has major global implications. NET Power, of which 8 Rivers is a shareholder, established the world's first demonstrator plant for this technology in La Porte, Texas. 8 Rivers, NET Power and our partners, have been developing a similar plant to Whitetail in the US. The US Department of Energy has funded the AFC technology with multiple grants in recent years. Given the modular, scalable nature of the plant design and the steady supply of shale gas, we see the US as a real growth market for this technology.

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NET Power plant being developed in partnership with 8 Rivers and Sembcorp at the Wilton industrial site in Teesside, UK

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