

Coal rush as Queensland gas looks greener

Arrow Energy's Central Gas Processing Facility at Tipton West, Queensland

Scott Casey

In the past 12 months, hundreds of millions of dollars have been exchanged between companies vying for control of coal gas resources in the resource rich Surat Basin of South-East Queensland.

Origin Energy paid \$660 million for an exploration permit south of Chinchilla, and 20 kilometres south of Dalby, Arrow Energy has purchased a \$400 million stake in the Tipton West coal seam gas project.

Now a small start up company with close ties to the CSIRO hopes a new high-tech gas extraction method will give it the edge in the increasingly competitive market following the State Government's pledge to have 13 per cent of the state's electricity supplied by gas fired power stations by 2010.

Carbon Energy has just announced the completion of an experimental project at Bloodwood Creek near Cogan, between Dalby and Chinchilla, three hours west of Brisbane.

The technology, employing horizontal deep ground drilling and advanced gas extraction techniques, involves the injection of steam and oxygen down into a bore hole where it chemically reacts with the coal, consuming it, and producing coal seam gas - or syngas. The resulting product is made up of hydrogen, carbon monoxide, methane and carbon dioxide.

Underground coal gasification (UCG) was first developed in the Soviet Union, with power plants successfully producing electricity from vast underground coal reserves, despite primitive technology, for more than 40 years.

"Typically most operations use the same 50-year-old technology which came out of the old Soviet Union and has been developed through trial and error for a while, but our approach has come from a different pathway," Carbon Energy CEO Andrew Dash said.

"Our technology has come out of 10 years of research by the CSIRO," Mr Dash told brisbanetimes.com.au.

"We believe we have developed now beyond the technology used elsewhere.

"The benefits of that is it produces very high quality and consistent quality gas and consistency is the key to commercialising any product."

The CSIRO developed the technology used in the Bloodwood Creek trial, with some members of the program bringing their skills in coal gasification, coal mining engineering and sustainable environmental practices from the CSIRO.

The CSIRO is the majority shareholder, owning 18 per cent of the company.

Mr Dash said the technique of coal seam gas extraction was perfect for utilising previously unusable coal reserves.

"They are typically coals that you wouldn't target for traditional mining methods. They go from 200 metres and they could well go down to a kilometre deep," Mr Dash said.

"We can target deep scrubby coal that is otherwise not much good for anything and we can generate very consistent and low cost energy."

Carbon Energy's project differs from both the Origin Energy and the Tipton West coal seam gas project, which involve drilling to remove trapped methane from a coal seam which is already under high pressure.

But the energy still comes at a price, with the carbon dioxide emissions of coal seam gas almost identical to coal. The real carbon savings come from a coal seam, gas-fuelled power station which produces more energy for a smaller emissions cost.

"It's effectively the same (emissions) as coal at the end of the day, however our process is more efficient and the use of gas in power stations is more efficient compared to a traditional coal power station. We will have an improved carbon footprint of 10 to 15 per cent," Mr Dash said.

"The important thing to note is that all the clean coal technologies that are being looked at around the world involve coal gasification, but they do that above ground and it costs a lot of money to mine it and build an above ground gasifier. We are looking at using our process as the lowest cost option for clean coal power generation.

"Part of our work program over the next year will be into carbon capture and storage opportunities."

Mr Dash said the chambers left following gasification of the coal would not be suitable for carbon storage as they were too shallow at 200 metres in depth.

Local farmers have expressed concerns over mining in the region, worried that a large-scale open cut coal mine planned for a site near Felton will destroy farming in the Darling Downs.

Andrew Freeman, lobby group AgForce's acting CEO, said farmers were happy the UCG project would produce energy to power agriculture in the region with a smaller footprint than traditional mining but were worried about the possible negative impact on groundwater supplies.

"Our concerns are what is going on under the ground, the possibility for contamination and interactions with the water table in those areas," Mr Freeman said.

"The advantage we see in UCG is potentially a fuel source that doesn't have as wide an impact as coal seam gas, which tends to have a much larger impact on more pastoral and cropping country."

Carbon Energy has bought a 517-hectare block of land adjacent to the test drilling site, where the company hopes to establish a large scale commercial power station, with a capacity of around 500 mega watts.

The Tarong Power Station, which supplies much of the electricity for South-East Queensland, is almost four times that size at 1400 megawatts.

"Our immediate step is to utilise the coal we are currently gasifying," Mr Dash said.

"We are looking at putting some small scale power generation on the site and connecting into the local grid and have it online by the end of the year.

"We are talking with a number of parties regarding a future development."

Carbon Energy is looking to employ the technology at another site in Western Australia and overseas in nations rich in coal reserves such as India and the US.

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