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Current experiences in applied underground coal gasification

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The world is experiencing greater stress on its ability to mine and exploit energy resources such as coal, through traditional mining methods. The resources available by extraction from traditional mining methods will have a finite time and quantity. In addition, the high quality coals available are becoming more difficult to find substantially increasing exploration costs. Subsequently, new methods of extraction are being considered to improve the ability to unlock the energy from deep coals and improve the efficiency of the exploitation of the resources while also considering the mitigation of global warming.

Underground Coal Gasification (UCG) is a leading commercial technology that is able to maximize the exploitation of the deep coal through extraction of the coal as a syngas (CO and H_2) in situ. The syngas is then brought to the surface and efficiently utilized in any of combined cycle power generation, liquid hydrocarbon transport fuel production, fertilizer production or polymer production.

Commercial UCG has been successfully operating for more than 50 years at the Yerostigaz facility in Angren, Uzbekistan. Yerostigaz is the only remaining UCG site in the former Soviet Union. Linc Energy currently owns 91.6% of this facility. UCG produces a high quality synthetic gas (syngas), containing carbon monoxide, hydrogen and methane. UCG produced syngas can be economically used for a variety of purposes, including:

- the production of liquid fuels when combined with Gas to Liquids (GTL) technology
- power generation in gas turbine combined cycle power stations
- a feedstock for different petrochemical processes, for example producing chemicals or other gases such as hydrogen, methane, ammonia, methanol and dimethyl ether

Linc Energy has proven the combined use of UCG to Gas to Liquids (GTL) technologies. UCG to GTL technologies have the ability to provide energy alternatives to address increasing global demand for energy products. With these technologies, Linc Energy is set to become the leading producer of cleaner liquid fuels and other associated products.

UCG has now been developed to a point where the commercialisation of the process is no longer questioned, the economics of the process are compelling, and is now seen as a method that resolves energy security for countries that have access to deep coal previously thought to have no economic value.