

20 IMPACTS OF UNDERGROUND COAL GASIFICATION



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Toxic Waste

Coal is the dirtiest of the fossil fuels containing many highly toxic materials. The process of Underground Coal Gasification (UCG) involves the partial burning of coal underground. This produces even more toxic and carcinogenic hydrocarbons including benzene, toluene, ethyl-benzene and xylene. Large volumes of these compounds are brought to the surface by the process.



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Waste Disposal

Large volumes of highly contaminated water will be produced and the industry has not publicly addressed what will happen to it. The water used to control the process will emerge along with other liquids and particulate drawn up with the exhaust gasses. Vast volumes of liquid and solid waste will require treatment if companies are going to gasify billions of tonnes of coal as they are proposing here in the UK.



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Air Pollution & Flaring

Trials have shown that significant quantities of toxic and carcinogenic hydrocarbons (e.g. phenols and benzene) are produced as by-products of the gasification process. Much of this will be carried to the surface by the product gas. Large volumes of carbon dioxide and other combustion products will be emitted from sites and power stations. Emergency flaring and uncontrolled emissions will inevitably occur.



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Pollution of Aquifers

Previous trials have consistently resulted in contamination with toxic and carcinogenic materials. The heat and pressure produced by the burning coal provides a mechanism to spread this pollution. Perfectly controlling the reaction to prevent this is impossible when it is happening deep underground. However the most common paths to the surface is via the wells themselves. Of three recent tests projects in Australia two have been shut down following these compounds being released into the biosphere.



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Pollution of Sea & Coastline

UCG has never been tested offshore or near shore (under the sea). This targeting of sub-sea locations appears to be a tacit admission of the threat of water contamination, but UCG licencing is now creeping onshore due to industry pressure, with a proposed licence in the Warwickshire countryside.



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Toxic Residues

Large volumes of partly burnt coal will be left underground by the process. The industry claims that they will flush out these residues but this would not be consistently possible on an industrial scale, due to collapses in the burn cavity. Over time toxic materials will be leached out by groundwater flows and follow the path of least resistance up leaking wells to the surface.

Subsidence

As the fire burns along the coal seams the space created will collapse. This can cause collapse of the overlying geology and could lead to subsidence and damage to buildings and infrastructure including the UCG boreholes themselves.



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Underground Coal Fires

The geology of the British Isles is littered with faults and abandoned mine workings. If a supply of oxygen from an uncontrolled source reached the burning coal, the coal seam could continue to burn indefinitely. An uncontrolled fire would not be confined to the offshore coal seam.



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Explosions & Poisoning

Hydrogen and methane gas are produced by the UCG process. Both are colourless, odourless, and highly explosive. Large volumes of carbon monoxide are also produced. It is a colourless, odourless gas that can kill humans and animals at very low concentrations. The process also produces waxes and tars that gradually build up in wells and pipes and make the process unstable. A significant number of test projects have been terminated by explosions in wells and pipes.



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Dangerous Work Environments

The jobs created by the UCG industry are small in number for the size of the investment. Employment would be in high risk areas/occupations. These workers are at increased risk of industrial disease and accidents.



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Corporate Profit vs Community Cost

The more the coal and gas industry invest in drilling and gasification equipment, the more drilling and gasification will happen. The dangers are acute and borne by the local community. The rewards go to an elite of shareholders, directors and investors. Stopping this industry in the UK will send a clear message to other countries that the impacts and dangers are unacceptable.



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Industrialised Coastline

The equipment at surface will include the drilling rigs, wellheads, connecting pipework, and process plant for handling the injection/production gases. A commercial UCG scheme will require permanent connections to power stations. This industrialisation will change the character of our coastal areas. Placing infrastructure in areas at risk from tidal surges, coastal erosion and sea level rise is reckless and irresponsible.



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Toxic Pipelines

The industrialisation required for this industry will spread beyond the limits of the main sites into urban and residential areas. As sections of the coal seams are burnt drill rigs will leave a trail of sites along the coast. Pipelines carrying toxic and explosive gas at high pressures and temperatures will follow the rigs linking the wells to the processing plant.



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Damage to other Industries

Fishing, tourism and recreation will suffer at all stages of UCG exploration, production and legacy. An areas reputation and landbase are exposed to long term dangers that exist long after the UCG industry has gone.



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Bubble & Bust

Many areas of the country bear the scars of previous industrial development. Extractive industries destroy long term sustainable jobs and create unsustainable bubbles and busts. Any short term gains from this destructive industry will be far outweighed by medium and long term losses.



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Heavy Vehicle Traffic

Just removing drilling mud and waste from wells will require many tanker/truck movements for each site . Waste disposal traffic will become a common sight on local roads. This is in addition to construction vehicles and drilling equipment when the sites are commissioned and pipelines are constructed through rural and suburban areas.



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Road Damage, Subsidence & Earthquakes

Road damage is an inevitable consequence of UCG exploration due to intensive transportation of materials and machinery. Subsidence and earthquakes may be caused by the process and are quite common in conventional coal mining.



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Property Blight

Home owners in UCG areas can find themselves trapped in a house they can not sell, re-mortgage, insure or develop. An area already suffering from a decline in existing industries is further impacted by industrialisation (sites & pipelines), air and water pollution and the resultant health impacts.



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Energy Dependancy

The current economic system is addicted to cheap and abundant fossil fuels. Investment in increasingly dirty and dangerous fossil fuel extraction and a new wave of extreme industrialisation undermines any attempt to reduce energy consumption or become self sufficient. UCG will not reduce or set people free from their energy bills. It is a direct threat to investment in insulation, localisation, energy saving, energy efficiency and renewable energy technologies. It perpetuates our dependence on finite resources and sabotages the life chances of future generations.



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Climate Change

The Underground Coal Gasification process allows companies to access coal that has previously been considered unminable. By developing this new energy extraction technique we are expanding global reserves of hydrocarbons and increasing emissions. The chemistry of the atmosphere is changing and due to drought, flood and starvation the death toll already stands at 450,000 annually.



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