

## OUR FORTH -

### CONCERNS ABOUT UNDERGROUND COAL GASIFICATION

Our Forth is a growing organisation containing members from communities around the Firth of Forth in Scotland. The environmental, public health and climate change implications of Unconventional Gas Extraction are of huge concern to us. We welcome the Scottish Government's Moratorium on Unconventional Gas. We remain deeply concerned about the implications of Underground Coal Gasification Licences No: UCG/0028/N, UCG/0026/N, UCG/0001/N, UCG/0032/N and UCG/0022/N. We believe that the implications of UCG in these areas will cause detrimental effects on the environment and public health for the whole of Scotland and the UK, and undermine our local, national and global ambitions to address climate change.

It is therefore Our Forth's opinion that Underground Coal Gasification be included in the Scottish Government's Moratorium on Unconventional Gas and eventually banned in Scotland. This document sets out our concerns and reasoning for this position. We Believe that

- The Scottish Government has power over planning permission in relation to any land based footprints that UCG employs and can refuse or award planning permission, as with other unconventional gas developments. UCG will also need to be regulated by SEPA during the planning process. It should therefore be included in the moratorium.
- Clarification also needs to be given on how the Forth estuary has been defined in relation to being onshore/offshore. The delta runs up to the bay line from Ellie, through the Isle of May to North Berwick and therefore Forth estuary UCG licences should be considered onshore and included in moratorium.

Further to this our detailed concerns are as follows:

A: UCG IS AN UNPROVEN EXPERIMENTAL INDUSTRY WITH A POOR TRACK RECORD.

B: REGULATION IS INADEQUATE

C: UCG WILL CONTRIBUTE TO CLIMATE CHANGE

D: THREATS TO PUBLIC HEALTH

E: UNDERGROUND COAL FIRES

F: THREATS TO MARINE BIOLOGY

A: UCG IS AN UNPROVEN EXPERIMENTAL INDUSTRY WITH A POOR TRACK RECORD

Scottish communities along the Forth are struggling to find examples of successful UCG pilot tests worldwide?

We would like the Scottish Government (SG) to comment on the experience of UCG in Australia. Pilot sites in Queensland Australia : 1999 Linc Energy, Chinchilla; 2009 Carbon Energy, Bloodwood Creek & 2010 Cougar Energy, Kingaroy have all been closed down due to serious environmental harm and in the case of Cougar Energy the well exploded - fortunately in a very low population density community.

<http://www.abc.net.au/news/2013-07-27/energy-company-to-drop-law-suit-against-government/4847704>

<http://www.heraldsun.com.au/news/national/cougar-energy-fined-75000-for-releasing-cancer-causing-chemical-into-groundwater-at-coal-seam-gas-trial-at-kingaroy/story-fnii5v70-1226726234118>

<http://www.governmentnews.com.au/2014/04/queensland-government-hits-underground-coal-gasification-player-linc-energy-environmental-damage-charges/>

Have the SG requested information from Australia regarding these events and how do our environmental laws compare to those in Australia where UCG has been halted?

Has the SG requested information from Warwickshire County Council, who confirmed it had told Cluff Natural Resources that it would not support UCG in Warwickshire, saying "In the long-term, Warwickshire's position on UCG is that the technology remains largely untested, controversial and there is no clear indication of the financial and environmental impact that such an initiative could have on the county."

<http://www.leamingtonobserver.co.uk/2014/08/01/news-No-go-for-UCG-Warwickshire-plans-113131.html>

Robert Gatliff, Director Energy and Marine Geoscience and member of the SG's Expert Scientific Panel on Unconventional Gas, stated at Our Forth's Portobello event in January that he understood the rationale behind fracking across the Central Belt but Underground Coal Gasification in the Forth didn't make sense and could be trouble in the making, "...a lot more risky" than shale gas fracking and "completely experimental."

Even Cluff Natural Resources themselves describe the underground coal gasification industry in their Press Release (overview on page one) as an "emerging industry"  
<http://www.cluffnaturalresources.com/documents/KINCARDINEPRESSRELEASE10.11.14.004.pdf>

It is our position that Scottish Communities should not be allowed to be used as guinea pigs in an unproven industry with an exceptionally poor track record worldwide, especially in view of not only the high density of population in the Forth Valley but the catastrophic risks should a serious incident occur such as an explosion bearing in mind the types of Industry located in the area.

## B: REGULATION IS INADEQUATE

Following on from a recent FOI request made by Our Forth to SEPA it is clear that SEPA do not have any regulatory framework for this industry, are not taking baselines and expect to allow this industry to self-monitor.

Quoted from F0185223 EIR Response

*“We are currently considering what regulatory controls UCG would come under which will direct the scope of the baseline testing. We are working with Scottish Government and other regulators including the Coal Authority, Health and Safety Executive and planning authorities to ensure we have the appropriate controls and regulations to protect the environment and human health.”*

*“SEPA’s groundwater monitoring network is not designed to identify risks or impacts from individual activities. For activities regulated by SEPA, we normally require environmental monitoring to be undertaken by the operator. For unconventional gas developments, operators are required to develop a monitoring plan as a condition of the CAR licence.”*

We are also concerned that Local Authorities, who have neither the funding nor expertise, will be required to regulate the Air quality and waste management from this experimental industry that is a proven polluter in other parts of the world.

Quoted from F0185223 EIR Response

*“Management of Extractive Waste (Scotland) Regulations 2010*

*Operators will need to submit a waste management plan, as required by the Management of Extractive Waste (Scotland) Regulations 2010, and be able to demonstrate how they will manage and monitor extractive wastes, which may include fugitive methane emissions. Local Authorities are responsible for enforcing these regulations in Scotland, unlike in England where the Environment Agency is responsible. The Environment Agency has produced a report on the 'Monitoring and control of fugitive methane from unconventional gas operations' which gives the available methods for measuring methane as well as survey design. Please view this on the link*

*[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/291523/scho081\\_2buwk-e-e.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/291523/scho081_2buwk-e-e.pdf)*

### *Local Air Quality*

*Local Authorities are required to monitor, review and assess ambient air quality in their areas against national air quality objectives for certain air pollutants, as outlined in the Air Quality Strategy for England, Scotland, Wales and Northern Ireland in the link [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/69336/pb12654-air-quality-strategy-vol1-070712.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69336/pb12654-air-quality-strategy-vol1-070712.pdf). Where any objective is unlikely to be met by the relevant deadline, local authorities must designate those areas as air quality management areas (AQMA) and take action, along with others, to work towards meeting the objectives.”*

How can communities along the Forth have any confidence in regulation in these circumstances?

We also are wondering what bonds will be demanded from these companies if the industry is not banned? Communities are mindful of the disaster of open cast mining where the councils did not take enough money for the restoration costs bonds. When the companies went bankrupt the toxic wastelands were left for council tax payers to clean up.

## C: UCG WILL CONTRIBUTE TO CLIMATE CHANGE

Scottish communities are sceptical of industry claims that UCG is cleaner, cheaper and safe compared to traditional extraction methods.

We are worried that UCG not a clean source of energy, a view backed up by Laszlo Varro the Head of Gas, Coal and Power Markets at the conservative International Energy Agency: "its [coal gasification] overall carbon intensity is worse [than coal mining], so it is not attractive at all from a climate change point of view".

The science is clear: in order to avoid the worst impacts of climate change the vast majority of remaining fossil fuels must remain in the ground. In the context of Scotland's commitment to reducing climate emissions under our world-leading Climate Act, it is utterly irresponsible to open up a new frontier of fossil fuels.

Richard Anderson, BBC business reporter, describes UCG as having 'potentially disastrous' consequences for climate change.

<http://www.bbc.co.uk/news/business-26921145>

## Carbon Capture and Storage (CCS)

Proponents of UCG claim that it is ideally suited for combining with carbon capture and storage (CCS) technology thereby mitigating its climate impacts. However, CCS involves a suite of technologies that haven't been tested on a commercial scale: any part of the process – the capturing, the transporting or storing – could prove commercially unviable. In any case CCS does nothing to address the social and local environmental impacts of fossil fuel extraction. Despite an ongoing Government offer to fund trials in the UK for the last 10 years the technology has failed to get off the ground here.

Leaving aside the various problems with CCS itself, the combination of UCG and CCS is likely to be an even greater challenge. There are huge questions around the integrity of partially combusted coal seams as a storage site for CO<sub>2</sub> and the potential consequences of leakage.

CCS and other 'technological fixes' are a serious distraction from tackling the climate crisis with the readily available solutions that energy efficiency and renewables provide. We would like to know what the current state of CCS is and who is paying for the development?

We are also concerned that there is a loophole so companies don't have to store the CO<sub>2</sub> if it is used for manufacturing. What impact will this have on Scotland's climate change targets?

## D: PUBLIC HEALTH

We are concerned at the lack of Risk Assessment on the effects on Public Health of UCG. We feel that this risk needs to be calculated over a number of years and underlined with a pre-cautionary approach, as highlighted by Professor Andrew Waterston Director of the Centre for Public Health, University of Stirling who presented at Our Forth's public event in January.

## E: UNDERGROUND COAL FIRES

We are also concerned that UCG brings a risk of underground coal fires. We are concerned that the operators' confidence in being able to control fires is massively overstated. Due to historical coal mining in the areas around the UCG licences that has fractured the ground and provided many vents to the coal seams, we believe that controlling the oxygen to the combustion process is impossible.

These risks are added to through changing water table levels, tidal variety, previously conducted bore hole tests (especially around Kincardine Bridge area). We want to raise serious questions as to how operators intend to control fires once started through oxygen deprivation when there are so many vents in the proposed area. We are currently researching this issue and are finding much local knowledge in our areas pointing to many of these vents are contained with lost records, or even unknown since mining has been taking place in the area for several hundred years .

We are backed up in this opinion by correspondence with Dr Glenn B. Stracher, Professor of Geology and Geophysics, East Georgia State College, a leading expert in Underground Coal fires. We feel that this is an area that needs Risk Assessment to take account of communities' knowledge and fears, and not just discounted by the theory of the untested process and discounted as "scaremongering" or "ill informed opinion"

Has the SG been in contact with Australian authorities since the recent news of a reported underground fire in Chinchilla, Queensland?

<http://www.brisbanetimes.com.au/activist-fears-underground-coal-fire-20150302-13sl2l.html>

Potential increased threat of settlement, subsidence & seismic activities taking place will have a negative impact on local housing, businesses and property value. It also is a major threat to local fishing and leisure boat industries. (Proposed areas are also within close proximity of Torness Nuclear Power Station). We are very concerned that the Mining systems in the areas around the Forth have left multiple seams along a honeycomb of old mine workings.

## F: MARINE BIOLOGY IS UNDER THREAT

Marine Scotland Act makes parts of the Forth protected areas re bottle nose dolphins, sand eels, birds and other species of wildlife. UCG process leaks chemical structure and alters ecosystems within Forth estuary with marine species sensitivity to base metals/chemical composition of the water. Light changes can seriously alter breeding grounds and patterns of many fish including trout and salmon (source John Adams, former High Bailiff, Water of Leith)

Water quality is already poor due to previous mining activities. Changing water table levels due to collapsing mine seams would result in further contamination of Forth through flooded mines Base line references need to be taken where measurements taken into account for each individual chemical used in UCG process. This requires that these are disclosed and measurements taken prior to any UCG licence being authorised. Current practice does not take note of measuring information on what might be which would not allow a reflective perspective to be taken.