

CTS No. 15396/12

Department of Environment and Heritage Protection  
MINISTERIAL BRIEFING NOTE

TO: Minister for Environment and Heritage Protection

Chief of Staff .....	OK
Dated	/ /
Approved	Not Approved
Further Information required	
Minister.....	
Dated	30/10/12

SUBJECT: Underground Coal Gasification (UCG): Government decision on the future of UCG & Independent Scientific Panel report

RECOMMENDATION

It is recommended that the Minister:

- [Redacted]
- note that on 3 October 2012, Minister Cripps met with the Independent Scientific Panel (ISP) regarding the draft *Independent Scientific Panel Final Report on underground Coal Gasification Pilot Trials* (ISP report).
- note that the ISP report concludes that the ISP is not confident that the work to date on UCG pilot trials in Queensland have demonstrated that UCG can commence commercially in a manner that is socially and environmentally safe.
- note that DNRM advised a Government decision on the future of UCG is likely to be made late 2012 or early 2013.
- [Redacted]

BACKGROUND

- The Government's current UCG policy commenced on 18 February 2009 and afforded the UCG industry the opportunity to demonstrate the technical, environmental and commercial viability of UCG technology. The UCG trial was limited to three pilot sites – Linc Energy near Chinchilla, Carbon Energy near Kogan, between Dalby and Chinchilla, and Cougar Energy near Kingaroy.
- An independent scientific expert panel (ISP) was appointed by DNRM to provide a report on the outcomes and findings of the UCG trials, basing its recommendations and conclusions on information provided by the UCG companies under a confidentiality agreement. Cougar Energy has not participated in the ISP process since the department placed Cougar's operation into a decommissioning and rehabilitation phase.

CURRENT ISSUES

- On 14 September 2012, DNRM provided EHP with a copy of the draft ISP report.
- The ISP report delivered overall conclusions that:
  - o "UCG could, *in principle*, be conducted in a manner that is acceptable socially and environmentally safe when compared to a wide range of other existing resource-using activities"; and
  - o the "ISP is not confident that the work to date on pilot trials in Queensland has demonstrated that UCG can be conducted, *in practice*, in a manner that is socially and environmentally safe."
- The ISP report (Attachment 1) contains the following overarching recommendations:
  1. That the Queensland government permit Carbon Energy and Linc Energy to continue the current pilot trials with the sole, focused aim of examining in a comprehensive manner the

Author Name: Steven Tarte Position: Manager, Energy Assessment Tel No: 3330 5605 Date: 15/10/2012	Cleared by Name: Anne Lenz Position: ED, Energy Regulation Tel No: 3330 5626 Date: 22/10/12 Cleared by Name: Stephen Goldsworthy Position: Dir, ER, Assessment Tel No: 3330 5500 Date: 17/10/12	Cleared by Name: Dean Ellwood Position: DDG, ESR Tel No: 3330 5628 Date:	Recommended: Name: Andrew Chesterman DG, DEHP Tel No: 3330 6298 Date:
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assertion that the self-cleaning cavity approach advocated for decommissioning is environmentally safe.

2. That a fixed, strictly limited time period of six (6) months be allowed for the companies to undertake the necessary research and reporting on existing cavities that are not currently being gasified. It is the opinion of the ISP that if sufficient access to existing cavities cannot be achieved in that time, then the design of the cavity is not sufficiently robust to conclude that the UCG process is socially acceptable and environmentally safe. In three (3) months each company must produce a detailed plan as to how and when the cavities that are currently producing gas will be decommissioned. These cavities are necessary for demonstration because none of the existing cavities represents a completed (or even near completed) full sized cavity.
  3. The ISP recommends that until decommissioning is demonstrated to be environmentally safe, no commercial facility should be commenced. An exception to this would be if a proponent were to suggest very deep gasification where the consequences of a less than perfect decommissioning are negligible.
- On 25 September 2012, EHP provided initial comments and advice on the ISP report to DNRM to distribute to the ISP for their consideration in finalising the ISP report (refer **Attachment 2**).
  - The main points raised include:
    - EHP is uncertain as to whether the UCG companies can achieve "*Overarching recommendation 3*" because the decommissioned cavities (i.e. cavities that have stopped burning) are currently full of coal seam gas rather than groundwater. This likely to have prevented the UCG company's ability to demonstrate the concept of the "self-cleaning cavity".
    - The UCG companies have not demonstrated how a cavity will be rehabilitated to an appropriate final state, i.e. a safe, non-polluting, stable, self-sustaining landform. This is reflected in the ISP report.
    - In addition, *Overarching recommendation 3* suggests a deeper gasification (the report suggests >600 meter below ground level) where the consequences of a less than perfect decommissioning are negligible. Specifying a minimum depth for UCG activities is counter intuitive to the ISP report which suggests that informed site selection based on site specifics including geology and hydrology; a risk-based approach to engineering; and appropriate monitoring is required for UCG. At the Linc site the Hutton Sandstone – an important aquifer of the Great Artesian Basin that is used for drinking water, stock and domestic use and agriculture - is at approximately 600 metres below ground level.
    - There are documented difficulties in measuring the hydrostatic pressure of the groundwater surrounding a UCG cavity. UCG companies rely on managing the cavity pressure below the hydrostatic pressure of the surrounding groundwater to ensure the synthetic gas and combustion by-products (contaminants including Volatile Organic Compounds which are carcinogenic) are retained within the cavity to allow for their effective management.
  - The ISP report will be difficult to implement as written. The ISP report is based on findings presented by the UCG companies under a confidentially agreement. As a result, the ISP report makes recommendations (overarching and specific) and many statements without articulating the considerations that founded the recommendations or statements. For example, the ISP report suggests distancing UCG activities at least 5km away from sensitive receptors to avoid odour. Linc Energy's report shows that odour can be detected up to 11km away from the site and identifies that Volatile Organic Compounds are causing the odour. While the distance could be addressed, the ISP report does not address potential impact from Volatile Organic Compounds on environmental values or public health.
  - The UCG industry poses significant potential risks to the environment where the activities are not managed to prevent or minimise potential impacts to environmental values. The risks include: groundwater contamination; air contamination from gas leakage; public health issues as a result of

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air contamination; odour experienced by the public as a result of gas leakage; subsidence of the landform; land contamination and surface water contamination.

- Currently, EHP has a number of legal matters and formal investigations underway in relation to the three UCG sites.
- The options for the future of the industry could be:
  - Cease the UCG industry because the UCG companies cannot meet the recommendations of the ISP report; or
  - Allow the UCG pilot projects to continue in a limited capacity in accordance with the ISP recommendations; or
  - Allow a full scale commercial UCG industry.

sch3(2)(1)(a) Cabinet matter - For consideration by Cabinet

**CONSIDERATIONS**

- *Consultation:* EHP is working with DNRM in relation to the government decision on UCG.
- *Key Communication Messages:* DNRM has advised that public concern is increasing in the lead up to a Government decision on the UCG industry. The report has not been made public.
- *Election Commitment:*

**Commitment number:** 333  
**Responsible minister:** Minister for DNRM

**Resources and Energy Strategy - Underground Coal Gasification (UCG)**

Establish strategies to develop an underground coal gasification sustainable gas industry in Queensland which includes:

- Providing the opportunity to demonstrate the technical, environmental and commercial viability of Underground Coal Gasification (UCG) technology under strictly monitored conditions in appropriate locations.
- Continuing to support existing approved UCG technology trials in Queensland.
- Investigating potential to utilise UCG technology in the production of liquid transport fuels, including ultraclean diesel and jet fuels, from Queensland coal resources.

**MINISTER'S COMMENTS**

**ATTACHMENTS**

- Attachment 1: Draft ISP report
- Attachment 2: EHP comments and advice on the draft ISP report

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note that the ISP report concludes that the ISP is not confident that the work to date on UCG pilot trials in Queensland have demonstrated that UCG can commence commercially in a manner that is socially and environmentally safe.

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CURRENT ISSUES

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