



17 August 2007

Ref: 01-02

Mining Legislation Review  
Mining and Petroleum  
Department of Mines and Energy  
PO Box 15216  
CITY EAST Qld 4002

Dear Sir/Madam,

RE: REVIEW OF QUEENSLAND MINING LEGISLATION - ORIGIN ENERGY SUBMISSION

Origin Energy Limited (Origin) welcomes this opportunity to make early comment on the review of Queensland mining legislation, and in particular the *Mineral Resources Act 1989* (MRA).

We applaud the intention of the discussion paper to promote engagement with stakeholders to create discussion and elicit suggestions on both broader policy issues and specific aspects of the MRA. Origin looks forward to being involved in all stages of the discussion and the subsequent drafting of the legislation.

As a major investor and operator in both the upstream coal seam gas (CSG) and conventional petroleum industries and the downstream industry in Queensland, Origin conducts activities which are impacted by issues administered under the MRA. In this light our interest relates to the potential for amendments which create precedents that are inconsistent with provisions administered under the *Petroleum and Gas (Production and Safety) Act 2004* (PGA), and the *Petroleum Act 1923* (1923 Act), particularly in regard to issues dealing with stakeholders such as landholders, the use of water, underground coal gasification (UCG), and the provision and release of data. Origin opposes any amendments to the MRA which adversely impact on rights of existing petroleum tenement holders.

Origin also notes that the tenure system introduced to the MRA in 2004 creates additional uncertainty during the exploration phase for petroleum tenement holders, particularly in regard to securing petroleum leases. An example of this uncertainty being the impact of the incompatibility of overlapping coal mining tenements for UGC on Origin's applications for securing a suite of petroleum leases with sufficient contingent resource to target large gas contracts, such as supplying large power station projects. As an integrated upstream and downstream company this is of particular concern to Origin.

UCG may not only impact Origin but also other CSG producers and traditional coal mining companies, thereby threatening investments in well established extractive resource industries. This is due to the non-complimentary nature of UGC to CSG and coal mining operations in near vicinity. Overlapping tenements and water are two of the key issues that need to be considered in the legislation. UGC effectively extinguishes any subsequent CSG or coal mining activities at the location of the UGC activity or even in near proximity to where the UGC burn has taken place. The UGC process requires water in the process and to contain coal tar contamination, whilst CSG/coal mining operations require the reduction of water pressure (by removing water) in order for methane to be produced or coal seams to be mined. Any disturbance of the water in and adjacent to the UGC burn chamber may lead to carcinogenic contamination of the aquifers.

The State of Queensland must carefully consider how this emerging technology should be tested and what ramifications it poses to established commercial technologies in

operation that are economically extracting the States resources through CSG and coal mining. There is only one UCG operation in existence in Uzbekistan and the previous UCG operations in Russia where closed down the 1970's when the large Siberian gas fields were discovered; therefore there is little current industry knowledge in the UCG area. An industry forum on UCG may be a way to establish the potential benefits and threats that it poses to industry and the State of Queensland. 11X

In summary, Origin views the UCG technology as important to test, but it must be done in a way that does not impact on the current value adding extractive industries of CSG and coal mining. Origin as a community/green focused company also considers the environment an extremely important issue for UCG test burns and operations. The current "race to tenure" for a relatively unknown and currently "non-commercial" technology like UCG through the MRA and PGA is not considered to be in the best interests of the State.

The issues that Origin comments on as part of this preliminary review of the legislation are:

## PART A: OVERALL POLICY OBJECTIVES

### Policy Objectives

- a) P14 Question A1a - Origin supports the listed policy objectives of the MRA. The aim to protect mineral resource from undue alienation and inappropriate use by implementing a tenure regime that optimizes land available for exploration, new interpretation and innovation is key to encouraging growth of the industry in Queensland. The legislative framework must be sufficiently flexible to recognize the emergence of industries that may not be compatible, such as the CSG and UCG industries which are currently administered under different legislation. This will require careful drafting to facilitate land access and multiple use to the extent that it respects the interests of all stakeholders and minimizes land use conflict.

### Ownership of the resource

- a) P14 Question A2a - The UCG process results in the production primarily of synthetic gases (CO & H<sub>2</sub>), petroleum gases, carbon dioxide, hydrocarbons and water to surface which by the nature of the technology would suggest ownership transfer similar to that of petroleum and gas under the PGA would be appropriate. However Origin would question how the State is to collect royalties on a product that is not in a form can be collected as per the MRA.
- b) P14 Question A2b - Unlike petroleum production, the underground gasification of coal results in the production of remnant waste which remains underground and has the potential to impact on other stakeholders at any time from the time of combustion. In particular, combustion by-products have the potential to contaminate groundwater within the targeted coal and also via leakage into adjacent strata through fractures caused by stress changes. There is potential for CSG production or groundwater extraction via other mining operations or water bores, in areas adjacent to an underground combustion, to be adversely impacted at some future time due to the gradual movement of this contaminated groundwater. As this future time may be measured in decades, the UCG company may no longer be in existence to cover the liability created for adjacent investments that existed either at the time the underground combustion took place or some future time when the contamination may have occurred. The management of this liability will require careful

consideration in the legislation with few alternatives to the transfer of liability to the State on surrender of the tenement for UCG. //x

#### Balancing different interests

- a) P16 Question A4a - The existing provisions for deciding grant of overlapping production leases under the MRA and PGA provide for sufficient consideration of the rights of both petroleum and coal and/or oil shale explorers and producers.
- b) P16 Question A4b - Improvements to the provisions for overlapping tenements are required to account for the incompatibility of the exploration stage of UCG and CSG. A Mineral Development Licence (MDL) is categorized as a coal exploration tenement under the MRA, and therefore the carrying out of authorized activities is only restricted where it adversely impacts on the authorized activities already commenced in the overlapping petroleum exploration tenement. However the activities authorized by the MDL enable a trial underground burn to be undertaken. Approval for such authorized activities must consider the interests of the overlapping petroleum tenement holder regardless of whether the activities authorized under the petroleum tenure have already commenced. //x

#### Land access

- a) P17 Question A5a - The MRA presently describes which areas are not accessible for mining, primarily in regard to protected areas such as national parks. Consideration is also required of the impact of unproven technology on resources which have a high value utilizing existing proven and actively used technology. Specifically, UCG is a novel and unproven technology in Australia or elsewhere in the world and the impact of even the trial stage can sterilize large tracts of land that would otherwise be exploitable by conventional coal mining and/or coal seam gas extraction. Further discussion on this issue is outlined later in this submission. In recognition of the uncertainties and concerns regarding the emerging technology of UCG and the potential adverse impacts on other stakeholders such as coal miners and coal seam gas explorers and producers, it is proposed that areas of high value coal mining or coal seam gas resources be identified as moratorium areas restricting UCG activities. The extent of requirement for these moratorium areas should be subject to review once sufficient operational history exists for UCG technology. //x

### PART B: KEY CONCEPTS

#### Prerequisites for obtaining tenure

- a) P29 Question B8a - The incompatibility of UCG and coal mining are effectively addressed by the administration of the granting of tenures under the one titles system, under the MRA. However, the incompatibility of UCG and CSG is complicated by the administration of the tenures under different titles systems under different legislation. Because UCG and CSG explorers and producers are effectively targeting the same resource and sequential development is not presently thought to be possible, a prerequisite for the granting of a tenement for UCG should be a detailed statement of the economic benefits/costs, the consideration of which would enable an informed decision on the value to the State of both CSG production and conventional coal mining viz-a-viz the value to the State of UGC. //x

### Competing and overlapping tenures

- a) P31 Question B9a - The concept of grouping minerals under the MRA appears to provide a reasonable means of facilitating overlapping tenements for differing mineral groups under the MRA. However, it does not recognize the incompatibility of UCG under the MRA and CSG which is administered under the PGA. The granting of tenements under the MRA for UCG and under the PGA for CSG would not appear desirable in overlap situations without the written consent of the existing tenure holder. Consideration of whether the proposed Group 3 should also include coal seam gas is warranted.

### Coal seam gas and underground coal gasification

- a) P33 Underground Coal Gasification (UCG) - the issue of underground gasification of coal is not adequately addressed under the PGA nor the MRA (the latter currently administers the process of UCG). The handling of this issue under the MRA means that overlapping tenement holders can compete for the same resource - coal seam gas operations and UCG are however mutually exclusive and therefore there is a competitive first-in-first-serve environment. The nature of much of the technology and the above ground processes suggest that administration of the production of UCG may be better served under the PGA. Origin's understanding of the underground coal gasification issue is as follows:

- That for the UCG process to be efficient, a confining pressure is required to be supplied by the coal aquifer, that is, by the water within the fractures. For combustion to produce synthetic gases water is a key ingredient, and it is also required for the confining pressure to control the process.
- Initial trials were conducted at depths of about 100m, although some researchers now believe that depths in the order of 200 to 300m below ground are required to obtain sufficient confining pressure.
- These depths create a conflict for resource utilisation since no coordination is possible. Should a CSG operation precede a gasification operation, it is likely that the resultant lower aquifer pressure will make the gasification process non-viable.
- This is different to the coal mining scenario. Coordination of coal mining and CSG production is possible by sequentially planning operations. That is, if anything, the CSG operation assists the mining operation by reducing predraining water requirements and potentially improving the stress field. Additionally, the removal of methane is beneficial for underground coal mining.
- Furthermore, UCG differs from both coal mining and CSG production in that post-development, the water in the coal aquifer can be potentially contaminated. By-products of the combustion process remain in the coal, meaning that other users of the resource in adjacent areas, be they coal miners, CSG producers or water bore users, may find the water quality deteriorates over time as the contaminated water is drawn from the UCG area.
- This deterioration of water quality is particularly problematic in the Walloon coals where high coal permeabilities exist and where a number of CSG operations (or proposed operations) exist within close proximity of proposed underground gasification trials. Any decrease in water quality will generally make it more difficult to dispose of, and any increase in hazardous contaminants would be devastating to the viability of evaporation or beneficial use of water.
- In summary, CSG production and UCG are not thought to be commercially or technically compatible in overlap situations, and in adjacent areas the underground gasification process is likely have a significant adverse affect on the safe and efficient drainage of CSG.

- Given the technology involved and that the product is synthetic and petroleum gas and liquids rather than a solid as in coal mining, tenements for the production or testing of underground gasification of coal should not be awarded where these overlap with petroleum tenements.
- b) P34 Question B12a - It would appear reasonable to provide consistent treatment of penalties for unauthorised venting or flaring of coal seam gas associated with the mining process with the provision in the PGA for venting and flaring associated with petroleum production. Given the growing importance of the climate change debate, it would appear appropriate to expressly require the producer of incidental coal seam gas to use it beneficially if it is commercially and technically feasible to do so. Such a provision would assist in maximising the value of the energy resources within coals, limit methane as a greenhouse gas, and facilitate better coordination between coal seam gas producers and coal miners.

#### Water related issues

- a) P36 Water related issues - The interplay of the Water Act 2000 and the PGA have established a petroleum title holder's rights to produce water in and for its operations. These must not be impacted by any flow-on from consideration of the management of water under MRA amendments.

#### Compensation

- a) P38 Compensation - The lower impact of petroleum operations, compared with many mining operations, was recognised and appropriately addressed in the formulation of the PGA. In noting the discussion of compensation for "hardship" in the paper, Origin would oppose any flow-on of more onerous compensation provisions from an amended MRA.

#### Provision and release of data

- a) P40 Question B17a - The present system which keeps all exploration data acquired under authority of the MRA confidential for so long as an unbroken chain of ownership to the land is at odds with the policy objective of fostering a competitive environment within which companies can operate, particularly when information gained under one grouping of minerals can be of fundamental importance to the exploration and production of another resource. An excellent example of this is the value to the coal seam gas industry of coal bore logging and core data, and seismic and other geophysical data acquired during the exploration for coal. Data acquired under the PGA becomes open file after 2 years and a similar period would appear appropriate for the MRA.
- b) P40 Question B17b - The Geological Survey of Queensland has not been adequately resourced to store the large volume of core and cuttings material acquired by industry.

#### Land and Resource Tribunal

- a) P40 Land and Resources Tribunal - Origin considers the role of the Land and Resources Tribunal should be principally the resolution of disputes and matters of compensation and, while it has had an advisory role to the Minister in presenting findings as these relate to compliance with legislation, which in turn can impact on the Minister's decision on the grant of permits, Origin would support the need for the Minister to be more fully informed on issues that are significant to the development

of the State through the establishment of a Ministerial Advisory Committee. The Land and Resources Tribunal does not appear to be the natural forum for obtaining information that is pertinent to important State decisions.

#### Summary of Key Issues

Origin lists the following as key issues arising from the preceding discussion :

- Moratorium areas should be established to restrict UGC activity in areas of high CSG or coal mining value. *+ (CSG)*
- A statement of CSG value should be required as part of the application process for a UGC tenure regardless of whether overlap may exist.
- Administration of production of UGC should be under petroleum legislation.
- In overlapping tenure situations, approval of trial burns for UGC under the authority of a MDL should require consideration of the interests of the overlapping tenure holder regardless of whether an activity has already commenced.
- X • Liability for contaminants left by UGC operators requires careful consideration with ultimate transfer upon surrender of the leases being to the State.
- With the growing importance of climate change issues, a coal miner should be required to use incidental CSG for beneficial use where commercially and technically feasible.
- Data acquired under an authority of the MRA should become available as open file data after either 2 or 5 years to be consistent with petroleum legislation.

Should you have any questions regarding this submission please contact undersigned.

Yours faithfully

49-Sch4 - Signature

73(2)

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Exploration & Production  
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10 April 2008

Due 14/10/08

[Redacted]

Business Development & Project Manager  
Carbon Energy Pty Ltd  
PO Box 887  
KENMORE QLD 4069



By Fax: 3327 4442

Dear [73(2)]

**Bloodwood Creek Demonstration Project**

We refer to your letter of 25 January 2008 providing Queensland Gas Company Limited (QGC) with notice of the grant of MDL 374 to Carbon Energy Pty Ltd (Carbon Energy) and to your letter of 28 March 2008.

As you know, Queensland Government policy strongly supports QGC in the company's significant and ongoing investments in coal seam gas (CSG) operations.

QGC's proven technology, economic viability, environmental rectitude and attractiveness to international proponents of Liquefied Natural Gas (LNG) are matters of public record. QGC intends to continue its significant investment in, and development of, ATP 648 (inclusive of PLAs 257, 259, 261 and 262).

We note your confirmation at our previous meeting that Carbon Energy's activities would, if they were to occur prior to CSG extraction, prevent subsequent development and production of CSG from the relevant area.

You will be aware that under section 318CH of the Mineral Resources Act (MRA) an authorised activity for the coal exploration tenement cannot be carried out by Carbon Energy on the overlapping land, if carrying it out adversely affects the carrying out of an authorised activity for the ATP and the authorised activity for the ATP has already started.

In respect of the area of ATP 648P which overlaps MDL374, QGC confirms that:

- extensive CSG exploration operations within ATP 648P (each of which is an authorised activity under the ATP) have already commenced and are likely to grow; and
- it is QGC's view (and the view confirmed by you at our March 2008 meeting) that Carbon Energy's proposed exploration and exploitation techniques (being coal gasification) would severely compromise or destroy the petroleum resource which has already been discovered in ATP 648P, by the very reason that methane is consumed during the combustion process.

In addition to this, QGC has a number of concerns regarding Carbon Energy's proposed activities:

1. the zone of impact being larger than the target test area (resulting in increased sterilisation of the petroleum resource which has already been discovered);

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2. the environmental impacts (including groundwater contamination and the ability to safely store wastes at surface and gaseous emissions of phenols).

QGC expects Carbon Energy to fully comply with all of its statutory obligations under the MRA, including consultation and the provision of timely notice of your activities in situations where those activities are relevant to the operations of QGC.

QGC seeks written confirmation from Carbon Energy that it appreciates its statutory obligations in this regard, and that before proposing or undertaking any activities which could have a bearing on QGC's operations, Carbon Energy will notify, and consult with, QGC.

We are also considering the material that you provided with your letter of 28 March 2008 and will respond to you shortly. In the meantime if you have any queries, please contact [redacted] QGC Environmental Manager.

Yours faithfully

49-Sch4 - Signature

[redacted signature box]

73(2)

General Counsel & Company Secretary

Copy to: Mr Dan Hunt  
Director-General  
Department of Mines Energy

Copy to: [redacted]  
Managing Director  
Metex Resources Limited

RTI DL RELEASE - DNRM





19 November 2008

Hon. Geoff Wilson MP  
Minister for Mines & Energy  
PO Box 15216  
City East QLD 4002

Dear Minister

Origin attended a briefing with Department of Mines and Energy officers on 14 November to discuss policy options for dealing with the Coal Seam Gas (CSG) and Underground Coal Gasification (UCG) industries. At the briefing the following options were put forward for dealing with issues such as overlapping tenures;

- maintaining the status quo
- carving out specific tenure areas for CSG and UCG
- developing a dual tenure system requiring UCG proponents to secure leases under both the Mineral Resources and Petroleum and Gas Acts.

Origin considers that the briefing provided no reassurance that any of the policy options under consideration would deliver certainty by the time a Final Investment Decision is due on the CSG to LNG project at the end of 2010.

The Queensland Government should develop a single legislative regime which covers CSG, conventional gas and UCG to replace the current fragmented regime. This would bring Queensland into line with other jurisdictions.

The briefing failed to provide any detail on how any of the options would work, what provisions would be made for transition periods, how issues such as overlapping tenure would be dealt with during transitional periods and how such proposals would deliver certainty to either industry.

The Department confirmed the three UCG proponents who hold mining development leases would be permitted to proceed with trial burns. Origin was concerned to learn that trial burns would not necessarily be restricted to the current proponents' pilot area and that applications by other UCG companies for trials would be considered on their merits.

Origin also requested further detail on the environmental controls which would apply to trial burns but no detail was forthcoming. We were advised we would have to approach the Environmental Protection Agency regarding such detail.

Origin suggested to the Department that all data gathered during the trial burns should be made public so that their success or otherwise may be properly assessed. The Department mentioned that 'buffer zones' were also on the agenda in terms of contamination issues and water depressurisation from CSG activities. Origin is concerned that some arbitrary buffer zone distance is legislated. Origin would encourage the UCG proponents as part of their extended trials to conduct this research in an open way and not rely on geological simulation modelling only.

In terms of open information it was also pointed out that CSG and UCG are not treated equally in terms of geological information. ATP exploration data and drilling logs are made publicly available after a set period, which can be used by competing technologies like UCG. The geological rights from the MRA are not open so there is an inconsistency between the Acts.

We again emphasise that certainty of tenure is a fundamental prerequisite to commercialise our CSG to LNG project. The project has low geo-technical risk but requires certainty on a number of issues due to the scale of investment and the long pay back period. The granting of upfront tenure allows Australia Pacific LNG Limited the ability to accelerate/commence appraisal and development activities to firm up CSG reserves. This leads to marketing and finance activities and ultimately the potential sanctioning of the project.

As per our earlier request we would ask that the policy decisions to be taken by the Queensland Government;

- restrict any UCG trial to the minimum areal extent for the trial only
- confirm any failure of UCG trials/operations will result in cancellation of UCG tenure
- make UCG companies liable for contamination clean up including ongoing remediation
- impose a time limit on the trial burn proponents for commercialising technology
- expressly rule out further UCG trials within EPC's held by UCG proponents pending full scientific, environmental and economic evaluation of the results.

- require the Queensland Government to move swiftly to grant outstanding PLs for CSG proponents which meet the legislative criteria.

As indicated earlier, a legislative solution will be required to address the issue of overlapping tenures which does not require recourse to the courts.

Yours sincerely

49-Sch4 - Signature

73(2)

General Manager, Exploration and Production  
Origin Energy Limited

Cc: Stuart Booker  
Deputy Director General  
Department of Mines & Energy

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## Underground Coal Gasification Policy – February 2009

### Objectives

The intention is to provide the UCG pilot projects with the opportunity to demonstrate the technical, environmental and commercial viability of the technology. For each of the mineral development licences (MDLs), either granted or to be granted for the pilot projects, the underground resource rights shall reside exclusively with the pilot project, notwithstanding that a petroleum tenure may overlap part or all of the relevant MDL. It is intended that where resource rights are effectively removed from petroleum tenure, other rights under that petroleum tenure shall continue.

Implementation by the Department of Mines and Energy may involve legislative amendment or the provision of certain licences, in the case where the holder of the affected petroleum tenure seeks to establish processing infrastructure on the MDL area.

This approach satisfies the intention to allow UCG technology to be seriously considered, while minimising the impact on prospective investors in coal seam gas (CSG) production for liquefied natural gas and other purposes.

### Pilot Projects

Currently there are a number of proponents that are in the process of undertaking pilot projects to demonstrate Underground Coal Gasification (UCG) technology. The policy position now adopted by the Queensland Government will be as follows:

1. two pilot projects - being Linc Energy MDL 309 and Carbon Energy MDL 374, and one pilot project awaiting MDL approval (MDLA), being Cougar Energy MDLA 385, are allowed to continue or proceed;
2. the MDLs referred to above which are subject to petroleum tenure overlap will have a preference right to the resource.
3. the area covered by the MDLs referred to above will be excluded from further petroleum tenure applications, other than petroleum facilities licence applications made by the relevant MDL holder, for the term of the mining tenure until such time as the MDL expires or otherwise ends;
4. the area covered by Linc Energy's MDL 407 will also be excluded from the grant of any petroleum tenures until Government has been able to make a decision on this application. That decision would be subject to:
  - a. A positive assessment of the outcomes of the pilot project currently underway on MDL309; and,
  - b. A recommendation to the Minister by the Industry Consultative Committee about proposed boundaries, comparable to the land area available to the Carbon Energy Limited pilot project, for a production scale grant of tenure for UCG operations using the production facilities constructed for the pilot project on MDL309.
5. during the pilot phase of the above three projects there will be no further UCG pilot projects allowed on public interest grounds. However, the Minister for Mines and Energy will have the discretion to approve additional UCG pilot projects which have a strong ability to further demonstrate the efficacy of UCG technology;

6. during the pilot phase it will be the responsibility of the Environmental Protection Agency (EPA) to **monitor and report** on the UCG pilot projects, this will include the development of environmental management strategies and requirements;
7. at the end of the pilot phase of the UCG pilot projects, a Government report will be developed to present the outcomes of the pilot projects and based upon this report Government will decide upon the future viability of the UCG industry in Queensland;
8. the Minister for Mines and Energy, in consultation with the Deputy Premier, the Minister for Natural Resources and Water and the Minister for Sustainability, Climate Change and Innovation, will appoint a scientific expert panel to assist in the preparation of this Government report.

### Industry Consultative Committee

The Minister for Mines and Energy will appoint an Industry Consultative Committee (the Committee) and this will be chaired by Mr John Pegler, the immediate past president of the Queensland Resources Council. Other members of the Committee will comprise representatives from both the UCG and CSG industries. The Committee will be responsible for considering and presenting options to the Government for resolution of resource and technology conflicts.

If compensation issues are raised by the petroleum tenure holder, as a result of the above MDLs being excluded from overlapping petroleum tenures then the process for seeking compensation will be the responsibility of the Committee. The Committee will consider options on how this compensation, if required, may best proceed.

Potential compensation arrangements may be similar in concept to the statutory entitlement to apply for compensation to be paid for the loss of opportunity created in the *Mineral Resources (Peak Downs Mine) Amendment Act 2008* (the Peak Downs Amendment Act) in relation to Cherwell Creek Coal Pty Ltd within the jurisdiction of the Land Court.

The Committee will also consider options on the development of a regime for the **granting of future tenures for CSG and UCG** based around the principle that the two industries may not be compatible and that no future overlaps will be contemplated.

A potential regime for consideration by industry could provide that:

1. an application for tenure under the *Petroleum and Gas (Production and Safety) Act 2004* (P&G Act) for a CSG project will not be accepted over any area where there is already a tenure granted for UCG under the *Minerals Resources Act 1989* (MRA), without the prior agreement of the MRA tenure holder;
2. an application for tenure under the MRA for a UCG project will not be accepted over any area where there is already a tenure granted for CSG under the P&G Act, without the prior agreement of the P&G Act tenure holder; and
3. an application to add 'the mineral 'f'' to a tenure under the MRA will not be accepted unless the applicant holds a relevant 'specified mineral exploration permit' (EPS) over the area of the application.

**Tenure Issues as at the date of this Government Policy**

Holders of **coal exploration tenure**, either granted or subsequently granted in relation to applications lodged on or before the date of this Government policy, and which is **not subject to overlapping petroleum tenure**, will be eligible to:

1. nominate an interest in future UCG activity by making application for an EPS, being mineral 'f', as currently provided for in the MRA and within 12 months of this policy; and
2. within four years of this nomination, and depending on the outcomes of the consideration of the Government report on the UCG pilot phase, apply for a MDL allowing for UCG activity, or relinquish the relevant EPS with respect to UCG.

In relation to **overlapping tenure between CSG tenements and MRA tenements held by parties which intend to later pursue UCG activities** at the date of this Government policy, and if it is in the public interest, apart from the UCG pilot projects outlined above:

1. the Minister for Mines and Energy if asked to determine a coordination or preference decision between the developer of a CSG resource and the developer of a UCG resource, the decision will be made in favour of the CSG tenure holder under the P&G Act, so as to allow the CSG tenure to progress to production stage;
2. if compensation issues are raised in relation to this Ministerial decision, then the issue of compensation and the issue of arbitration where consent is unreasonably withheld will be referred to the Industry Consultative Committee for consideration of options for the resolution of these issues; and
3. when a determination is made with respect to either/or both 1. and 2., then the Minister for Mines and Energy is to make known to the UCG, CSG and related industries the Government's position on the determination of co-ordination or preference decisions as detailed in 1. and 2.

**Statutory Provisions**

It is proposed that a "Restricted Area" (RA) under the MRA be imposed over the entire State in relation to the mineral 'f'. Existing rights to mineral 'f' are intended to remain unaffected by this imposition. Required legislative changes will be made to the MRA for this provision. This will mean that RAs will be released on application on a competitive basis, to ensure that future grants of UCG tenure are subject to equivalent restrictions to grants of CSG tenure.

The statutory provisions that need to be made with respect to compensation issues and area exclusions referred to above will be defined in the relevant legislation, and will be similar in concept to the statutory entitlement to apply for compensation to be paid by for the loss of opportunity created in the Peak Downs Amendment Act in relation to Cherwell Creek Coal Pty Ltd within the jurisdiction of the Land Court.

### UCG Pilot Phase Proposed Monitoring and Reporting Process

- a) the Environmental Protection Agency (EPA) will comprehensively monitor the conduct of each UCG trial project, in particular the environmental impacts of UCG activities on adjacent land, groundwater, air quality and rural communities;
- b) EPA will comprehensively develop appropriate environmental management strategies and requirements for larger scale UCG operations, or alternatively advise Cabinet of its findings to constrain or prohibit UCG activity;
- c) each UCG pilot proponent be required to complete and submit a detailed project report (Pilot Project Report) of all activities, impacts, including any impacts on resources outside the boundary of the pilot tenure, and findings associated with the conduct of the proposed UCG pilot projects, with the Pilot Project Report to be given within three (3) months of the notified conclusion of the trial project, but no later than June 2011, and the required scope of the report;
- d) the Minister for Mines and Energy, in consultation with the Deputy Premier and Minister for Sustainability, Climate Change and Innovation, appoint a scientific expert panel to critically review the Pilot Project Reports as they are received and assist in the preparation of a Government report as set out in point f below;
- e) a Government report on the potential future of the UCG technology in Queensland, including assessment of the Pilot Project Reports and the potential costs and benefits of UCG for the State and advice on the ways the UCG technology may proceed on an environmentally sustainable basis, including any findings on the interaction between CSG and UCG technologies on the scope of 'buffer' areas within the UCG tenure required around the gasification operation;
- f) the Government report will be prepared by no earlier than December 2010 and no later than December 2011, with the duration of this period being subject to the availability of Pilot Project Reports, EPA's analysis of environmental management requirements, advice from the appointed expert panel and other information that may be deemed relevant; and
- g) the findings of the Government report on UCG will be presented to Cabinet in 2011/12 and, should the Government report produce adverse findings on the UCG technology, on-going constraint or even prohibition of UCG activities may be recommended.

Your Ref:  
Our Ref: ME/08/4247, MC2885

Mr Paul Zealand  
General Manager, Exploration and Production  
Origin Energy Limited  
GPO Box 148  
BRISBANE QLD 4001

73(2)  
Dear

I refer to your letter of 19 November 2008 addressed to the Honourable Geoff Wilson MP, Minister for Mines and Energy concerning the future of the coal seam gas (CSG) and underground coal gasification (UCG) industries in Queensland.

As the Government has assumed a caretaker role during the general election period, by convention, the Minister has asked that I respond direct to you on his behalf.

As you would be aware, the Minister recently released the Queensland Government's policy position (the UCG Policy) on the development of the UCG technology in the State. A copy of the UCG Policy was provided to your company representatives at an industry briefing session conducted on 18 February 2009, and I enclose a further copy for your information.

The UCG Policy provides for the establishment of an Industry Consultative Committee (the Committee) which will be chaired by Mr John Pegler, the immediate past president of Queensland Resources Council. I note Mr Martin Riley is your organisation's nominated representative for the Committee, and acknowledge your commitment to on-going consultation with the Department of Mines and Energy on this matter.

Should you have any further enquiries, please contact Ms Noela Duncan, A/Director Strategic Projects, on telephone 3404 8271.

Yours sincerely



**DAN HUNT**  
Director-General

Att

Department of Mines and Energy  
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4 November 2008

Hon Paul Lucas MP  
Deputy Premier &  
Minister for Infrastructure & Planning  
PO Box 15009  
City East  
QLD 4002

Hon Geoff Wilson MP  
Minister for Mines & Energy  
PO Box 15216  
City East  
QLD 4002

Dear Ministers,

Thank you for our meeting of 15 October 2008 to discuss the issues of overlapping tenure, Underground Coal Gasification (UCG) and the potential impact of these issues on our LNG plant proposed for Queensland. At that meeting you sought clarification of several issues including technical concerns about LNG, environmental impacts and details of our outstanding applications for Petroleum Leases (PLs) for our coal seam gas (CSG) fields.

As discussed during the meeting, Origin, together with our joint venture partner ConocoPhillips, has the largest potential coal seam gas reserve position in Queensland. The Walloons coal seam gas acreage, together with our Spring Gully project, which will underpin our supply to domestic and export LNG growth ambitions, is among the best CSG resources in the world.

Since 2000, Origin has demonstrated its track record of adding reserves and turning those reserves into production. In Queensland the CSG industry has matured to the point where it accounts for 80 per cent of Queensland's natural gas consumption. This includes;

CSG firing 14 per cent of Queensland's installed generation capacity comprising

- Braemar Power stations, 500 MW
- Oakey Power Station, 280 MW
- Barcaldine Power Station 55 MW
- Townsville Power Station, 242 MW
- Swanbank E, 385 MW
- Roma Power station 80 MW and

New power stations adding a further 1280 MW by 2010, driving investment in excess of \$2 billion comprising:

- \$780 million Darling Downs Power Station base load, 630 MW (Origin Energy)
- Braemar Power stations, 500 MW (ERM/B&B)
- Condamine Power Station, 150 MW (QGC.)

In addition to the gas consumed for generation, CSG is an energy source for industrial and minerals processing activities in Gladstone & Brisbane. It provides fuel for three of Queensland's largest gas consumers in QAL, Rio Alcan and Incitec. It will also supply fuel to Rio Tinto's expanded Yarwun Alumina Refinery in Gladstone. CSG is therefore the bedrock to the Queensland vision of value-adding through industrial product

transformation. It is now a proven and reliable source of supply and is not in the experimental stage.

We are preparing to take the CSG industry to the next level with our CSG to LNG joint venture project with ConocoPhillips. This project which could potentially be of similar scale to the North West Shelf in terms of production capacity and export potential. Certainty of tenure is a fundamental prerequisite to commercialise our CSG to LNG project. Our joint venture partner, ConocoPhillips, has the proven commercial and technical expertise to bring this LNG project to fruition, giving us a high degree of confidence in being able to deliver this multi-billion high technology project for the State. A prerequisite for the final investment decision will be the awarding of Petroleum Leases (PLs) which will underwrite long term LNG sales contracts.

Origin also requires security of tenure (PLs) to underwrite gas supplies for domestic consumption. Origin is proposing to quadruple the capacity of its generation portfolio to 2800 megawatts by 2010 with projects such as the afore-mentioned Darling Downs Power Station under construction near Braemar.

There are seven PL's awaiting grant for Origin-operated permits in the Walloons area, some outstanding for four years. The status of Origin-operated PL applications awaiting approval is shown in the table below:

Application number	Date application lodged	Location of field	Environmental approval granted	Affected by overlapping tenure
PLA215	20 August 2004	Orana-Walloons	Yes	No No overlapping tenure at time of application
PLA216	20 August 2004	Dalwogan (Walloons)	Yes covered by ATP	Yes. There were 3 MLs at time of application
PLA 225	9 November 2004	Kainama (Walloons)	Yes covered by ATP	Yes. Carbon Energy EPC granted October 2004.
PLA 265	8 May 2008	Condabri (Walloons)	Yes covered by ATP	No No overlapping tenure at time of application
PLA266	20 June 2008	Condabri South (Walloons)	Yes covered by ATP	No No overlapping tenure at time of application
PLA267	7 August 2008	Condabri North (Walloons)	Yes covered by ATP	Yes. Metrocoal EPC granted December 2007
PLA272	29 September 2008	Orana North (Walloons)	Yes covered by ATP	Yes. Several overlapping tenements in place at time of application

In addition to the Origin-operated permits there are also eight outstanding PL applications lodged by QGC, which Origin has an interest in. The status of these is shown below:

Application number	Date application lodged	Location of field	Environmental approval granted	Affected by overlapping tenure
PLA 247	19 December 2006	(Walloons)	Yes	No No overlapping tenure at time of application
PLA 180	13 February 2001	(Walloons)	Yes	No No overlapping tenure at time of application
PLA 263	22 February 2008	(Walloons)	Yes	No No overlapping tenure at time of application
PLA 257	13 September 2007	Kenya East-Jammat (Walloons)	Yes	Yes Linc Energy EPC granted December 1998
PLA 273	2 January 2008	Sean (Walloons)	Yes	Yes Overlapping tenements in place at time of application
PLA 275	26 August 2008	Jen (Walloons)	Yes	Yes. Overlapping tenements in place at time of application
PLA 274	1 October 2008	Broadwater (Walloons)	Yes	Yes Overlapping tenement in place at time of application
PLA 278	30 October 2008	(Walloons)	Yes	Yes Overlapping tenement in place at time of application

We are aware that Arrow Energy has recently been granted PL252 to develop a coal seam gas field at Stratheden near Dalby. We understand that this PL was granted on the basis that the CSG is required to supply the soon-to-be commissioned Braemar II power station. Given that Origin's applications relate to projects that will be of economic significance to Queensland and to Australia, we ask the Queensland Government to consider our applications in a timely manner.

UCG is still in the early stages of its development and will require time and ongoing investment to resolve critical technical, commercial and environmental challenges. Origin also notes that the carbon intensity of UCG syngas for power generation is equivalent to the carbon intensity of black coal for power generation which is around 0.8t Co2-e/MWh2. This compares with CSG-fired power generation which has a carbon intensity of around 0.4t Co2-e/MWh3.

Origin has positioned itself over the past five years to promote clean green technologies as evidenced by our \$20 million investment in our Spring Gully Reverse Osmosis plant and seeking beneficial uses of water. Origin is concerned about UCG water contamination and our literature search has suggested that of the trials and operations that have been conducted worldwide there are serious concerns about the nature of the UCG process.

The UK Government *Review of Environmental Issues of Underground Coal Gasification November 2004* initiated by the DTI Cleaner Coal Technology Transfer Program in the United Kingdom UCG reviewed past UCG burns and acknowledged:

- "A review of past UCG projects indicated that the risk of contamination of groundwater through gas escape and leachate migration was the most significant environmental issue of UCG".
- "identification of permanently unsuitable groundwater areas in coal seams where UCG can take place without threatening adjacent aquifers".
- "Pressure control during the gasification process, to ensure that underground water flow is always towards the reactor is an effective method of contaminant control of both gaseous and liquid pollutants".

The review of the burns also noted that there was either no or little environmental information to assess many of the past operations & trials. Of the trials that had moderate to high information there are a number that had serious environmental issues (see Appendix 1.)

In terms of the impact of UCG processes on the water table and water requirements of both industries and associated environmental impacts we advise that due to the high permeability and variability of the Wallons, Origin believes that UCG operations in the vicinity of CSG operations is a major issue. It is understood that UCG requires certain water pressure to operate its burn and to contain contamination. CSG by its very nature seeks to de-pressure the coal seams to liberate the methane gas.

Origin has held ongoing discussions with Linc Energy about whether the technologies can coexist but due to the environmental issues and the workability of technologies in relation to water, we see coordination of activities to achieve PL and ML objectives is problematic.

It is therefore vital that the Queensland Government makes a policy decision on this issue which will deliver certainty to the CSG industry, underpinning a multi-billion dollar CSG/LNG investment in Queensland and several thousand jobs.

We would ask that the policy;

- restricts any UCG trial to the minimum areal extent for the trial only
- makes UCG companies liable for contamination clean up including ongoing remediation
- imposes a time limit on the trial burn proponents for commercialising technology
- expressly rules out UCG trials within existing EPC areas held by UCG proponents
- requires the Queensland Government to move swiftly to grant outstanding PLs for CSG proponents which meet the legislative criteria.

In the long term, a legislative solution will be required to address the issue of overlapping tenures, to create more clarity for both industries.

Yours sincerely,

49-Sch4 - Signature

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Manager CSG and Oil & Gas Production Qld

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Appendix 1 Review of Environmental Issues of Underground Coal Gasification

	Gas Losses	Availability of Environmental Impact Data	Known Environmental Concerns
Podmoskovna USSR	High	N.A.	
Lisichansk USS\$	High	Low	
Schatsky USSR	High	N.A.	
Juschno-Abinsk USSR	High	Low	
Angren Uzbekistan	High	N.A.	
Newman Spinney UK	High	N.A.	
Djerada Morocco	High	N.A.	
Bois-la-Dame	High	N.A.	
Thulin Germany	High	Low	
El Tremedal Spain	High	Low	
Hanna 1 to 4 USA	Low	Medium	Phenol contamination issues
Hoe Creek 1 to 3 USA	High - Gas escape stated up to 200 ft laterally.	Medium	Significant subsidence & ground water contamination.
Pricetown USA	Medium	Low	
Rawlins 1 to 2 USA	Low	Medium	
Centralia USA	Medium	Medium	
Rocky Mountain	Medium	High	Gas escape occurred during operations with at least 6 years of elevated readings.
Xinhe China	N.A.	N.A.	
Liuzhang China	N.A.	N.A.	
Yilan China	N.A.	N.A.	
Yima Hebi & Xinmi China	N.A.	N.A.	
Huntly NZ	N.A.	N.A.	
Chinchilla Qld	N.A.	Low	

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Your Ref:  
Our Ref: ME/08/3896, MC2675

Office of the  
Minister for Mines and Energy

18 DEC 2008

73(2)

Manager CSG and Oil & Gas Production Qld  
Origin Energy CSG Limited  
GPO Box 148  
BRISBANE QLD 4001

Dear

I refer to your letter of 4 November 2008 addressed to the Honourable Geoff Wilson MP, Minister for Mines and Energy, further detailing your concerns about the emerging underground coal gasification (UCG) technology and the potential impact it may have on the proposed liquefied natural gas (LNG) plant in Queensland. The Minister has asked me to respond on his behalf.

In September 2008, the Honourable Anna Bligh MP, Premier of Queensland outlined her Government's long-term vision for Queensland in *Toward Q2: Tomorrow's Queensland*. Q2 creates bold targets that will drive Premier Bligh's vision for a strong, green, smart, healthy and fair Queensland.

The Bligh Government welcomes your thoughts and ideas on how Queensland should head Toward Q2. For more information on Q2, please visit [www.towardq2.qld.gov.au](http://www.towardq2.qld.gov.au).

I understand Origin Energy CSG Limited (Origin Energy) has consulted regularly with the Department of Mines and Energy (DME) throughout 2008 on the issues of overlapping tenure and the immaturity of the UCG technology, and presented a submission to the UCG Interdepartmental Committee (the Committee) on 16 September 2008.

The Queensland Government is seeking to gain a knowledgeable and objective understanding of the UCG technology, including the broad range of environmental and land use issues. The Committee will work closely with the UCG proponents, including monitoring of the activities of the UCG trial projects over the next two to three years, to ensure detailed information is available on the Queensland trials of this imported technology. This work will inform the development of a whole-of-government policy position on a potential UCG industry.

I note your preference for a Government policy with restrictions on the UCG pilot phase combined with a preference-decision for granting overlapping tenure in favour of coal seam gas (CSG) proponents.


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Your considered comments and suggestions for resolving current tenure conflicts between UCG and CSG operators will be included with the DME feedback from industry consultation undertaken on UCG, and related tenure overlap issues for CSG/LNG investors, throughout 2008. DME will report the findings of this industry consultation to the Queensland Government for its consideration in the near future.

The Minister thanks you for bringing this matter to his attention and trusts this information is of assistance. Should you have any further enquiries, please contact Ms Noela Duncan of the Department of Mines and Energy on telephone 3404 8271.

Yours sincerely

49-Sch4 - Signature



**CAMERON CROWTHER**  
Senior Policy Advisor  
Office of the Honourable Geoff Wilson MP  
Minister for Mines and Energy

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