

**Submission
No 454**

INQUIRY INTO COAL SEAM GAS

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LEGISLATIVE COUNCIL

General Purpose Standing Committee No. 5

COAL SEAM GAS ENQUIRY

Preferred position:-

Keep coal mining as transitional energy until base load can be provided by Renewables.

Out Comes:-

- ① Keeps jobs - Sth. Coast 1,000 jobs lost already involving steel manufacture - Regional employment important
- ② Gives Coal Industry certainty of its future both for base load and "back-up" peak load energy source.
- ③ Closes the door on other "risky" energy exploration and production, like Coal Seam Gas. The landscape footprint for both exploration and production for Coal Seam Gas is huge and deleterious environmentally.
- ④ With Coal as preferred option, the industry can be encouraged to "green" their industry as quickly as possible. Already the Coal Industry is talking about extracting methane at the same time as mining the coal seams. Cessation of long-wall Mining could be

mandated and a more environmentally friendly form of coal extraction used.

By "greening" their coal extraction processes the Coal Industry could remain the "back-up" industry when renewables are meeting base load.

④ Most significant argument :-

Coal Seam Gas Mining is "dirtier" than Coal. Coal Mining has a lower carbon footprint than Coal Seam Gas Mining. Methane is 20 times more green house potent than CO₂ over a 100 year timescale. It is even worse if it is turned to LNG for export because a significant portion, estimated at around 10% of the gas is used in the refrigeration process to liquefy the gas.

⑤ The no royalty holiday for 5 years and then the sliding scale 6% 6 years, 7% 7 years 8% 8 years 9% 9 years and 10% 10 years leaves NSW behind Queensland's income from a blanket 10% scale.

⑥ Coal Seam Gas has too many variables - i.e. It can crack bedrock, cause faults, cause fissures and destabilise to the point of earthquake in vulnerable areas.

Many of these problems cannot be foreseen with any degree of certainty until the drilling and extraction process has taken place.

Fracking should be banned completely at all times in all areas. The devastation "fracking" causes in vulnerable areas in most cases is unable to be remediated.

⑦ We know the problems associated with Coal Mining therefore new areas of mining can reflect these known concerns. Coal Mining practice can be "greened". There are inappropriate areas for new coal mining and there are some appropriate areas for new coal mines, if in fact these are needed at all as Renewables provide base load and probably "back-up" peak load in the very near future, with the appropriate expenditure and legislative framework encouragement to achieve both these outcomes as soon as possible.

AREA SPECIFIC CONCERNS COVERING THE PEL LICENCES of 442, 444 and CCL 703

One of the most dangerous consequences

of this licence Area is the possible water contamination of the major catchment areas contained within the PEL licence Area.

In the Southern Coal Inquiry 2008, a report stated that the water catchment areas would probably be safe from long wall mining unless there was a direct hydrolic link from the coal seam to the surface. This is exactly what CSG exploration and/or extraction causes. There is no science to date that can rectify, mitigate or repair the damage and contamination of the water catchment areas and the water supplies. For example the Woronora Dam levels are shrinking due to ~~cracking~~ cracking of the Waratah Rivulet is acknowledged by the Sydney Catchment Authority as suffering from mining impacted damage. The Mining Company Peabody has been carrying out remedial work to create a skirt to re-establish the water flows. However, the technology as yet has not been proven to be successful. The concern is the multiplying effect of water contamination of Coal Seam Gas borehole.

that could then flow to the Waratah Rivulet and in turn to the Woronora Dam which feeds the water supplies of Sydney and the Northern Illawarra.

Subsidence is inevitable with CSG exploration and mining. There have been scientific reports written from the 1970's saying there should be no consideration for further methane extraction in existing mine seams and the surrounding geophysical area due to the danger of significant earth movement and destabilization of the entire area. To put expensive infrastructure such as the Sea Cliff Bridge and railway lines at risk, would be inadvisable.

The railway line that takes the additional freight load from the expanded Port Kembla port activities through this licence Area is highly vulnerable to any form of earth movement. At various points along that rail line in the Northern Illawarra area the rail line has no further capacity for subsidence.

Sea Cliff bridge is attached at two ends to the Northern Illawarra Escarpment,

The support pillars go down 16 metres into sea bedrock and the bridge is incrementally constructed to absorb movement. However, neither of these measures will be enough to safeguard the Sea Cliff Bridge if the Illawarra Escarpment moves.

2 billion dollars in tourism passed over the Sea Cliff Bridge in 2009 providing employment and income for the Illawarra area.

Local Planning Controls in the new LEP are going to allow ripping out more than 2,000 hectares of remnant coastal rainforest. The earth destabilisation that this causes along with the extension of long-wall mining make earth movement inevitable on the Illawarra Escarpment. Already there has been a lip fracture and resultant landslide of the Illawarra Escarpment at Scarborough. There has been further deterioration at this site since the first earth movement.

At Stanwell Park in the space of three weeks, two earth tremors occurred on different days at approximately 4 a.m. each morning. The third tremor

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was less intense and occurred at 4 p.m. in the afternoon. This is the earth letting us know that it is stressed - a wise geologist takes note of this and doesn't stress the stability of the area with Coal Seam Gas Exploration or extraction activity. The area is already being stressed by the extension of long-wall mining and huge areas of deforestation for building sites. The licence granted to APEX Energy Nh at Darkes Forest already allows another nine hectares of bush to be removed at the very beginning of the project. With long-wall mining the earth stays in place on the first cut, on the second cut it falls in on itself, causing instability.

On the F6, monitors measure the subsidence caused by the extension of long-wall mining. The F6 runs perpendicular to the long wall mining. As the movement of ground and the road occurs, repairs are needed to square up the road. To allow further earth movement, fissures, cracks etc. in this area, as caused by CSG exploration and/or extraction activities, would be folly.

What happens to individual properties in the licence Area? As the methane is extracted, the pressure changes significantly in the earth's structure. Sink holes may form as the top soil and upper layers are pulled down in holes due to the changed pressure. "Creep" then occurs, followed by "slip" and then landslide. Earthquake can also follow depending on the area covered, weather conditions, other strains present in the same area, such as rail vibration, major rain and/or storm events etc.

There is an existing massive fault line that runs from near the beginning of the Sea Cliff bridge all the way through to Darkes Forest. Anything that occurs in Darkes Forest drilling or extraction activities may well end up in the fault line, including methane and toxic water, straight through into the ocean at the Sea Cliff bridge.

That fault line's connection to Darkes Forest also increases the geophysical stresses to the Sea Cliff bridge and the area in general.

Earth movement caused movement

and cracking in sewerage pipes at Oxford. Three days of raw sewerage went down into the Port Hacking River. All the safeguards were in place, the equipment was only four years old, yet water contamination occurred. The company that did the sewerage pipes came from the U.S. They used low impact drilling, they didn't clear many trees and gave scientific reassurances, yet cracking occurred due to earth movement. The areas covered in the PEB licences

442, 444 and CCL 703 are too unstable to consider any form of CSG. Exploration or extraction activities. A Coal Seam Gas exclusion zone for the Sydney Catchment Authority Special Area and nearby environmentally sensitive areas such as the Illawarra needs to be enacted. Natural areas such as the Royal National Park, Illawarra Escarpment, Garawarra State Recreation Area, Dharrawal State Recreation Area and Dharrawal Nature Reserve, Heathcote National Park are all under threat from the Petroleum Exploration licences issued to

APEX Energy NL for Coal Seam Gas exploration, All of these areas including all of the Water Catchment areas supplying water to Sydney and the Illawarra should be permanently protected and excluded from CSG Exploration and Mining. Please immediately rescind the Petroleum Exploration licences Nos. 442, 444 and CCL 703 and rescind approval for borehole AI19 amendment (also known as No.16 borehole) and rescind the approval for the original 15 bore holes. AI19 (No.16) is near a swamp and is on Sydney Water Catchment land. Sydney Water Catchment Authority does not want this core hole to be explored or mined in any way.

The whole area in the Exploration licences of PEL Nos. 442, 444 and CCL 703 is too fragile, too vulnerable and too geologically unstable to be suitable for any form of Coal Seam Gas Exploration and/or production.

A petition of approximately 10,000 signatures to date is expressing the local population's rejection of any form

of coal seam gas exploration and/or production being appropriate for the PEH areas of 442, 444 and CC2 703.

The Illawarra has around 10,000 existing wells and accordingly to the NSW Dept. of Planning and Infrastructure (DofP) "there is no special characteristic of the boreholes being proposed by Apex." I think a re-reading of the information I have already supplied will prove that to be an inaccurate assessment.

To put the Illawarra Escarpment, the Darkes Forest area with the fault line to the ocean at the Sea Cliff bridge, Sydney's water supply and the water supply to the Northern Illawarra at risk from CSG exploration/mining is not worth the energy supplied. No guarantee can be given by any company that a casing won't crack due to earth movement.

A moratorium approved exploration leases needs immediately to be enacted and the rescinding of approved licences until a permanent blanket NO Coal Seam Gas Exploration/ extraction is formalised for the areas mentioned in this report.

As the final report on the Coal Seam Gas Inquiry is not due til April 2012, I would ask that a permanent moratorium on approved exploration leases be immediately enacted until those licence approvals can be formally rescinded and a total ban on CSG. Exploration/Production be legislatively ratified. Coal Seam Gas is neither necessary or indeed appropriate as a transitional energy source. Existing Coal Mining can now provide both methane and coal.

I would like to be called to make a personal presentation to the C'ttee with landmaps, LEP controls and mining maps to help the Standing C'ttee to understand the areas of concern and how their interconnectedness compounds the possible damage of CSG exploration/mining. Should a tour by the C'ttee of the PEL Licence Areas be considered I would be happy to assist in that regard.

Please find a scale photo of the Northern Illawarra Escarpment fracture and landslide at Scarborough. There has been further deterioration of this area since this photo was taken.

In any consideration of CSG Mining /
Exploration, I would hope that wise forester
informs the decision making process. The
initial nine hectares of deforestation
proposed for Dawkes Forest would severely
impact on the Catchment Area. All trees
are needed in these areas. The trees release
aerobacti which seed the clouds and
cause the rain to fall.

Thank you for the opportunity to
make this submission for your consideration
I can be contacted at the following detail

T. Riddell