

Submission
No 327

INQUIRY INTO COAL SEAM GAS

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**Submission on the Parliamentary
Inquiry into the Coal Seam Gas
Industry**

From

Campbelltown City Council

SUBMISSION ON THE INQUIRY INTO COAL SEAM GAS

The project area for the approved Stage 2 of the Camden Gas project and the project area for the Stage 3 application are partly located within the Campbelltown LGA. Council objected to the project application and Environmental Assessment on a number of grounds that included an inadequate assessment of environmental impacts and insufficient baseline data. Therefore, Council welcomes the Parliamentary Inquiry due to these concerns as well as the recent research and Government initiatives regarding the coal seam gas industry.

This submission outlines Council's views and concerns regarding the relevant Terms of Reference and highlights issues to be considered by the Committee as part of its Inquiry into the environmental, economic and social impacts associated with coal seam gas activities.

A. BACKGROUND INFORMATION

1) Scope and structure of the submission

It is noted that a number of items in sections 2 and 3 of the Terms of Reference for the Inquiry relate to a range of broad scale issues associated with the coal seam gas industry that are considered beyond the scope of local government. Consequently, while Council is not opposed to the investigation of these broad issues by the Parliamentary Inquiry, this submission is largely restricted to issues that are of direct local relevance and/or have implications for Council and the Campbelltown Local Government Area and its community.

It is recognised that comments are not being sought by the Committee specifically in regard to the Terms of Reference. However, this submission also provides comments in relation to a suggested additional Term of Reference regarding the assessment of impacts of coal seam gas activities on biodiversity, which was raised as a significant issue in Council's submission to the Department of Planning and Infrastructure on the Camden Gas Project. The Committee is requested to note that Council would have preferred to be consulted during the development of the Terms of Reference, which would have provided an earlier opportunity to raise this suggestion.

Within this context, the submission comprises the following elements:

- Overview of the features of the Campbelltown Local Government Area (LGA) and extent of existing and proposed coal seam gas operations in the LGA;
- Council support for the Inquiry into Coal Seam Gas activities in NSW and its position in regard to the coal seam gas industry; and
- Comments in regard to specific Terms of Reference items of relevance to the Campbelltown LGA.

2) Overview of coal seam gas operations in the Campbelltown LGA and associated impacts and issues

The following discussion summarises the major values of the natural, cultural and built environment and potential impacts of current and proposed coal seam gas extraction activities in the Campbelltown LGA on these values.

(i) *Extent of current and proposed coal seam gas operations in the Campbelltown Local Government Area*

Large sections of the Campbelltown LGA, (particularly the central and southern portions), are underlain by coal seams and are consequently classified as 'Mine Subsidence Districts' under the *Mine Subsidence Compensation Act 1961*. The whole of the Campbelltown LGA is located within the boundaries of the Petroleum Exploration Licence (PEL 2) issued by the Department of Trade and Investment, which is noted to extend from the Hunter Valley to the Illawarra district.

A map indicating the location of the three stages of the Camden Gas Project within the Campbelltown LGA and the approval status of each of these stages is presented in Map 1 (Attachment 1).

(ii) *Overview of features of the Campbelltown LGA potentially impacted by coal seam gas extraction operations*

The Campbelltown Local Government Area is located on the south west perimeter of the Greater Metropolitan region. In this respect, it has distinct natural and civil differences from most other LGAs containing current or proposed coal seam gas operations in New South Wales. The following discussion outlines the major features of the natural and built environment within the Campbelltown LGA potentially impacted by coal seam gas extraction activities.

Major features of the natural environment

a) Landscape features

A significant feature of the landscape within the Camden Gas Stage 3 project area is the Scenic Hills lands, which have significant natural, cultural and scenic values. The values of this district include expansive views, rich European and Aboriginal cultural heritage and the presence of a number of natural springs that provide a water source for agricultural activities.

A Visual Study is currently being prepared for Council as part of the preparation of a new comprehensive Local Environmental Plan applying to the whole of the Campbelltown LGA. The draft Visual Study, which is yet to be formally considered by Council, concludes, in part, that the '*landscapes of the Scenic Hills provide the setting for the City of Campbelltown and are what make it a truly unique example of a satellite city*'. At its meeting in November 2007, Council resolved the following in regard to the protection of the values of the Scenic Hills area:

- That Council confirms in the strongest possible terms its support for the high value that the community of Campbelltown and South Western Sydney places on the Scenic Hills as an iconic landscape with distinctive scenic, heritage and environmental qualities; and
- That Council unequivocally commits to continue to maintain and preserve the Scenic Hills for future generations to enjoy.

The protection of the significant natural and cultural assets of this area against any impacts associated with coal seam gas operations is therefore of the utmost importance to Council.

b) Surface and groundwater features

Approximately 88 percent of the land within the Campbelltown LGA is located in the upper section of the Georges River Catchment, with the remaining 12 percent located in approximately the middle section of the Hawkesbury Nepean Catchment. The ridgeline associated with the Scenic Hills district, referred to above, forms part of the watershed between these catchments. The location of the project area of Stages 2 and 3 of the Camden Gas project in relation to the boundaries of these river systems is presented in Map 2.

The protection of the condition of these waterways from impacts associated with urban and industrial development is a high priority for Council. In regard to the Georges River Catchment, Council is in the process of finalising a Strategic Environmental Management Plan, which has as a key theme, the '*minimisation of impacts associated with mining on the condition of the Upper Georges River*'. Council is also implementing a range of initiatives to assist in the improvement of the Hawkesbury-Nepean river system.

The management of groundwater resources and collection of baseline data is recognised as being the responsibility of NSW Government agencies, such as the New South Wales Office of Water, and is outside the technical expertise of Council officers. The available information (to Council) on groundwater sources is restricted to a study prepared by Parsons Brinckerhoff on behalf of AGL in March 2011 following the public exhibition of the Environmental Assessment (EA) associated with the Camden Gas Project. This indicates the presence of a number of groundwater aquifers at various depths across the Scenic Hills area and other parts of the Campbelltown LGA.

The protection of groundwaters from impacts associated with the Camden Gas Project is of critical significance to Council given the interaction of coal seam gas operations with groundwater sources and the recognised interactivity between these sources and surface waters. Consequently, the service of a groundwater specialist was obtained to review the adequacy of the level of detail and adequacy of the level of assessment of groundwater related impacts associated with the project.

c) Biodiversity features

The specialist report within the EA associated with the Camden Gas Stage 3 application states there is a high likelihood of the project area containing 6 threatened flora and 12 threatened fauna species. The New South Wales Atlas of Wildlife is noted to indicate that 16 threatened species have been recorded in the Stage 2 project area and 12 species have been recorded in the Stage 2 project area.

The project areas also contains threatened ecological communities that include Cumberland Plain Woodland, which is listed as a Critically Endangered Ecological Community at both the State and Commonwealth level. Sections of remnant vegetation in the project area have been identified as forming part of important local habitat corridors by Council's Biodiversity Study. The protection of biodiversity from impacts associated with both the construction of well sites and installation of gas gathering pipelines is therefore important to Council.

Major features of the built environment

The population of the Campbelltown LGA is approximately 152,000, which is predicted to show a modest net growth in data to be released as part of the recently conducted 2011 Census. The growth, (as outlined in the NSW Government's draft South West Sub Regional

Strategy), is predicted to occur in the form of both in-fill development and new greenfield urban release areas.

The section of Stage 2 of the Camden Gas Project situated within the Campbelltown LGA is currently comprised largely of rural and semi-rural properties as well as the Menangle Park village. However, a significant portion of this project area is also located within the footprint of a new urban release area that is currently in the planning stage. In this regard, Council has concerns relating to potential adverse implications of activities associated with coal seam gas operations on the development of this release area.

The surface project area of Stage 3 of the Camden Gas Project application is comprised of a combination of residential and semi rural areas. The Committee is requested to note that the subsurface project area incorporates the majority of the urbanised section of the Campbelltown LGA, which is characterised by a range of housing densities and industrial development. In this regard, Council has concerns over potential impacts associated with coal seam gas activities in both the surface and subsurface areas as a consequence of groundwater contamination and the considered inadequate assessment of these impacts.

3) Summary of Council's involvement regarding the Camden Gas Project

Applications for all three (3) stages of the Camden Gas Project were lodged with the Department of Planning and Infrastructure (DPI) by AGL under the recently repealed Part 3A of the *Environmental Planning and Assessment Act 1979*. It is understood that the project will continue to be assessed and determined at the State Government level under the Part 3A repeal transition arrangements announced by the NSW Government in July 2011.

The following discussion summarises Council's involvement with the Camden Gas Project and its position regarding this project and coal seam gas operations in general.

(i) Summary of Council's submissions on the Camden Gas Project

Council provided a submission to the NSW Department of Planning on Stage 2 of the Camden Gas Project in 2007. Council has also provided detailed submissions on the Preliminary Environmental Assessment (March 2009), draft EA (March 2010), draft amended EA (October 2010). Copies of all of these submissions with accompanying attachments can be provided to the Committee upon request.

The Committee is requested to consider all issues raised in (the attached) Council submissions as well as the groundwater specialist report accompanying its December 2010 submission on the EA placed on public exhibition, as part of the Inquiry. The Committee is also requested to note that Council objected to the project application for Stage 3 and the accompanying EA for the following reasons:

- Considered non-compliance with the project's Director General's Requirements regarding the cumulative assessment of impacts on surface and groundwaters and the accurate assessment of vegetation clearance;
- Considered inadequate assessment of potential impacts of coal seam gas activities on surface and groundwaters and biodiversity;
- Concerns over the capacity of the DPI to adequately monitor the implementation of the project over time; and
- The outcomes of the specialist advice, which were consistent with the view expressed in the submission from the New South Wales Office of Water (NoW) that the draft EA failed to address key water management issues.

(ii) *Summary of Council's position regarding the Camden Gas project and coal seam gas activities in general*

It is noted that a presentation by a representative of the Department of Trade and Investment (at a recent meeting of the Association of Mining Related Councils at Picton), indicated the coal seam gas industry in eastern Australia is projected to experience rapid growth over the next 25 years. Council has not adopted a formal position regarding the coal seam gas industry in general. However, the evolving science associated with the coal seam gas industry and increasing publicity the industry has received since the lodgment of the submission to the Department of Planning and Infrastructure has been monitored. Recent NSW Government initiatives such as the introduction of a moratorium on hydraulic fracturing (fracking) until 31 December 2011 and the preparation of an Aquifer Interference Regulation have also been noted.

It is considered these events have embellished and validated issues raised in Council's submission to the Department of Planning and Infrastructure. Therefore, there are concerns that the rapid expansion of the industry appears to be occurring without sufficient definitive scientific research particularly in regard to potential impacts on surface and groundwater resources and the lifecycle greenhouse emissions associated with the industry.

B. COMMENTS ON THE TERMS OF REFERENCE AND REQUESTED ISSUES FOR INVESTIGATION BY THE INQUIRY

1) Comments on the overall scope of the Terms of Reference

The scope of Terms of Reference item 1 is considered largely sufficient for the purpose of the Inquiry to report on the environmental, economic and social impacts of coal seam gas activities. However, it is disappointing that there is an absence of any reference to biodiversity given the significance of this issue in Council's submission on the Camden Gas Project. Further comments regarding this matter are provided in a subsequent section of this submission.

It is also recognised that the NSW Government has commenced preparation of Regional Strategic Land Use Plans (RSLUP), which it is understood are intended to outline recommendations to address impacts associated with coal seam gas extraction. The initial priority given to the preparation of plans with regions having the highest level of conflict between coal seam gas and agricultural activities is understood. However, there is considered likely to be a significant delay in the preparation of such a Plan for the Southern Coalfields. Therefore in the interim, it is considered preferable and appropriate view that the Terms of Reference require the Committee to provide recommendations in its report that can be adapted to individual projects in the absence of the RSLUP's.

2) Issues relating to specific Terms of Reference

The following discussion outlines the broad concerns of Council in regard to individual ToR items within the context of the background information and comments on the overall scope of the ToR document outlined above. The discussion also outlines issues requested by Council to be investigated by the Committee.

Terms of Reference Item-1a

The environmental and health impacts of coal seam gas activities on ground and surface water systems

The potential health and environmental impacts on surface and groundwaters are considered by Council to be a highly critical issue associated with all components of coal seam gas extraction projects. The following key issues and concerns of Council were raised in its submission to the Department of Planning and Infrastructure on the Camden Gas Project.

a) *Issues raised in Council's submission*

Concern was expressed over the inadequate assessment of potential impacts associated with the project on surface waters associated with the installation and operation of both the gas wells and gas gathering pipelines, within a catchment cumulative context. Council's submission expressed the view that the statement in the EA that '*downstream impacts were not anticipated*' was not acceptable. It also referred to the potential contamination of surface waters associated with the storage of chemicals and produced wastewater in evaporation ponds (or similar) at well sites.

AGL has advised at meetings of the Camden Gas Community Consultation Committee that only enclosed storage tanks are used as part of the Camden Gas Project. However, potential impacts associated with the storage and disposal of the significant volumes of saline wastewater generated by coal seam gas activities remains a concern to Council.

The introduction of a ban on the use of evaporation ponds relating to coal seam gas activities in the measures announced by the NSW State Government in July 2011 is supported by Council in addressing its concerns regarding impacts associated with the storage of wastewater produced at well sites. However, the Committee should note this measure has not addressed Council's concerns regarding potential impacts on nearby watercourses associated with the storage of chemicals at well sites.

As referred to previously, specialist advice regarding the groundwater component of the Camden Gas EA was obtained due to the highly technical nature of this field and the potential for impacts of coal seam gas activities on groundwater sources. The Committee is requested to note the specialist report broadly concluded that the EA contained insufficient information to allow for an accurate assessment of the compliance with certain DG's Requirements. The broad findings of the specialist report (accompanying the attached submission) in regard to each of the issues, (requested to be investigated by Council's Brief), are provided in Table 1.

Table 1: Key findings of specialist advice regarding the groundwater assessment

Issue	Key finding
Compliance with relevant DG's Requirements	The EA does not comply with requirements regarding baseline data, description of the groundwater environment or assessment of cumulative impacts.
Adequacy of baseline data	The EA did not contain sufficient data to allow for a comprehensive peer review.

Issue	Key finding
Adequacy of assessment of impacts associated with the use of chemicals	The inclusion of additional detail was warranted to allow for a peer review given the potential environmental and public health risks associated with the use of chemicals.
Adequacy of assessment of impacts associated with the drawdown on aquifers	The EA had not provided sufficient detail regarding intended safeguards or details regarding the fracking program to allow for a comprehensive peer review.

The assessment of health related impacts is outside the scope of responsibilities and expertise of Council officers. However, Council has concerns over any potential health impacts (of any scale) associated with the migration towards the surface of methane in the subsurface drilling area of the Camden Gas project. In this regard, it is noted in an article (dated 16 August 2011) from the Australian School of Petroleum at the University of Adelaide, that there is potential for such migration to occur. It is also noted this matter is discussed in detail in the submission on the impacts of the mining of coal seam gas, to the Rural Affairs and Transport References Committee Inquiry by Doctors for the Environment Australia.

In addition, and although not raised in detail in Council's submission on the Camden Gas Project, it has been noted that the Sydney Catchment Authority and sections of the community have expressed over the potential for groundwater contamination as a consequence of the release of petroleum products during the gas extraction process. In this regard, Council would have particular concerns over the potential for environmental impacts given the level of toxicity of these chemicals.

b) Comments in regard to recent initiatives

It is noted that a number of studies and policies of relevance to the impacts of coal seam gas on surface and groundwater sources have recently been prepared or are in the process of being prepared, that are known to include (but are not limited) to:

- The Position Statement released by the Australian Government National Water Commission into Coal Seam Gas, which was noted to state that '*coal seam gas development represents a substantial risk to sustainable water management*'.
- The Water Sharing Plans applying to Surface and Groundwater Sources in the Greater Metropolitan Region (adopted by the NoW in March 2011); and
- The preparation of an Aquifer Interference Regulation Policy (that is understood to be nearing finalisation) by the New South Wales Office of Water.

These initiatives from technical experts in the groundwater field are considered to verify the issues of concern raised in Council's submission on the Camden Gas Project, as outlined above

In addition, it is noted that the Federal Member for Tamworth (the Hon. Tony Windsor) in a press release (dated 17 August 2011) indicated his intent to introduce a Private Members Bill to amend the Commonwealth *Environment Protection and Biodiversity Conservation Act 1998 (EPBC Act)* that specifically bans any mining activity '*that has, will have, or is likely to have, a significant impact on the water quality, structural integrity or hydraulic balance of a water resource*'. In relation to this Act, it is also noted the Minister for the Environment, (the Hon. Tony Burke), has encouraged NSW State Governments to adopt the guidelines used

for projects referred to the Commonwealth under this Act, which requires a demonstration that individual aquifers can withstand gas extraction and that each application contain a waste (salinity) management plan. It is considered that the raising of these issues at the Commonwealth level has also verified concerns raised in Council's submissions on the potential impacts as well as the identified significant deficiencies in the review of the project by the NSW Department of Planning.

c) Issues requested to be considered by the Committee

The intention of the Committee to enquire and report on the potential health and environmental impacts of coal seam gas activities on surface and groundwaters is therefore particularly welcomed by Council. In this regard, the Committee is requested (as a minimum) to inquire into the following matters associated with the environmental and health impacts of coal seam gas activities on ground and surface water systems as follows:

- Potential impacts on surface waters (including salinity) associated with the construction and operation of gas extraction wells and gas gathering pipelines;
- Potential impacts on groundwaters that include impacts associated with aquifer interference, impacts of dewatering, impacts during the construction, operation and remediation of well sites, and impacts associated with the gas extraction process;
- Potential cumulative impacts on neighbouring aquifers, groundwater users and environmental receptors;
- Potential impacts associated with the interaction between surface and groundwater sources; and
- Potential health impacts associated with the potential contamination of groundwater aquifers arising from the use of chemicals and potential for escaping methane gas, (as well as the release of petroleum products), to migrate towards shallower aquifers and possibly the surface, either through wellbores or through natural geological pathways.

Council requests that the Committee in reporting on this ToR item also provide specific recommendations that will mandate that identified impacts as located with all current and future projects are properly addressed. Council would further request that the Committee also provide recommendations on a regional basis that can be adapted to apply to individual projects. It is also requested that the Committee undertake discussions with the Commonwealth regarding the interrelationship of the *EPBC Act* with coal seam gas activities and the achievement of national uniform standards associated with the coal seam gas industry as part of this process.

Terms of Reference item-1b

The environmental and health impacts of coal seam gas activities related to the use of chemicals

a) Issues raised in Council's submission

Advice has been received by AGL that it has not used and does not intend to use BTEX chemicals as part of the Camden Gas Project. However, a list of chemicals (and their associated material safety data sheets) has not been provided by AGL despite requests from Council, the Office of Water, and the Department of Trade and Investment. The Committee is requested to note that documents obtained by Council in response to a Freedom of Information application by Council, indicated that this matter does not appear to have been

pursued by the Department of Planning and Infrastructure during its review of the EA prior to its exhibition, which Council considers to be unsatisfactory.

It is noted that a report produced by the National Toxins Network contained a detailed analysis of chemicals, regarding the assessment of potential health and environmental impacts that can potentially be used as part of coal seam gas industries.

In relation to this matter, Council has adopted the following recommendations of the groundwater specialist advice to address deficiencies in the Stage 3 Camden Gas project application:

- That the EA be amended to include a more comprehensive description of the proposed hydrological fracturing (fracking) process, in particular, the chemical additives intended for injection; and
- That the EA be amended to include a detailed assessment of cumulative impacts associated with the use of chemicals on the quality of surface and groundwaters.

In light of the above specialist advice and given the absence of specific information regarding the use of chemicals as part of the Camden Gas Project, the Committee is requested to further note that Council has adopted the following position regarding this matter:

- The use of potentially harmful chemicals without adequate scientific advice regarding the validity of the conclusions of the EA regarding this matter is opposed; and
- The use of chemicals as part of coal seam gas activities should be independently and regularly audited by an authority with sufficient experience and regulatory powers and that such data be made publicly available.

b) Issues requested to be considered by the Committee

The intention of the Committee to enquire and report on the potential health and environmental effects associated with the use of chemicals is therefore particularly welcomed by Council. Accordingly, the Committee is requested (as a minimum) to inquire into the following matters:

- Potential impacts associated with all chemicals (not just BTEX chemicals) that may be used as part of the fracking process or other activities, as part of coal seam gas activities such as drilling additives; and
- Appropriate means of requiring the full public disclosure by proponents of all chemicals used as part of coal seam gas activities, during the assessment and operational components of the project.

Terms of Reference Item-1c

The environmental and health impacts of coal seam gas activities related to hydraulic fracturing

a) Issues raised in Council's submission

Council has been advised by the proponent of the Camden Gas Project (AGL) that hydraulic fracturing is only required on approximately thirty percent of the proposed wells. However, the potential environmental and health impacts associated with the fracking process are of concern to Council. These impacts are also noted to be a significant concern held by

sections of the local community. In this regard, Council has a responsibility under its Charter outlined in Section 8 of the *Local Government Act 1993* to respond to these community concerns.

As outlined above, Council's submission referred to a specialist report on the groundwater component of the Camden Gas project application, which identified deficiencies in the proposed safeguards to prevent impacts associated with the fracking process migrating to adjoining geological strata and aquifers. Council officers have also discussed (with a representative of the CSIRO), research undertaken on the relationship between the created fracture and natural fractures in adjoining geological formations for both shale seam and coal seam gas extraction. In response to the receipt of this specialist advice, Council's submission on the Camden Gas Project requested the assessment of potential impacts on urban areas as a consequence of conducting fracking processes.

b) Comments in regard to recent initiatives regarding this matter

It is also noted there have been a number of recent studies and government initiatives in relation to the hydrological fracturing process that are known to include (but not limited) to:

- A three day conference on the fracking process (in both shale gas and coal seam gas) held in Texas in the USA, which indicates the level of current scientific uncertainty regarding the process;
- The publication of a number of research articles regarding the potential impacts of the fracking process published on the *Conversation* website;
- The release of the scope of a Draft Plan by the United States Environmental Protection Agency to 'Study the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources' in February 2011; and
- The banning of the use of the hydrological fracturing process in France, parts of South Africa and the United States and the introduction of a moratorium on the process in New South Wales until 31 December 2011.

The impacts associated with the fracking process are recognised to be different in regard to coal seam and shale gas extraction and across different geological formations. However, the above research and initiatives are considered to be consistent with the issues raised in Council's submission on the Camden Gas Project outlined above, and concerns that rapid growth of the coal seam gas appears to be occurring without proper scientific analysis.

c) Issues requested to be considered by the Committee

The intention of the Committee to enquire and report on the potential health and environmental effects of coal seam gas activities relating to the fracking process is therefore welcomed by Council. Accordingly, the Committee is requested (as a minimum) to inquire into the following matters:

- The relationship of the created fracture with natural fractures in the coal seams and surrounding coal seams;
- Potential impacts associated with any breaches of the created fracture to neighbouring formations and interconnected surface water systems; and
- Potential impacts associated with any subsidence as a consequence of the fracking process.

Terms of Reference item-1e

The nature and effectiveness of the Act (Petroleum Act) in remediating the environmental and health impacts of coal seam gas activities

Detailed comment is not provided regarding this particular ToR item as the responsibility of remediation is recognised as being a matter to be addressed by relevant State Government Agencies and proponents. However, there are currently four operating gas wells in the Campbelltown LGA and an additional 4 approved wells as part of Stage 2 of the Camden Gas Project. There are also an additional 6 wells proposed to be located in the rural or semi-rural section of the LGA as part of Stage 3 of this project, once approved.

Therefore, Council has concerns over aspects of the future remediation of these wells following the conclusion of production, based on the outcomes of recent research that indicates the potential for long-term contamination of groundwaters as a consequence of coal seam gas operations. The intention of the Committee to enquire and report on the nature and effectiveness of the Petroleum Act in remediating the environmental and health impacts of coal seam gas activities is therefore welcomed by Council. In this regard, the Committee is requested (as a minimum) to inquire into the following regarding this matter:

- The effectiveness of the *Environmental Planning and Assessment Act 1979* given that remediation requirements are often issued as conditions of consent under this Act;
- The potential for long-term contamination of groundwaters as a consequence of the decomposition of concrete utilised for the sealing of wells;
- The long-term duration and extent of potential impacts associated with coal seam gas activities on groundwater sources; and
- The effectiveness of remediation in restoring biodiversity impacts associated with coal seam gas activities.

Terms of Reference Item-1f and Item-1g

The environmental and health impacts of coal seam gas activities on greenhouse gas and other emissions and the relative environmental health impacts of coal seam gas activities compared to alternate fossil fuels

Environmental impacts associated with the emission of greenhouse gases by coal seam gas activities are recognised as being of relevance to the wider community. However, Council was a participant in the former Cities for Climate Change Program and is currently in the process of preparing and implementing a Sustainability Strategy that includes a range of measures to significantly reduce Council's overall carbon footprint and improve regional air quality. Consequently, Council's submission on Stage 3 of the Camden Gas Project provided comment in regard to the assessment of impacts of the project associated with greenhouse gas emissions.

It is noted that coal seam gas is being promoted by a range of sectors as either an alternate fuel to achieve national greenhouse reduction targets or a transition fuel in the movement towards a renewable energy economy. In this regard, a presentation by a representative from the NSW Department of Trade and Investment, at a recent meeting of the Association of Mining Related Councils at Picton, indicated that coal seam gas production in eastern Australia is likely to increase from approximately 100 Peta Joules in 2007/08 to 2500 Peta Joules in 2029/30.

The reduced greenhouse gas emissions generated from methane gas compared to emissions generated from the burning of coal is also recognised. However, it is noted that a recent article entitled *'What is the real emissions footprint of coal seam gas?'* by Dr Dennis Cooke and Patrick Hearps (dated August 2011) contains the following statements regarding full life cycle of greenhouse gas emissions associated with coal seam gas activities:

"There hasn't been enough empirical, ground-up research into the full lifecycle emissions from coal seam gas taking into account fugitive emissions"; and

"Policymakers need to consider the greenhouse gas emissions produced in the full life cycle- including extraction, transport, processing and compression".

It is also noted that a study recently conducted by the Cornhill University compared the long-term greenhouse effect of fugitive methane emissions to the greenhouse effect of carbon dioxide emissions associated with the use of coal.

Therefore, as expressed previously, there are concerns that the rapid growth appears to be occurring without sufficiently adequate scientific analysis regarding the whole-of-lifecycle emissions of methane. Accordingly, the intention of the Committee to conduct a comprehensive inquiry into the greenhouse gas emissions associated with coal seam gas operations is welcomed. However, it is suggested that experts in this field in Australia and internationally, be requested to provide information at the Inquiry to ensure that the recommendations of the Committee are based on the latest available scientific research.

Terms of Reference Item-2a

The economic and social implications of coal seam gas activities including those which affect legal rights of property owners and property values

a) Issues raised in Council's submission

The sites of existing gas wells in the Campbelltown LGA (as part of Stage 2) and proposed wells (as part of Stage 3) have been established in rural or semi-rural areas. However, the landuse in parts of these areas are changing in response to pressure for increased urban development or rural-residential development.

In this regard, Council's submission to the Department of Planning and Infrastructure on the Camden Gas Project requested the consideration of potential implications associated with land sterilisation (for a period of up to 15 to 20 years over the lifespan of the wells) in terms of impacts on future development and any restrictions on such use as a consequence of drilling operations. It is calculated the potential land sterilisation area over this period for each well is approximately 1200 metres based on the *"Location Guidelines for Development in the Vicinity of Operating Coal Seam, Methane Wells in 2004"*. The potential implications include restrictions on the layout and construction of new urban release areas and a possible reduction in land values.

In regard to the provision of compensation to landholders, it is noted that Section 107(3) of the *Petroleum (Onshore) Act 1991* states:

"Compensation is not payable under this Act by the holder of a petroleum title, or a person to whom an easement or right of way has been granted under this Act, where the operations of the holder or person do not affect, and are not likely to affect, any portion of the surface of any land".

Council is concerned that this Section of the Act may preclude the payment of compensation to landowners in relation to the provision of underground infrastructure such as gas gathering pipelines. This is of relevance to Council given that a major gas supply pipeline is located on the footprint of a new urban release area. In this regard, it is contended that compensation must be payable for any underground infrastructure associated with gas wells that impacts on a landowner's ability to achieve the highest and best value for their land.

It is noted that Terms of Reference item 4 indicates the Committee will inquire into the interaction of the *Petroleum Act* with other legislation, including the *Land Acquisition Act 1991*. In relation to this matter, it is considered there is an absence of reference to this Act in the *Petroleum Act* in terms of resolving access issues when two parties cannot reach an agreement. In relation to this item, the Committee should note Council has recently resolved not to enter into an agreement with AGL for two proposed well sites on land it owns.

b) Issues requested to be considered by the Committee:

The intention of the Committee to enquire and report on the economic and social implications of coal seam gas activities that affect the legal rights of property owners and property values is therefore welcomed by Council. Accordingly, the Committee is requested (as a minimum) to inquire into the following matters:

- The rights of property owners in regard to the negotiation of access agreements associated with wells;
- The long-term implications on property values as a consequence of the sterilisation of land over the lifespan of the wells and beyond; and
- The adequacy of existing legislation in providing short and long-term compensation to landholders regarding implications associated with all components of coal seam gas activities.

Terms of Reference item-2b

The economic and social implications of coal seam gas activities including those which affect food security and agricultural activity

The responsibility of assessing the economic and social implications of coal seam gas activities on agricultural activity is recognised as being a matter for the Department of Primary Industries as well as representative organisations of interest groups such as the New South Wales Farmers Federation. In this regard, it is noted the potential conflict between coal seam gas activities and agricultural activity has recently received significant publicity at both the State and Commonwealth levels.

The extent of agricultural activity within the Campbelltown LGA is significantly limited in comparison with agricultural activity in a number of other LGA's impacted or potentially impacted by coal seam gas activity, such as the Liverpool Plains Shire. The landholdings subject to agricultural activity within the Campbelltown LGA are located in the west and southern parts of the Campbelltown LGA (Map 3). These lands are predominantly used for pastoral activity, with most lot sizes less than 3ha in area with the exception of a small number of lots in excess of 20ha. A review of the value of this land as part of the preparation of Council's forthcoming Comprehensive Local Environmental Plan has however found that these lands are potentially important food production resource for the LGA and that their future retention is important.

It has been determined that almost all of the land within the Campbelltown LGA currently under agricultural use is located within the approved Stage 2 of the Camden Gas Project or in the Stage 3 application area. It has also been determined that existing or proposed wells are located within four of the five broad areas of agricultural activity located near the western boundary of the Campbelltown LGA as indicated on Map 3.

Therefore Council holds some concern over impacts associated coal seam gas extraction activities on agricultural pursuits carried out on rural lands in the Campbelltown LGA based on commentary by the New South Wales Farmers Federation and landholders in rural NSW. Consequently, Council would request that that potential impacts on agricultural activity in the Campbelltown LGA be investigated as part of its broader inquiry into the implications of coal seam gas activity on food security and agricultural activity in NSW.

Terms of Reference item-2e and 2f)

The economic and social implications of coal seam gas activities including those which affect local government including provision of local/regional infrastructure and local planning control mechanisms

Comments are provided concurrently in regard to items 2e) and 2f) given the interrelationship between the issues of collection of royalties and impact of coal seam gas activities on the maintenance and provision of local infrastructure.

The following provides comments in regard to the position of Council and requested issues to be considered by the Committee in relation to the two broad areas of these Terms of Reference items. The implications of the recent decision of the NSW Government not to levy royalties on the production of coal seam gas over the next five years for the Inquiry are unclear.

a) *The collection of royalties payable to the State and provision of local/regional infrastructure*

Council is a member of the Association of Mining Related Councils, which has prepared a Royalties Proposal aimed at redirecting a proportion of mining royalties currently collected by the State to local government. However, the formal endorsement of this proposal by Council has been deferred pending the outcomes of a feasibility analysis and the development of details such as appropriate procedures for the distribution of collected royalties to individual councils impacted by mining operations.

The current extent and nature of implications for the provision of local infrastructure in the Campbelltown LGA is recognised as being significantly less than a number of other LGAs containing existing or proposed coal seam gas activities. However, it is envisaged that local roads will be subject to increased heavy traffic in certain residential suburbs in close proximity to proposed wells as part of Stage 3 of the Camden Gas Project. In this regard, the Committee should note that Council supports the reimbursement of expenses incurred by local government in the provision and maintenance of local infrastructure, as a consequence of mining operations, in principle.

The inquiry by the Committee into the collection of royalties by the State Government and the economic implications of coal seam gas on the provision and maintenance of infrastructure by local government is therefore welcome. However, Council would request that the Committee consider and present recommendations regarding appropriate means of distributing collected funds to local government, as part of its investigation regarding this matter.

b) *Local planning control mechanisms*

The intention of the Committee to inquire into the implications of coal seam gas activities on local planning control mechanisms is particularly welcomed by Council as this matter has been raised on a number of occasions in its submissions on the Camden Gas Project and in discussions with the DPI. In this regard, the Standard Instrument (Local Environmental Plans) which sets out the mandated requirements for new local environmental planning instruments prepared by councils deals with mining, underground mining, open cut mining and extractive industries. It does not, however, concern itself with coal seam gas extraction nor petroleum production. This anomaly needs to be addressed, notwithstanding that the statutory planning process for coal seam gas activities is dealt with by a separate State Environmental Planning Policy.

Further, Council is of the view that coal seam gas operations, as should be the case with other mining activities, should not be permissible in environmentally sensitive areas, nor in circumstances where their inherent environmental impacts are likely to significantly compromise environmental values, be they ecological, hydrogeological, agricultural or otherwise. In addition, Council would request that the Committee grant the most serious consideration to the establishment of a statutory mechanism, as part of the environmental planning and assessment process, to ensure that local communities are granted an assurance that their objections, issues and concerns over proposals for coal seam gas activities, are properly addressed as part of the project assessment and determination process.

Historically Council has had, on occasion, good reason to be dissatisfied with the way its concerns and objections to certain Part 3A development proposals have been dealt with by the determining authority. This has created a level of doubt across the local community as to whether its concerns are seriously and properly considered when it comes to certain projects that fall within Part 3A of the *Environmental Planning and Assessment Act, 1979*. Indeed, it is noted that mining and coal seam gas activities will continue to be assessed and determined by the Minister, a Planning Assessment Commission or a senior official of the Department of Planning and Infrastructure.

If that is to be the case, and if any applications for coal seam gas activities are not to be determined by local councils, which are accountable to their own local communities, then at the very least, a right of appeal (based on project merit) to the New South Wales Land and Environment Court must be made available to councils and local communities, in all circumstances, to dispute the approval of such applications, should there be sound reason for such an appeal to be heard. In the event that such a statutory assurance could not be granted, councils could feel justified in seeking a return of planning determination powers to local government for applications for all coal seam gas activities and a range of other significant development classes.

Terms of Reference item-3b

The role of coal seam gas in meeting the future energy needs of NSW including the relative whole-of-lifecycle emission intensity of coal seam gas versus other energy sources

Comments in regard to this item, (which is recognised as being of relevance to the whole community), have been previously provided in regard to Terms of reference items 2f) and 2g) above. This section of the submission referred to recent articles from academics with expertise in this field indicating an insufficient level of research into the full lifecycle of

greenhouse gas emissions from coal seam gas operations, taking into account fugitive emissions.

The following provides comments concerning emission intensity of coal seam gas activities compared to both the coal mining and renewable energy industries

a) *Relative whole-of-lifecycle emission intensity of coal seam gas activities versus coal mining activities*

The intention of the Committee to investigate the relative whole-of-life-cycle emission intensity of coal seam gas versus other energy sources as part of its inquiry into the role of coal seam gas in meeting the future energy needs of NSW is broadly supported. However, the following comments are provided for the Committee's consideration as part of its investigation, based on the unavailability of sufficient scientific information regarding this matter:

- The whole-of-cycle greenhouse gas emissions associated with the use of methane gas compared to other energy sources should be considered; and
- The long-term greenhouse properties of methane gas within the atmosphere in comparison to carbon dioxide should be considered as part of the investigation regarding the relative merits of methane gas and coal, in meeting the future energy needs of NSW.

b) *Relative whole-of-lifecycle emission intensity of coal seam gas activities versus renewable energy sources*

Sections of the industry sector are noted to have expressed the view that renewable energy sources (e.g. solar and wind power) are significantly more expensive than coal and coal seam gas sources and will not provide sufficient energy to meet the demands of the NSW population for a significant period of time. It is noted that this view was expressed by the NSW Resources and Energy Minister, (the Hon. Chris Hartcher) in a recent address to the Committee for Economic Development of Australia. However, recent research undertaken by the Beyond Zero Emissions Unit attached to the University of Melbourne as well as the development of new technology in a range of European Countries such as Spain is noted to raise certain questions worthy of review by the Committee.

As outlined above in regard to ToR item 2f), Council is in the process of implementing a range of measures to reduce its carbon footprint and financial burden associated with rising electricity costs. Council has also installed solar cells on a number of buildings it owns including its Works Depot. Consequently, and in light of the above research, it is requested that the Committee consider coal and renewable energy sources equally when inquiring into the relative whole-of-lifecycle emission intensities of coal seam gas activities, with other sources.

Terms of Reference item- 4

The interaction of the Act (Petroleum Act) with other legislation and regulations, including the Land Acquisition (Just Terms Compensation) Act 1991

The intention of this Terms of Reference item in the context of the inquiry into the impacts of coal seam gas activities is uncertain. However, as outlined above, Council's submission to the Department of Planning and Infrastructure on the Camden Gas Project identified significant deficiencies in the level of baseline data and level of assessment in the

Environmental Assessment accompanying the Camden Gas Project. It is therefore suggested that the following matters be considered as part of the Inquiry in relation to this ToR item:

- The interaction of the *Petroleum Act* with other State legislation of relevance to coal seam gas activities (including the *Environmental Planning and Assessment Act 1979*); and
- The effectiveness of legislation in properly addressing all potential associated environmental, social and economic impacts associated with coal seam gas activities.

In relation to this matter, it is recognised that Part 6 of the *Petroleum Act* includes requirements regarding the protection of the environment matters to be included on petroleum licences and requirements for site rehabilitation. However, the Act is considered to be largely restricted to aspects associated with the issuing of permits for exploratory drilling and gas extraction activities.

Major issues raised in Council's submission on the Camden Gas Project related to impacts associated with coal seam gas activities on ground and surface waters and the considered inadequate assessment of these impacts. The Committee is requested to note that the submission on the original draft EA by the NoW stated that the '*project failed to satisfy the statutory requirements in regard to water management*'. Consequently, the two pieces of legislation considered to be of most relevance to coal seam gas activities is the *Water Management Act 2000* and the *Environmental Planning and Assessment Act 1979*.

Table 2 provides a summary of the considered relevance of each of these Acts and associated documents as well as issues requested to be considered by the Committee regarding their effectiveness in addressing potential impacts associated with coal seam gas activities.

Table 2: Summary of requested issues to be considered in regard to relevant Acts

Act	Relevant impacts	Issues for consideration by the Committee
<i>Water Management Act 2000</i>	Surface waters Groundwater sources	Implications of the Metropolitan Water Sharing Plans applying to both Surface and Groundwaters.
		Implications of the Aquifer Interference Policy (understood to be nearing finalisation).
		Compliance with the Watercrossing guidelines produced by the NoW.
<i>Environmental Planning and Assessment Act 1979</i>	Review of Environmental Assessments	The issuing of requirements that will allow for comprehensive environmental assessments.
	Issuing of project determination	Procedures to allow for the adequate review of EA's prior to public exhibition.

Act	Relevant impacts	Issues for consideration by the Committee
		The adequacy of conditions of consent in project determination.

Council would request that the Committee investigate (as a minimum) issues outlined in Table 2 as part of its inquiry into the interaction of the Petroleum Act with other Acts of relevance to the coal seam gas industry.

C. SUGGESTED ADDITIONAL TERMS OF REFERENCE ITEM

1) *The environmental and health impacts of coal seam gas activities on biodiversity*

The potential impacts on surface and ground waters, agricultural activity and greenhouse gas emissions are recognised as being the most important long-term issues associated with coal seam gas activities. However, Council's submission on the Camden Gas Project also identified impacts on biodiversity as a potentially significant issue associated with coal seam gas activities for the following reasons:

- The project area contains remnants of Cumberland Plain Woodland (CPW), listed as a Critically Endangered Ecological Community (CEEC) at both the State and Commonwealth level;
- The establishment of well sites can potentially involve clearance of vegetation up to 1 ha in area, while the laying of gas gathering pipelines can also result in the clearance of vegetation;
- Stage 3 of the project is noted to involve the clearance of CPW as well as approximately 12 ha of native grassland, which is included in the definition of CPW in the Determination for the listing of the community as a CEEC;
- The EA associated with the project application is considered to contain inadequate surveys and assessment of impacts on flora and fauna and their habitat; a view supported by initial comments from the Office of Environment and Heritage; and
- The EA is not considered to have adequately assessed the long-term impacts on the movement of fauna as a consequence of the sterilisation of the land for up to 15 years over the lifespan of well sites.

The significance of this issue in other districts impacted by coal seam gas activities in terms of the presence of threatened species and communities is unknown. It is also recognised that the OEH has responsibilities in regard to the protection and management of biodiversity in NSW.

Consequently, it is recognised that consultation with the OEH maybe needed to determine the extent and level of impact of coal seam gas activities in NSW on biodiversity as part of the consideration of the suggested additional ToR in relation to this item. However, pending the outcomes of this consultation, Council would request that the ToR's be amended to include an additional item to enable the Committee to inquire into the environmental and health impacts of coal seam gas activities on biodiversity including species, ecological communities and habitat corridors.

2) The economic and social implications of coal seam gas activities in relation to water availability

The EA for Stage 3 of the Camden Gas Project is noted to state that each well site will require in the order of 250 to 500 kilolitres of water per annum for hydraulic fracturing purposes as well as additional (unspecified) volumes of water for a range of maintenance purposes. In this regard, it is recognised that the use of water is required for certain components of the gas extraction process such as for hydraulic fracturing and maintenance activities. It is further recognised that there is a high level of recycling at well sites and that the required water is on occasions obtained from sources other than potable sources.

However, it is contended that water usage is a significant and essential component of coal seam gas activities. Therefore, Council requests that the Committee consider the economic and social implications of coal seam gas activities related to the volume of water required given the significant projected increase in the industry, in light of the following:

- The social and economic implications of Water Sharing Plans prepared by the New South Wales Office of Water on coal seam gas activities relating to both surface and ground waters in terms of water availability for environmental flows and water drawing activities;
- The social and economic implications on the supply of potable water for general domestic and industrial consumption purposes given the predicted growth in population (and associated demand), and predicted high variation in rainfall as a consequence of global warming over the next 50 to 60 years; and
- The need for a benefit cost analysis to determine the economic and social costs of impacts on surface waters as a consequence of the significant volumes of water required for coal seam gas operations (in addition to the environmental impacts outlined above in regard to Terms of Reference item-1a).

D. CONCLUSION

The project area for the approved Stage 2 of the Camden Coal Seam Gas Project and project area for the Stage 3 application occupy a significant proportion of the western section of the Campbelltown Local Government Area. The project area includes the Scenic Hills lands that contain significant natural and cultural assets. Council places a high level of importance in protecting this area from impacts associated with coal seam gas operations.

Council has not adopted a formal position regarding the coal seam gas industry in general. However, Council's submission to the Department of Planning and Infrastructure on Stage 3 of the Camden Gas project objected to project determination on a number of grounds that included:

- Considered non-compliance with the project's Director General's Requirements regarding the cumulative assessment of vegetation clearance;
- Considered inadequate assessment of potential impacts of coal seam gas activities on surface and groundwaters and biodiversity; and
- The outcomes of groundwater specialist advice obtained by Council, which was consistent with previously expressed views from the New South Wales Office of Water that the draft EA failed to address key water management issues.

The submission refers to advice received from a representative of the Department of Trade and Investment that the coal seam gas industry in Eastern Australia is projected to experience rapid growth over the next 25 years. In this regard, there are concerns that this

projected rapid expansion appears to be occurring without sufficient definitive scientific research particularly in regard to potential impacts on surface and groundwater resources and the lifecycle greenhouse emissions associated with the industry.

Council welcomes the Parliamentary Inquiry due to these concerns as well as the recent research and Government initiatives regarding the coal seam gas industry. The Terms of Reference are considered adequate for the Committee to achieve the stated purpose of inquiring and reporting on the environmental, economic and social impacts of coal seam gas activities, including exploration and commercial extraction activities allowable under the *NSW Petroleum (Onshore) Act 1991*. However, it is requested that the Terms of Reference be amended to include an additional item to enable the Committee to inquire into the environmental impacts of coal seam gas activities on biodiversity, including species, ecological communities and habitat corridors.

This submission provides comments in regard to relevant individual Terms of Reference items in terms of issues and concerns raised in Council's submission on the Camden Coal Seam Gas Project and issues requested to be considered by the Committee as part of its inquiry in regard to these items. The submission also refers to relevant research and government initiatives that have occurred since the lodgement of Council's submission on the Camden Gas Project in December 2010. The key issues requested to be considered by the Committee that are outlined in this submission include:

- Potential health impacts associated with the potential contamination of groundwater aquifers and the potential for escaping methane gas, (as well as the release of petroleum products);
- Potential impacts associated with all chemicals (not just BTEX chemicals) that may be used as part of the fracking process or other activities, as part of coal seam gas activities such as drilling additives;
- Potential impacts associated with any breaches of the created hydraulic fracture to neighbouring formations and interconnected surface water systems;
- The whole-of-lifecycle greenhouse emissions associated with the coal seam gas industry compared to the coal and renewable energy industries;
- The potential long-term implications on property values as a consequence of the sterilisation of land over the lifespan of the wells and beyond;
- Potential impacts on agricultural activity as part of the broader inquiry into the implications of coal seam gas activity on food security and agricultural activity in New South Wales;
- The right of appeal (based on project merit) to the New South Wales Land and Environment Court, which Council considers, should be made available to councils and local communities in all circumstances; and
- The amendment of the Terms of Reference to include an additional item to enable the Committee to inquire into the environmental and health impacts of coal seam gas activities on biodiversity including species, ecological communities and habitat corridors.

Importantly Council requests the Committee to pay serious attention to the consideration of local community input into the statutory planning assessment and determination process for coal seam gas activities. Councils and local communities generally, must have an unequivocal assurance that these objections, concerns and issues are properly dealt with by approval authorities. Rights of appeal to the Land and Environment Court by councils and third party objectors must be restored for a range of significant development projects,

including coal seam gas activities, in order to provide confidence that matters of social and environmental impact, and the public interest, are properly addressed.

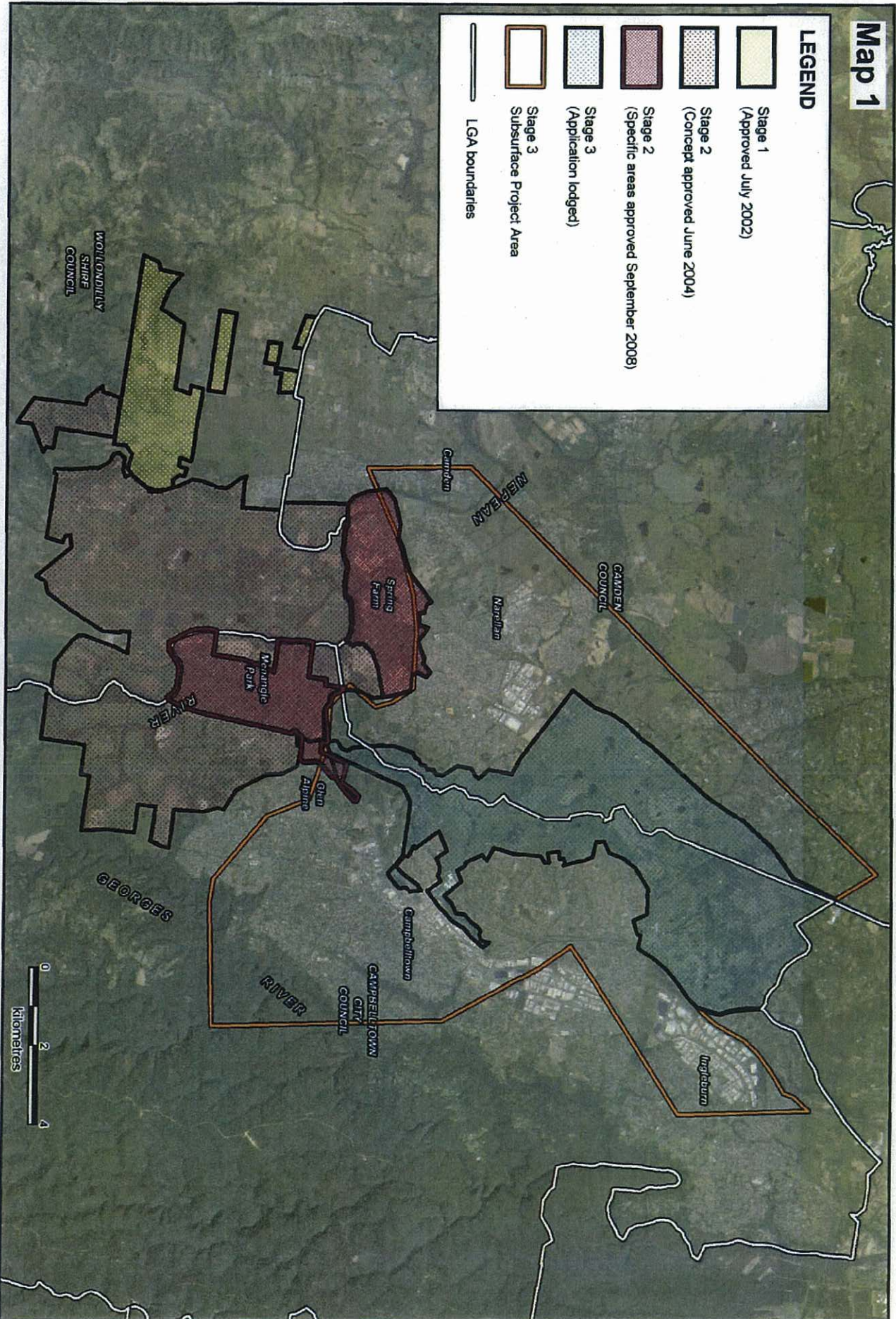
In conclusion and although not raised in detail earlier in this submission, Council would request that issues that impact on local communities brought about by coal seam gas activities should at least, in part, be addressed by the serious consideration of a scheme that shares the proceeds of the State Royalties arising from such projects, with local communities.

The intention of the Committee to conduct open public hearings as part of the Inquiry is welcomed. In this respect, Council would appreciate being notified of the details of the public hearings and being provided with the opportunity of presenting its concerns and issues associated with the coal seam gas industry outlined in this submission to the Committee at a public hearing.

Map 1

LEGEND

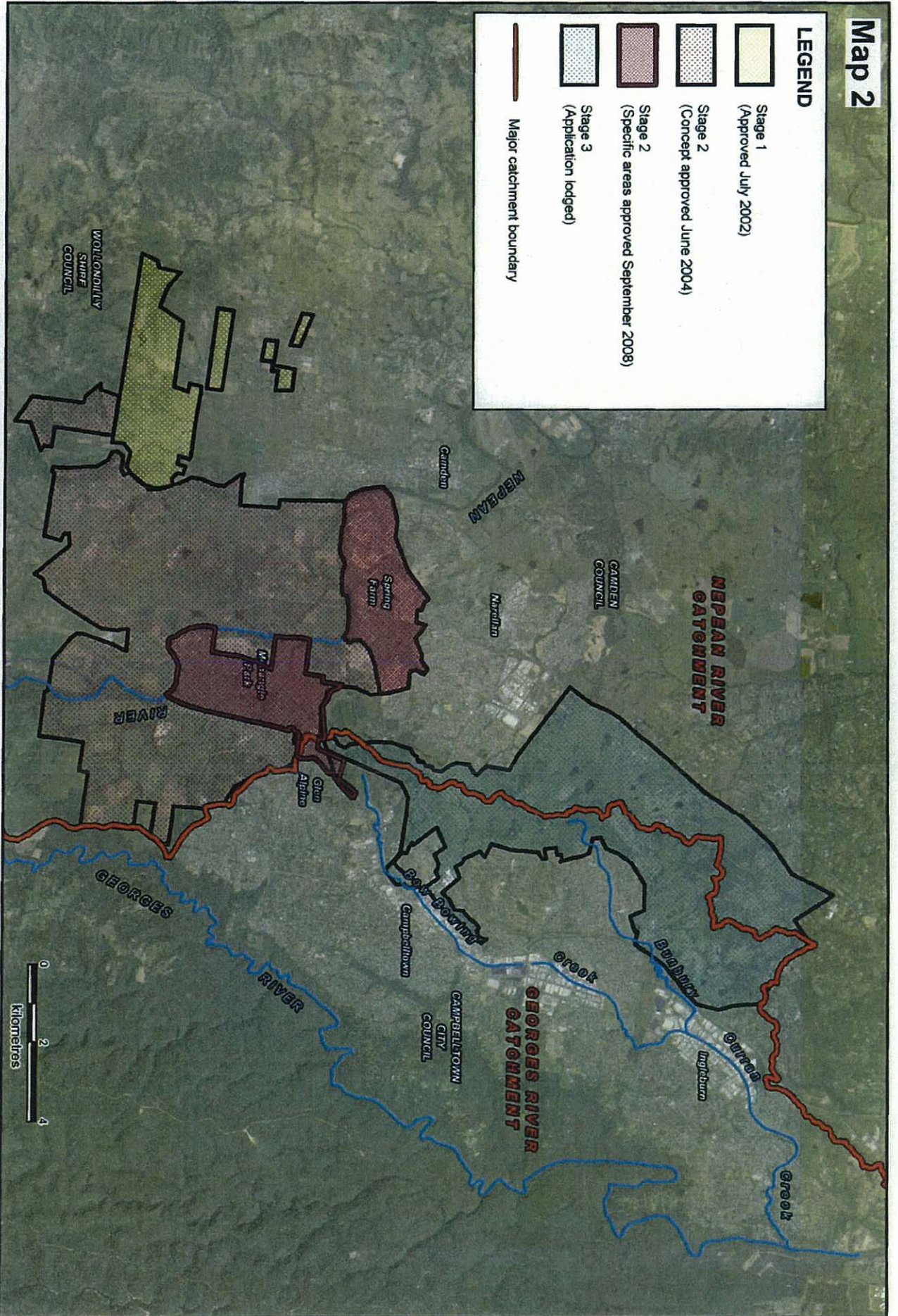
- Stage 1 (Approved July 2002)
- Stage 2 (Concept approved June 2004)
- Stage 2 (Specific areas approved September 2006)
- Stage 3 (Application lodged)
- Stage 3 (Subsurface Project Area)
- LGA boundaries



Map 2

LEGEND

- Stage 1
(Approved July 2002)
- Stage 2
(Concept approved June 2004)
- Stage 2
(Specific areas approved September 2008)
- Stage 3
(Application lodged)
- Major catchment boundary



Map 3

LEGEND



Stage 2
(Concept approved June 2004)



Stage 3
(Application lodged)



Stage 2 approved well surface locations



Stage 3 proposed well surface locations



Areas of extensive agricultural land use
in the Campbelltown LGA

