

## Advice to decision maker on coal seam gas project

**Proposed action: Northern Expansion of the Camden Gas Project (EPBC 2012/6638)**

<b>Requesting agency</b>	Department of Sustainability, Environment, Water, Population and Communities
<b>Date of request</b>	17 December 2012
<b>Date request accepted</b>	18 December 2012
<b>Advice stage</b>	Referral
<b>Summary of request from the regulator</b>	<p>The Department of Sustainability, Environment, Water, Population and Communities (the Department) is currently assessing the proposed project in accordance with the provisions of the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (the EPBC Act).</p> <p>The Department notifies the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (the Committee) of an opportunity to comment on whether the proposed project is likely to have significant impacts on matters protected under the EPBC Act and therefore requires formal Commonwealth assessment and approval. Specifically, the Department seeks the advice of the Committee on:</p> <ol style="list-style-type: none"> <li>1. Is the information and modelling of the existing surface and groundwater environment within the project area accurate and comprehensive?</li> <li>2. What are the likely impacts of the proposed coal seam gas project on the quality and quantity (or any other impacts) of surface and ground water resources? In particular, are there any likely changes to surface and ground water dynamics which may support habitat for matters protected under the EPBC Act, as discussed in section 4.4? Where are these impacts likely to occur and how far are they likely to extend?</li> <li>3. Does the Committee consider that landform subsidence and impacts to the surface environment (beyond direct disturbance from installation of infrastructure and wells) are likely to occur? If so, where, and what are the likely resulting impacts on surface and ground water?</li> <li>4. Does the Committee find the water balance model and conclusions relating to water impacts by the person proposing to take the action to be appropriate, reasonable and accurate?</li> <li>5. Does the Committee find the water management, mitigation and monitoring measures proposed to be appropriate, accurate, reasonable and effective? To what degree, if any, so</li> </ol>

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the proposed mitigation and management measures reduce impacts?

6. Are there any other mitigation measures that could be implemented to further reduce any impacts?

The Department requests that advice be provided as soon as possible after the Committee's January meeting.

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### Advice

The Committee was requested to provide advice to the Commonwealth regulator on the Northern Expansion of the Camden Gas Project at the referral stage, to assist in advising on whether significant impacts on matters protected under the EPBC Act are likely to occur.

1. Based on the information available and the ten years of production history from the adjacent existing operations, the Committee considers that the risk of water-related impacts on Matters of National Environmental Significance as a result of the proposal is low. Notwithstanding this, further information is needed on the following:
  - a. the nature and distribution of faults within the subsurface project area;
  - b. the current and potential future extent of drawdown within the target coal seams;
  - c. the plans for the use of hydraulic fracturing; and
  - d. a regional water balance for the Georges and Hawkesbury-Nepean catchments.
2. The Committee notes that the study recommended by Parsons Brinckerhoff to investigate "the role of faults in groundwater flow and their potential for transmitting groundwater" has not yet been presented. The Committee recommends that the proponent undertake such a study, prior to commencement of works, with particular attention to any fractures or faults in the vicinity of shallow aquifer systems. The study is needed to ensure that shallow groundwater systems, which support ecosystems such as the *Cumberland Plain Shale Woodlands*, will not be impacted by the proposal.
3. The Committee notes that no information has been presented on the extent of regional drawdown of the target coal seams as a result of the existing Camden Gas Project operations, nor the predicted additional extent of drawdown from the proposed expansion. The Committee recommends that the proponent provide, prior to the commencement of works, details of the extent of the current and predicted drawdown.
4. The Committee considers that any risks posed to water resources through the use of hydraulic fracturing cannot be assessed as insufficient information has been presented.
  - a. So that appropriate regulatory controls can be implemented, the Committee recommends that the proponent provide the following information:
    - i. the location and depth below ground surface of boreholes where hydraulic fracturing is to be conducted;
    - ii. the Chemical Abstracts Service number, the typical load, concentration and the toxicity as total effluent toxicity and ecotoxicity, based on methods outlined in the National Water Quality Management Strategy, for any hydraulic fracturing agents and any other reinjected fluids; and
    - iii. an annual review of hydraulic fracturing locations and reporting of actual use.
  - b. The Committee recommends that the proponent publishes the hydraulic fracturing data on a publicly accessible website.
5. The Committee recommends the development of a more specific regional water balance for the south-

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western Sydney Basin, incorporating both the Georges and Hawkesbury-Nepean catchments, to more appropriately ascertain the local impacts from the proposal on the regional water balance. The Committee also recommends that the site specific water balance be updated as more data becomes available to improve its accuracy and usefulness in predicting impacts.

6. The Committee finds that the likelihood of surface subsidence and impacts on the surface environment, as a result of the proposed gas and water extraction, is low and is unaware of any reported subsidence impacts in the existing Camden Gas Project production area. However, due to the presence of important surface water infrastructure within the proposal area, the Committee recommends that a subsidence monitoring program and management plan be developed prior to any works.
7. The Committee considers that the proposed surface water monitoring and management measures are inadequate and recommends that a surface water monitoring, management and mitigation plan is developed, which incorporates baseline monitoring and analysis, prior to commencement of works.
8. In order to confirm the apparent lack of connectivity between the target coal seams and overlying beneficial use aquifers and to provide an early warning of potential depressurisation, the Committee recommends that:
  - a. additional water quality samples be taken from monitoring bores following a change in production well water quality;
  - b. appropriately located former production wells in the existing Camden Gas Project production area be reconfigured to monitor shallow aquifers;
  - c. two additional nested groundwater monitoring sites be installed in the south-eastern and south-western portions of the subsurface project area; and
  - d. monitoring bores be established in the deeper Narrabeen Group aquifers, e.g. the Bulgo Sandstone, at each of the nested sites within the expansion project area.
9. The Committee recommends that appropriate water quality, level and pressure triggers are included in the final Groundwater Management Plan for all aquifers overlying the target coal seams, including shallow perched aquifers, prior to commencement of works.

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**Date of advice**                      1 February 2013

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