

## Advice to decision maker on coal seam gas project

### Proposed action: Coal Seam Gas

<b>Requesting agency</b>	Department of Sustainability, Environment, Water, Population and Communities
<b>Date of request</b>	29 June 2012
<b>Project title</b>	<b>BOWEN BASIN GAS PROJECT, QUEENSLAND (EPBC 2012/6377)</b>
<b>Summary of request</b>	<p>The Department of Sustainability, Environment, Water, Population and Communities (the department) has assessed proposed projects in accordance with the provisions of the <i>Environment Protection and Biodiversity Conservation Act 1999</i>.</p> <p>The department advises the Interim Independent Expert Scientific Committee on Coal Seam Gas and Coal Mining (the committee) of an opportunity to comment on a draft Terms of Reference for an Environmental Impact Statement. Specifically, the department seeks the advice of the interim committee on whether:</p> <ol style="list-style-type: none"> <li>likely operational impacts to groundwater and surface water within the project area and downstream; and</li> <li>water-related impacts to listed threatened species and communities and listed migratory species dependent on key surface water and groundwater resources.</li> </ol> <p>The department requests comments for incorporation by 10 August 2012.</p>

#### Advice

- The committee notes that this project consists of approximately 7,000 coal seam gas wells and associated infrastructure. The regional scale of the project will result in interactions with other coal seam gas and coal mine proposals in the area. The committee considers that information relating to the potential impacts of this project should be commensurate with its scale.
- The committee notes that it has been stated that no hydraulic fracturing will be undertaken as part of this project.
- The committee notes that the Terms of Reference should include a site and regional water balance model, underpinned by sound hydrological data, to demonstrate changes to the surface water and groundwater as a result of the action.
- The committee recommends further emphasis should be provided within the Terms of Reference on the need for a cumulative risk assessment to account for the combined impacts from all mining projects, particularly with relation to Lake Elphinstone and downstream water dependent matters in the Fitzroy Catchment and the World Heritage listed Great Barrier Reef Marine Park. It is further recommended that the Terms of Reference assess cumulative impacts in accordance with the practices and procedures set out in the Mineral Council of Australia's Water Accounting Framework for the Minerals Industry (Minerals Council of Australia, 2012).

5. The committee recommends the Terms of Reference for the Environmental Impact Statement should provide additional information to articulate how water management strategies (including co-produced water) will evolve over the lifetime of the project, considering that the development will be staged and will occur over a large project area, which is comprised of several land parcels that are not geographically connected (e.g. Blackwater tenements). Additional information required includes:
  - a) inclusion of the total amount of water extracted, per well, during the lifetime of a well;
  - b) details of all dams and ponds are required;
  - c) the definition of dams and ponds should include the hyper-saline storage ponds associated with reverse osmosis water treatment facilities;
  - d) the standard of water quality surveys and on-going monitoring should be specified to a nationally accepted standard such as the National Water Quality Management Strategy (ANZECC and ARMCANZ, 2000b); and
  - e) the standard of aquatic flora and fauna surveys and on-going monitoring should be required to a specified nationally accepted standard such as AUSRIVAS ([www.ausrivas.canberra.edu.au](http://www.ausrivas.canberra.edu.au));
  - f) water quality monitoring should also include the measurement of dissolved oxygen;
  - g) on-going water quality management triggers and action plans should be specified to a nationally accepted standard such as the National Water Quality Management Strategy (ANZECC and ARMCANZ, 2000a).
6. The committee further recommends that the Terms of Reference assess the potential impacts from other potential water-related risks including:
  - a) infrastructure waterway crossings including consideration of aquatic fauna habitat disturbance and the risk of species fragmentation
  - b) characterisation of potential leachate from excavated wastes
  - c) assessment of potential negative impacts on soil quality if coal seam gas produce water is directly discharged to the soil surface such as though accidental spillage or dust suppression
  - d) the environmental values should be defined according to the National Water Quality Management Strategy (ANZECC and ARMCANZ, 2000a), for all water bodies potentially impacted by the project; and
  - e) fugitive gas and potential impact to water resources such as dissolved methane toxicity to aquatic ecology.
7. The committee further recommends that the Terms of Reference should contain a requirement to undertake a comprehensive ecological risk assessment in addition to the already proposed risk assessments for impacts to groundwater and surface water, providing a link between the impacts to groundwater and surface water and the risks that this poses to water-dependent ecological values.
8. The committee recommends that the Terms of Reference should include a requirement to outline the process for the review; and update environmental management plans that incorporate the stage of development, source and scale of impact over the life of the project, post-project rehabilitation and monitoring.
9. The committee recommends that a risk-based assessment of impacts to water resources be undertaken at both the site and regional scale as a matter of priority. The risk-based assessment should include, but not be limited to:
  - a) details of the measured hydrogeological data; and model parameters, uncertainties, and confidence/ reliability
  - b) a site and regional water balance which provides basin and catchment scale context for the proposed action
  - c) surface water and groundwater quantity and quality fluxes, including impacts of the proposal on the water resource, water balance and solute balance;
  - d) regional cumulative impacts (covering surface water, groundwater, geomorphological, hydrological and ecological impacts); and
  - e) mitigation and management measures to appropriately address these identified risks.

Any proposed models should also be peer reviewed and publicly released.