

**Independent Expert Scientific Committee on Coal Seam Gas and  
Large Coal Mining Development (IESC)  
Meeting 83, 1 – 4 February 2022**

**MINUTES  
Videoconference**

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**ATTENDANCE AND APOLOGIES**

**IN ATTENDANCE**

Dr Chris Pigram (Chair) (Items 1, 2.1, 2.2 [2 Feb], 3.1-3.3 & 3.5)  
Dr Andrew Boulton (Items 1, 2, 3.2-3.5 & 4)  
Professor Craig Simmons  
Professor Jenny Davis  
Dr Jenny Stauber  
Associate Professor Phil Hayes (Items 1.1-1.4 & 3)  
Professor Wendy Timms

**APOLOGIES**

Professor Rory Nathan

**INVITED GUESTS**

*Item 3.1*

Fabienne d'Hautefeuille, Manager Groundwater Management and Science - Water Knowledge,  
Water Division, NSW Department of Planning and Environment  
Richard Green, Senior Hydrogeologist – Groundwater Management and Science - Water Knowledge,  
Water Division, NSW Department of Planning and Environment  
John Williams, Senior Hydrogeologist – Groundwater Management and Science - Water Knowledge,  
Water Division, NSW Department of Planning and Environment

*Item 3.3*

Jennifer Hale, Aquatic Ecologist  
Michelle Dickson, Director, Blue Sense Consulting

**OFFICE OF WATER SCIENCE (OWS)**

Alison McMorrow, Assistant Secretary Biodiversity Policy & Water Science (Item 3.4)  
Peter Baker  
Aimee McAllister  
Andriana Stoddart

Aranza Bulnes-Beniscelli  
Benjamin Klug  
Christina Fawns  
Dominica O’Dea  
Fiona McKenzie-Smith  
Frances Knight  
Isabelle Francis  
Jacqueline Beerworth  
James Rae  
Jason Smith  
Kelly-Anne Lawler  
Kelly Strike  
Mehdi Shabaninejad  
Mio Kuhnen  
Praveen Sebastian

Note: OWS attendees listed above include those with full or partial attendance at Meeting 83.

## **1. Welcome and Introductions**

The Chair welcomed members of the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC) to the meeting.

### **1.1 Acknowledgement of Country**

The Chair acknowledged the traditional owners, past and present, on whose lands this meeting was held.

### **1.2 Disclosure of Interests**

Committee members were invited to make disclosures. Committee members also completed a Meeting Declaration of Interests before the meeting commenced. Details on disclosures of interests are at Attachment A.

### **1.3 Confirmation of Agenda**

The Committee endorsed the agenda for Meeting 83.

### **1.4 Confirmation of Out-of-Session Decisions**

The Committee noted that:

- minutes of the Committee’s eighty-second meeting on 15 December 2021 were agreed out-of-session and published.

### **1.5 Correspondence**

The Committee noted the status of correspondence to 17 January 2022.

### **1.6 Action Items**

Ongoing items were noted and updates were provided on the timing of completion.

### **1.7 Forward Planning Agenda**

The Committee noted the forward planning agenda.

It was agreed that the next meeting be scheduled as a videoconference for 9 March 2022.

### **1.8 Environmental Scan**

The OWS reported on recent events.

## 2. Advice on Projects referred by governments

### 2.1 Gas Supply Security Project

The Gas Supply Security Project is a proposed extension of the existing Australian Pacific LNG (i.e., Origin Energy) coal seam gas (CSG) developments (EPBC 2009/4794). The project area is located within the Surat and Bowen basins in central and southern Queensland and covers approximately 476,492 ha adjacent to the existing developments. There are five development areas, referred to as Mahalo, Denison, Spring Gully, Peat and Ironbark.

The project will involve the construction, operation, decommissioning and rehabilitation of up to 7,700 CSG wells and associated infrastructure, including 6,800 km of gas and water pipelines, 16 combined gas processing and water management facilities and supporting infrastructure (accommodation, access tracks, maintenance facilities, laydown areas and utilities). Gas production will target the Walloon Coal Measures, Bandanna Formation (including the Baralaba Coal Measures), and Reids Dome Beds. Locations for site infrastructure, including for CSG wells, gas pipelines, water infrastructure (e.g., storages) and access tracks are not provided in the documentation supplied to the IESC, hindering the Committee's assessment of potential site-specific impacts of the project on water resources.

Construction for the project is expected to begin in 2024 with operations to begin in 2025 and continue until approximately 2061, although the proponent also gives an end date of 2075. The draft public environment report (PER) for the project presents a 'maximum development scenario' assuming that there will be commercial quantities of recoverable gas across the whole project area. The proponent claims that the final size of the project will be smaller. Regardless, the IESC notes the size of the project and its potential to significantly contribute to regional environmental impacts via the addition of 7,700 wells to the 8,600 wells currently located across the Surat Cumulative Management Area (CMA).

The *Environment Protection and Biodiversity Conservation Amendment Act 2013* identifies all water resources (as defined by the *Water Act 2007*, e.g., wetlands, rivers, groundwaters), as a Matter of National Environmental Significance (MNES) in relation to CSG and large coal mining developments. Under this 'water trigger' legislation, environmental impact assessments must assess the risks of all potential impacts to all water resources. Although the current assessment addresses the project's risks to several springs listed in the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), it does not comprehensively assess the risk of potential impacts to other water resources such as ephemeral streams and groundwater-dependent vegetation at either local (development areas) or regional (Surat CMA) scales. Further, because of the substantial spatial and temporal extent of the project (7,700 wells over 4765 km<sup>2</sup> for up to 50 years), there is a high risk of cumulative impacts exceeding threshold ecohydrological requirements ('tipping points') of one or more of these water resources protected under the 'water trigger', potentially causing irreversible environmental harm.

Key potential impacts from this project are:

- extraction of 72.4 GL of groundwater over the life of the project, contributing to project-specific and cumulative drawdown impacts on eight known springs (including three EPBC Act-listed springs), 21 watercourse springs, terrestrial groundwater-dependent ecosystems (GDEs), 13 private bores, and possibly subterranean GDEs (including stygofauna);
- local (development area-specific)- and regional-scale reductions in water availability to other water resources (e.g., ephemeral streams, riparian and floodplain ecosystems) as a result of groundwater drawdown, altered alluvial recharge and changes to surface runoff caused by infrastructure such as access tracks;
- changes to surface water quality due to the intentional and unintentional releases of treated produced water and use of waste drilling fluids on-site, noting that the proponent has provided little information on these aspects; and
- legacy issues of substantial volumes (up to 9,500 ML) of brine and other contaminated by-products of produced water.

Consistent with the *Environment Protection and Biodiversity Conservation Regulations 2000*, advice will be published on the IESC's website within 10 business days of being provided to the regulators.

## 2.2 Towrie Gas Development

The Towrie Gas Development is a new 116-well development targeting coal seam gas (CSG) from the Bandanna Formation, which is overlain by the Rewan Group, a thick aquitard at the regional scale. Peak groundwater production is predicted to be ~2.2 ML/day, with a total of ~2.3 GL abstracted over the lifetime of the project. Hydraulic stimulation is expected to be used on a currently unknown number of wells.

The project is located in the Arcadia Valley, Queensland, north of Injune and in the northern portion of the Surat Cumulative Management Area (CMA). It will share produced water treatment and storage facilities with the Arcadia Gas Project, 16 km to the southwest.

The lower areas of the Arcadia Valley have been and continue to be used for agriculture, including cropping and cattle grazing. Many areas historically associated with agriculture are degraded; however, corridors of good-quality remnant vegetation and aquatic habitat persist. Higher elevations of the project area will not be cleared and will retain extensive patches of good-quality vegetation.

The project area and immediate vicinity support threatened ecological communities (TECs) including Brigalow (*Acacia harpophylla* dominated and co-dominated) and Poplar Box Grassy Woodland on Alluvial Plains. These TECs may be groundwater-dependent and grow along wetlands and ephemeral watercourses in the project area. Low-potential terrestrial groundwater-dependent ecosystems (GDEs) have been mapped in the north-eastern portions of the project area, and moderate-potential terrestrial GDEs occur immediately to the west of the project area. It is also probable that subterranean GDEs exist in the project area, particularly in the alluvium. These potential GDEs have not been confirmed with field data. Groundwater impacts will be largely managed under the Coal Seam Gas - Joint Industry Framework. Riparian vegetation is associated with wetlands and ephemeral creeks and may provide habitat for a number of species listed by the EPBC Act. A constructed wetland in the northeast is used for agriculture but nonetheless provides good-quality aquatic habitat, including for the EPBC Act-listed glossy ibis (*Plegadis falcinellus*) and potentially Australian painted snipe (*Rostratula australis*) and Latham's snipe (*Gallinago hardwickii*).

Key potential impacts from this project are:

- long-term drawdown of the water table that may impact potential terrestrial and subterranean GDEs, possibly including groundwater-dependent TECs;
- overtopping from the Mt Kingsley Dam of produced water that may alter surface water quality in Ironbark Creek and the constructed wetland, possibly impacting aquatic habitat and riparian vegetation;
- altered surface water quality, runoff and flow regimes due to construction activities (including well pads, access tracks and pipelines); and,
- cumulative contributions to fragmentation and impaired ecological condition of water-dependent assets that potentially support multiple EPBC Act-listed species.

Consistent with the *Environment Protection and Biodiversity Conservation Regulations 2000*, advice will be published on the IESC's website within 10 business days of being provided to the regulators.

### **3. Other business**

#### **3.1 NSW Groundwater Toolkit Presentation**

Representatives from the NSW Department of Planning and Environment's Water Division presented on technical guidelines ('The Groundwater Toolkit') that have been developed to help guide applicants of major projects in NSW understand the requirements of submissions, increase transparency and provide better documentation of major projects at different stages of the project, with an aim of shorter approval time for the applicant and overall better efficiency for all involved.

#### **3.2 Presentation: Dark secrets and black boxes**

Committee member Dr Andrew Boulton gave a presentation on stygofauna ecology and ecohydrological conceptual models in environmental impact assessment. The presentation focused on stygofaunal relevance and habitat preferences, elements of ecohydrological conceptual models, and potential ways to derive conceptual models.

#### **3.3 Ecohydrological Conceptual Models Explanatory Note Update**

The Committee discussed the scope of the Explanatory Note on the *Development and use of ecohydrological conceptual models* (provisional title) with Jennifer Hale and Michelle Dickson, the suppliers contracted by OWS. Approaches to engaging with stakeholders were also discussed, where a survey and follow up interviews were considered the best options to progress. It was agreed that a workshop should be considered later in the project once the Explanatory Note has been drafted.

#### **3.4 Update on IESC Input into the Regional Planning Approach Framework**

The Committee discussed approaches and frameworks for the development of a regional plan in relation to Recommendations 25 and 26 of the Independent Review of the EPBC Act.

#### **3.5 2022 IESC Stakeholder Engagement**

The Committee discussed and agreed to undertake various stakeholder engagement projects in 2022.

### **4. Close of Meeting**

The Chair thanked everyone for their contribution to the meeting.

The meeting closed at 11.45 am on Friday 4 February 2022.

#### **Next Meeting**

The next meeting is scheduled for 9 March 2022.

Minutes confirmed as true and correct:

Dr Chris Pigram AM, FTSE

IESC Chair

15 February 2022

**Attachment A**

Item(s)	IESC Member	Disclosure	Determination
2.1 & 2.2	Associate Professor Phil Hayes	<p>In relation to the Gas Supply Security Project (EPBC 2020/8856), I advise that I have a direct or indirect pecuniary interest, as follows: My 0.7FTE position at UQ is 25% funded by APLNG, the project proponent or an entity of Origin Energy / APLNG.</p> <p>In relation to the Towrie Gas Project (EPBC 2021/8979), I advise that I have a direct or indirect pecuniary interest, as follows: My 0.7FTE position at UQ is 25% funded by Santos GLNG, the project proponent or an entity of Santos.</p>	<p>That Associate Professor Phil Hayes not be present during agenda items 2.1 &amp; 2.2, so as to not be present during any deliberation of the Committee about the matters, and so as to not take part in any decision of the Committee about the matters.</p>