Submission No 5

INQUIRY INTO THE IMPLEMENTATION OF THE RECOMMENDATIONS CONTAINED IN THE NSW CHIEF SCIENTIST'S INDEPENDENT REVIEW OF COAL SEAM GAS ACTIVITIES IN NEW SOUTH WALES

Organisation: Lock the Gate Alliance

Date Received: 26 October 2019

LOCK THE GATE ALLIANCE

AUSTRALIANS WORKING TOGETHER TO PROTECT OUR LAND, WATER, AND FUTURE

26 October 2019

Submission: Inquiry into the implementation of the recommendations contained in the NSW Chief Scientist's Independent Review of Coal Seam Gas Activities in New South Wales

Thank you for the opportunity to submit to this inquiry.

We're grateful to the Committee for initiating this inquiry as we have been concerned for some time that the implementation of the Chief Scientist's recommendations regarding coal seam gas have been ad hoc and remain incomplete.

The Chief Scientist's final report was handed down five years ago, and the Government committed to implementing them and creating a "world class" regime for managing the risks of coal seam gas. In the two years after its release, progress was made on implementing the complicated and multi-faceted recommendations, but it has been largely stalled since then. Crucially, several of the major recommendations have not been implemented at all. This leaves communities in rural New South Wales, particularly the North West, exposed.

The petroleum exploration licences in North West New South Wales all pre-date the Chief Scientist's review into coal seam gas and the measures introduced subsequently. Several key reforms have never been applied to those legacy licences. Santos has an interest in each of these licences and has lodged a proposed for full scale production in the Pilliga forest near Narrabri. This project is currently being assessed by the Department of Planning, Industry and Environment and is expected to be referred to the Independent Planning Commission for consideration before the end of the year – perhaps before this inquiry reports.

This means a high risk coal seam gas production project is going to be considered for approval in a highly sensitive groundwater recharge area prior to regulations being finalised that give effect to the Chief Scientist's recommendations. This is an unacceptable situation and an indictment on the Government's neglect of North West New South Wales for five years.

This submission will address the first two terms of reference together, the status of implementation, effectiveness and gaps. We will then turn to other findings and major reports since the Chief Scientist's final report that are relevant to the suitability and effectiveness of the Chief Scientist's recommendation. We note that had recommendation 12 been implemented, there would be a body in place that would be providing annual updates on these matters to all concerned.

We would be happy to elaborate on this submission in a public hearing if needed.

The status and effectiveness of the implementation of the recommendations and remaining gaps.

We will address each of the recommendations and our understanding of their implementation, or lack thereof, and the effectiveness of these from a community and environment perspective.

Recommendation 1: That Government make clear its intent to establish a world-class regime for extraction of CSG. This could be articulated in a clear public statement that covers:

- the rationale/need for CSG extraction
- a clear signal to industry that high performance is mandatory, compliance will be rigorously enforced and transgressions punished
- a fair system for managing land access and compensation
- a mechanism for developing a clear, easy-to-navigate legislative and regulatory framework that evolves over time to incorporate new technology developments
- mechanisms for working closely and continuously with the community, industry, and research organisations on this issue.

In late 2014, as part of its response to the Chief Scientist's review, the Government released its Gas Plan, introduced by then-Minister Anthony Roberts as "a clear, strategic framework to deliver world's best practice regulation of the gas industry." The first action of the plan stated the Government's acceptance of the Chief Scientist's recommendations and "committed to building a world class regime for the extraction of gas."

The Plan introduced a "pause, reset and recommence" whereby all new applications for petroleum exploration licences were extinguished and no further applications were to be considered until a new strategic framework was in place for "careful assessment of economic, environmental and social factors" in line with the Independent Commission Against Corruption's recommendation for coal exploration areas. Crucially, however, this "pause" and "reset" did not apply to existing exploration areas. Twelve petroleum exploration licences in North West New South Wales were allowed to remain in place and in active use throughout the implementation process.

Action 4 of the Gas Plan was to commence a buy-back of petroleum exploration licences. Licences were bought back in Sydney's drinking water catchment, in coastal residential areas, in the Northern Rivers and in the Hunter Valley wine country. Again, the North West was neglected.

The Chief Scientist's first recommendation urges the Government to articulate "the rationale/need for CSG extraction." This is an important inclusion that should be considered by the Committee in light of evidence highlighting the role the CSG industry has played in driving up gas prices. We provide some new analysis that post-dates the Chief Scientist's review later in this submission.

The EPA has been made "Chief Regulator" for the gas industry. It was hoped that this would fulfil this recommendation for a clear signal to industry, but the rigour and transparency of the EPA's compliance and enforcement activity is under question. The EPA's most recent Annual Report lists only one enforcement action related to coal seam gas, two penalties totalling $10,000.

Action 6 of the Gas Plan promised that the Government would implement and enforce a 'use it or lose it' policy requiring titleholders to commit to developing the state's resources or risk losing their title. Codes of practice have been introduced for Environmental Management, Produced Water Management, Rehabilitation and Community Consultation, however, their effectiveness is questionable and they are not being complied with. For example, the Code of Practice for Produced Water Management claims that "the use of evaporation ponds in connection with petroleum

activities is prohibited." No actual prohibition on the use of evaporation ponds has been put into statute and Santos has produced water holding ponds in the Pilliga from which water is evaporating. Similarly, there is a "use it or lose it" Minimum Standards and a Merit Assessment Procedure, but this procedure is not being complied with or enforced for the expired petroleum exploration licences in the state's North West. Attempts by the community to engage the Government to apply this procedure to these expired and unused licences in the North West have not been successful.

Section 20 of the *Petroleum (Onshore) Act 1991* allows for the continuation in force of petroleum titles beyond the expiry date if an application for renewal has been lodged. Of the 12 Petroleum Exploration Licences in the North West, only PEL238 has been the subject of active exploration in the last five years. Most do not appear to have had active work programs in that time. Most are not complying with the requirement to provide annual updates to the community.

The Minimum Standards allow flexibility in the activity requirements for contiguous titles held by a common title holder, recognising that some titles will be subject to greater activity than others. Santos is a title holder or has a majority interest in 9 of the 11 unused expired petroleum exploration licences in the North West. As far as we have been able to discover, the company does not have a majority interest in PELs 427 or 428. Comet Ridge is the title holder of the remaining two and admits on its website that it has undertaken no activity for eight years.

In its application to renew PEL 1 in 2015, Santos argued that *all* PELs in the North West were contiguous exploration projects with PEL238. Nevertheless, the Minimum Standards are clear that "*there must continue to be active work undertaken*" on all titles even if they are contiguous with active titles. In 2015, Santos reclassified its Gunnedah Basin assets as "contingent" resources and it has written the value of its exploration licences down to zero since that time. The only NSW titles to have been mentioned in the company's Annual Reports since 2015 are PAL2 and PEL238.

Lock the Gate and local community members have endeavoured to unearth information about the activities being undertaken on the expired licences of the North West beyond PEL238 in the Pilliga or evidence of community consultation. Three of the PELs in question have licence conditions specifically requiring the holder to submit annual Community Consultation Reports (PEL434, PEL433 and PEL456). Lock the Gate requested access to them under the *Government Information (Public Access) Act* but was told no such reports exists.

We provide a table below detailing what we know of the lack of activity, community consultation and "minimum standards" evident in the expired petroleum licences of the state's North West. We note that the Boggabri Branch of the National Party successfully moved a motion at that party's state conference urging a change of policy on this matter, so that expired exploration licences no longer linger for years, unused, suppressing agricultural investment and causing anxiety in the community. We ask the Committee to recommend that the PELs listed in Table 1 be extinguished for failing to meet the minimum standards created by the NSW government in the Gas Plan as part of its response to the Chief Scientist's recommendations.

Table 1: Expired PELs of the state's North West

Title	***Title holder***	***Location***	***Grant date***	***Expiry***	*Evidence of activity*
PEL 434	Santos	Coonamble to Gilgandra	20010214	20160213	Work program comprises two years of activity agreed in 2013. No evidence of required community consultation.
PEL 450	Santos	Coonabarabran	20060616	20120615	Three year work program from 2006. Relinquishment report for some wells in 2015.
PEL 1	Australian Coalbed Methane and Santos	Liverpool Plains - east	19930211	20150210	Two year work program varied in 2013 and nothing since. No activity according to company's Quarterly Activity Statements.
PEL 6	Comet Ridge and Santos	Moree to Goondiwindi	19931209	20111208	Two year work program agreed in 2010. Company website reports "since 2011, no operational activities have been able to be completed.."
PEL 12	Australian Coalbed Methane - STO is operator with 65% interest	Liverpool Plains - west	19950927	20160926	The work program for PEL 12 comprised two years of activity agreed in 2013. No evidence of required community consultation.
PEL 427	Comet Ridge majority interest - STO is operator	Bellata and Moree to Mungindi	19980521	20160520	Company website reports "since 2011, no operational activities have been able to be completed.."
PEL 428	Comet Ridge majority interest - STO is operator	Baradine to Gwyder	19980915	20120914	Company website reports "since 2011, no operational activities have been able to be completed.."
PEL 433	Santos	Gilgandra to Coolah and Dundeoo	20010214	20150213	Work program comprises two years of activity agreed in 2013. Relinquishment of some wells in 2015. No evidence of required community consultation.
PEL 452	Santos	Murrurundi to Coolah Tops	20070110	20130109	Work program comprised two years of activity agreed in 2013 and nothing since.
PEL 456	Hunter Gas – Santos has "farm-in" agreement and EPL	Aberdeen to Coolah	20080305	20180305	Work program comprised two years of activity agreed in February 2013. Relinquishment report for some wells in 2015. No evidence of required community consultation.
PEL 462	Santos	Gulargambone to Warrumbungles	20081022	20111022	Work program comprised two years of activity agreed in 2009.

An implementation update on the Gas Plan from October 2015 reports that "The Government has fully implemented 7 of the 16 recommendations made by the Chief Scientist" that three of the remaining recommendations "will be completed by mid-2016," No more recent update has been made available to the public, and this inquiry will hopefully shed light on this matter.

Recommendation 2 That Government ensure clear and open communication on CSG matters is maintained at all times. This includes:

- simplicity and clarity in legislative and regulatory requirements
- ensuring openness about CSG processes in line with an open access approach; publishing all relevant approval requirements, decisions and responses, and compliance and enforcement outcomes on appropriate government websites and making CSG data from companies, Government and research organisations available through a centralised Government data repository
- measurable outcomes to track performance against commitments to reform.

The implementation of this recommendation is unsatisfactory.

The EPA is not accessible to the public as lead regulator. Attempts to obtain information under *GIPA* have been unsuccessful and requests to the EPA for information have been referred to Santos. We have recently tried to obtain information from the EPA about Santos' Petroleum Operations Plan for PAL2 and annual environmental management reports, a list of active wells that are producing gas on PAL2 and PEL238 and which are venting or flaring gas, and information about the EPA's intention to negotiate with Santos a Resource Recovery Order and Exemption for disposal of treated produced water and potentially other waste products from the proposed Narrabri gasfield. We were unsuccessful. Similarly, it has been difficult for members of the public to obtain information about Santos' irrigation scheme and activities.

Recommendation 3 That Government investigate as a priority a range of practical measures for implementation (or extension of current measures) to allow affected communities to have strengthened protections and benefits including fair and appropriate:

- land access arrangements, including land valuation and compensation for landholders
- compensation for other local residents impacted (above threshold levels) by extraction activities
- funding (derived from the fees and levies paid by CSG companies) for local councils to enable them to fund, in a transparent manner, infrastructure and repairs required as a consequence of the CSG industry.

Improvements have been made to the arbitration process following the Walker Review, but there's still no right for landholders or Traditional Custodians to say "no" to gas developments.

The experience of neighbours of coal mines in many districts indicates this is not being met.

The Govt has established the Community Benefits Fund, but allows companies a discount on royalties to contribute to this. Narrabri Shire Council has complained of "the absence of State Government engagement" in resolving its two year old concerns about the Funding Guidelines.

Recommendation 4: That the full cost to Government of the regulation and support of the CSG industry be covered by the fees, levies, royalties and taxes paid by industry, and an annual statement be made by Government on this matter as part of the Budget process.

In Oct 2015, the Government's update on the Gas Plan indicated that an independent review of NSW gas royalties had been undertaken and a review of cost recovery was underway. No further update has been provided.

Santos is currently paying no royalties on gas it is permitted to use commercially from its exploration and appraisal activities in the Narrabri area.

If annual statements are being made in the Budget process, they are not evident. There is no mention of cost recovery by the Gas Regulation Branch in the EPA's most recent Annual Report

Recommendation 5: That Government use its planning powers and capability to designate those areas of the State in which CSG activity is permitted to occur, drawing on appropriate external expertise as necessary.

In her introduction to the final review report, the Chief Scientist listed "careful designation of areas appropriate in geological and land-use terms for CSG extraction" as the first point of the new regime she was recommending.

The implementation of this recommendation has been patchy and has again excluded the areas in the North West already affected by exploration licences in which Santos has an interest.

The Government has created a "Strategic release framework" in response to this recommendation, but there are serious deficiencies with it. The most serious is that the framework was not applied to the twelve extant Petroleum Exploration Licences (PELs) in the North West, where the only new CSG production project is currently proposed under the Southern Recharge of the Great Artesian Basin near Narrabri. All of these licences were issued prior to the framework being created.

The framework includes a preliminary consideration of environmental and social issues which is considered alongside geological and other advice by an advisory body drawn from the public service. This body advises the Minister who decides whether an area should be released for exploration. The Strategic release framework does not designate areas *where CSG is permitted*, as the Chief Scientist recommended. Rather, it is an assessment made prior to releasing areas for exploration, with no clear triggers for places that are off-limits, and the release decision entirely at the Minister's discretion.

Prior to the release of the Chief Scientist's final report, some exclusion zones were created for coal seam gas as part of the Strategic Regional Land Use Plans, but these are limited to urban residential

areas and critical industry clusters in the Hunter region. No exclusions have been created to safeguard water resources or farmland in any other regions.

The Government's "buy back" of coal seam gas exploration licences ensured that there are no longer any licences in Sydney's drinking water catchment, in coastal residential areas or in the Northern Rivers. The North West of the state has been noticeably left behind in this process for no apparently objective reason. There are twelve CSG licences covering 4.5 million hectares that have expired but are still in force in north-west NSW, from Murrurundi to the Queensland border. These licences affect the Liverpool Plains, extensive areas of strategic agricultural land and productive groundwater, and the world-renowned Siding Springs observatory as well as rural towns and villages.

Recommendation 6: That Government move to a single Act for all onshore subsurface resources (excluding water) in the State, constructed to allow for updating as technology advances. This will require a review of all major Acts applying to the resources sector.

Modest changes have been made to both the *Mining Act* and the *Petroleum Onshore Act (PO Act)* which has "harmonised" some requirements for different extractive industries including for planning, reporting and rehabilitation. But reviews of the Mining Act and PO Act have not been undertaken.

In Oct 2015, the Government said, "The harmonisation of the onshore resources Acts is the first stage in the move towards a single legislative and regulatory framework for NSW's subsurface resources." No further progress has been reported on this recommendation since then.

Recommendation 7: That Government separate the process for allocation of rights to exploit subsurface resources (excluding water) from the regulation of the activities required to give effect to that exploitation (i.e. exploration and production activities); and that it establish a single independent regulator. The regulator will require high levels of scientific and engineering expertise, including geological and geotechnical ability, environmental and water knowledge and information, and ICT capability including data, monitoring and modelling expertise; and will be required to consult – and publish details of its consultations – with other arms of Government and external agencies, as necessary. The regulator will also require appropriate compliance monitoring and enforcement capability.

The EPA is lead regulator for gas activities, but not for other resource extraction as this recommendation proposed. The Division of Resources and Geosciences (DRG) in the Department of Planning, Industry and Environment is still the body that grants activity approvals. In 2015, Government went backwards on this measure, winding back a requirement that exploration activities with more than 5 wells within 5km obtain development consent. This was done to thwart the efforts of the local community at Gloucester who were urging AGL to prepare an environmental impact statement for its Waukivory CSG pilot.

Recommendation 8: That Government move towards a target and outcome-focused regulatory system, with three key elements:

- regularly reviewed environmental impact and safety targets optimised to encourage uptake of new technologies and innovation
- appropriate and proportionate penalties for non-compliance
- automatic monitoring processes that can provide data (sent to and held in the openly accessible Whole-of-Environment Data Repository) which will help detect cumulative impacts at project, regional and sedimentary basin scales which can be used to inform the targets and the planning process.

Prior to the release of the Chief Scientist's recommendation, the Government increased the penalty able to be issued by the EPA for breaches of the *Protection of the Environment Operations Act*. The maximum penalty able to be issued without proceeding to costly and time-consuming prosecution is now $15,000 for a corporation. We do not believe this is appropriate or proportionate. We do not believe the SEED portal is capable of functioning in the way proposed in this recommendation.

Recommendation 9 That Government consider a robust and comprehensive policy of appropriate insurance and environmental risk coverage of the CSG industry to ensure financial protection short and long term. Government should examine the potential adoption of a three-layered policy of security deposits, enhanced insurance coverage, and an environmental rehabilitation fund.

This recommendation has not been implemented. The tool for calculating rehabilitation security deposits was updated in June 2017 after inadequacies were identified by the Auditor General, but these security deposits are only one of the three layers recommended by the Chief Scientist. Landholders in North West New South Wales have approached insurance brokers and coal seam gas companies about environmental insurance. These inquiries have made it clear that coal seam gas operations are not covered by insurance that can protect surrounding landholders, or landholders that host CSG wells, from immediate or long-term environmental damage from, for example, water contamination, weed infestation, water depletion or health damage.

The Government indicated years ago that the EPA was developing a Management Framework for Environmental Liabilities, but this work is incomplete and Santos' gasfield project may be given the green light to proceed ahead of these arrangements. Communication from the EPA and consultation about this issue has been unsatisfactory. Lock the Gate and North West landholders have made

repeated inquiries about the development of this policy but remain in the dark about what the EPA's plans are in this area.

Narrabri Council's submissions on the proposed Narrabri Gas Project has made clear that council sees fulfilment of this recommendation as an essential pre-condition of determination of the project by the Independent Planning Commission, and yet, the project is proceeding to assessment in the absence of this framework.

Though we understand some discussions have been had behind closed doors in Government about environmental insurance, no mention has been made of the recommended environmental rehabilitation fund for long-term environmental restoration and recovery. This third layer is absolutely crucial given the environmental damage of coal seam gas will extend for many generations beyond the life of the Narrabri gasfield. The peak impact anticipated to be inflicted on the GAB Southern Recharge by Santos' Narrabri gasfield is expected to occur centuries after the gasfield has ceased operating, for example. New South Wales simply does not have the environmental institutions and frameworks capable of ensuring future generations are not left with a burden of pollution and water depletion as a result of this industry. We note that the Auditor-General has also recommended a mechanism to cover the cost of long-term environmental risk:

> The Department does not hold any financial assurance to cover the costs associated with mitigating any future environmental degradation once a mine closes and the security deposit is relinquished to the mining company. Security deposits are probably not the appropriate mechanism to cover these long-term risks but the risk of potential post-closure environmental degradation still needs to be costed and covered. A fund to cover the state-wide risk, to which all mines would contribute, is a possible mechanism.[1]

That report recommended that the relevant agencies collaborate "to establish a financial assurance mechanism, such as a sinking fund, to cover the risk of long-term environmental degradation after mines are closed and security deposits returned."

[1] Auditor-General Performance Audit report to NSW Parliament Mining Rehabilitation Security Deposits. 11 May 2017.
https://www.parliament.nsw.gov.au/tp/files/70941/Mining%20Rehabilitation%20Security%20Deposits%20Final%20Report.pdf

Recommendation 10: That Government commission the design and establishment of a Whole-of-Environment Data Repository for all State environment data including all data collected according to legislative and regulatory requirements associated with water management, gas extraction, mining, manufacturing, and chemical processing activities. This repository, as a minimum, would have the characteristics that it:

- is accessible by all under open data provisions;
- has excellent curatorial and search systems;
- houses long-term data sets collected as part of compliance activities;
- can accept citizen data input;
- can be searched in real time;
- is spatially enabled;
- is able to hold data in many diverse formats including text, graphics, sound, photographs, video, satellite, mapping, electronic monitoring data, etc., with appropriate metadata
- is the repository of all research results pertaining to environmental matters in NSW along with full details of the related experimental design and any resulting scientific publications and comments;
- is the repository of historical resources data with appropriate metadata

Various legislative amendments or other incentives will be needed to direct all environment data to the Repository.

This recommendation illustrates how the complex particularity of the Chief Scientist's recommendations have enabled the Government to sidle out of implementing them properly. The SEED data portal has been created purportedly to fulfil this recommendation, but it does not have the functions outlined in this recommendation. Crucially, it does not provide the community with access to monitoring data collected by CSG and mining proponents. Santos has its own data portal, which has previously been left out of date and inaccessible.

Recommendation 11: That Government develop a centralised Risk Management and Prediction Tool for extractive industries in NSW. This would include a risk register, a database of event histories, and an archive of Trigger Action Response Plans. The tool would be updated annually based on Government and company reporting and would include information on risk management and control approaches and draw on data from the Whole-of-Environment Data Repository for the State. The risk tool would be reviewed and commented on by relevant expert and regulatory bodies. The risk tool would be used to assist with:

- assessing new proposals
- assessing compliance
- improving prediction capability for consequences of incidents in risk assessments
- improving prediction capability of risk likelihoods
- informing project design amendments to decrease risk levels (such as undertaken in the Dam Safety Committee)
- informing the calculation of cumulative impacts
- flagging issues or risks that require a higher level of regulatory protection such as inclusion in legislation.

There is no public information about this. In Oct 2015, the Government claimed this action was complete because, "There are already a number of Risk Management and Prediction Tools being used by agencies in NSW to assess proposals, analyse risk and inform compliance activities." This response hardly seems adequate to fulfil this recommendation in its entirety.

Prior to the Chief Scientist's final report, in 2012, the Namoi Catchment Management Authority commissioned the development of a spatial tool to assess the cumulative risk of mining on environmental assets in the catchment. The resulting Namoi Cumulative Risk Assessment Tool (NCRAT) is the kind of geographic information systems tool that should have been adopted under this recommendation, or used to identify areas where CSG or coal mining developments are not appropriate. The tool builds risk layers from environmental assets (land use, soils, carbon, surface water, groundwater, vegetation extent, vegetation type, vegetation condition, vegetation connectivity, threatened species) for each of the projects in the catchment then spatialises them in layers with mining or CSG projects able to be added for each layer. Risks are colour coded from green, to yellow to red. The tool is designed for use at the strategic landscape scale, rather than site or project scale, but had it been adopted and applied by the state government in response to this recommendation, could contribution to fulfilling this recommendation by calculating cumulative impacts and identifying issues and risks that "require a higher level of regulatory protection such as inclusion in legislation."

Recommendation 12: That Government establish a standing expert advisory body on CSG (possibly extended to all the extractive industries). This body should comprise experts from relevant disciplines, particularly ICT and the earth and environmental sciences and engineering, but drawing as needed on expertise from the biological sciences, medicine and the social sciences. The prime functions of this expert body would be to advise Government:

- on the overall impact of CSG in NSW through a published Annual Statement which would draw on a detailed analysis of the data held in the Whole-of-Environment Data Repository to assess impacts, particularly cumulative impacts, at project, regional and sedimentary basin scales
- on processes for characterising and modelling the sedimentary basins of NSW
- on updating and refining the Risk Management and Prediction Tool
- on the implications of CSG impacts in NSW for planning where CSG activity is permitted to occur in the State on new science and technology developments relevant to managing CSG and when and whether these developments are sufficiently mature to be incorporated into its legislative and regulatory system
- on specific research that needs to be commissioned regarding CSG matters
- on how best to work with research and public sector bodies across Australia and internationally and with the private sector on joint research and harmonised approaches to data collection, modelling and scale issues such as subsidence
- on whether or not other unconventional gas extraction (shale gas, tight gas) industries should be allowed to proceed in NSW and, if so, under what conditions

This recommendation has not been fulfilled at all. For its Strategic Release Framework, the Government has created an "Advisory Body for Strategic Release" but this is made up of senior bureaucrats, not experts from relevant disciplines. Decision about areas for release will be made by the Minister and endorsed by Cabinet.

The Government's initial response indicated it considered its contributions to CSIRO's Gas Industry Social and Environmental Research Alliance met this recommendation. In 2015, the Government announced a contribution of $1.5m to GISERA over three years as part of its reporting against this recommendation and claimed the recommendation was "complete." GISERA is a joint research partnership between CSIRO and major gas companies. Its latest annual report indicates NSW has contributed $609,694. A report provided to the Narrabri Community Consultative Committee indicates that funding for GISERA projects in NSW is to 30 June 2020.

Asked about this recommendation in Budget Estimates in September 2019, the Deputy Premier, who has portfolio responsibility for petroleum and mining did not mention GISERA but cited the Commonwealth's Independent Expert Scientific Committee (IESC) as standing in for the expert body recommended by the Chief Scientist. We note that the IESC was established in 2013, and predates the final report of the Chief Scientist's review, indicating that it doesn't fulfil the need identified by this recommendation. If it had met the need, the recommendation would not have been necessary. The IESC has undertaken a series of Bioregional Assessments of sedimentary basins targeted by coal and CSG mining, so that body could be said to fulfil the function of advising "on processes for characterising and modelling the sedimentary basins of NSW." The other functions listed here are beyond the scope and remit of the IESC.

Recommendation 13: That Government establish a formal mechanism consisting of five parallel but interacting steps. The five steps are given below.

- Companies or organisations seeking to mine, extract CSG or irrigate as part of their initial and ongoing approvals processes should, in concert with the regulator, identify impacts to water resources, their pathways, their consequence and their likelihood, as well as the baseline conditions and their risk trigger thresholds before activities start. These analyses and systems should be incorporated in project management plans to meet regulator-agreed targets. Appropriate monitoring and characterisation systems would be developed as part of these project management plans and then installed. The monitors would measure baseline conditions and detect changes to these, as well as providing data on impacts and triggered risk thresholds.
- Data from the monitors should be deposited (either automatically or in as close to real time as possible) in the State Whole-of-Environment Data Repository by all the extractive industries. Increasingly automated tools to interrogate data in the Repository should be developed, and these used to search data for discontinuities and compliance alerts.
- As a separate process, the expert advisory body would examine on a frequent basis all data relevant to a region or a sedimentary basin. This data would come from a range of sources (the companies' monitoring data along with triangulation/cross-validation data such as that from satellites, reports from local councils, seismic data, subsidence maps, information from cores, etc.). The expert body would use this data review to check for any factors signalling problems in that region and, if any are found, recommend to Government the appropriate action to be taken with regard to the relevant parties.
- In a parallel process, the Government should commission, construct and maintain a variety of models of each region and in particular one that seeks to address cumulative impacts. These models should feed into the land use planning process and the activity approvals processes, and should assist in target setting for new projects.
- Government, working with other appropriate Australian governments, should commission formal scientific characterisation of sedimentary basins starting with the East Coast basins, and concentrating initially on integration of groundwater with the geological, geophysical and hydrological context. Viewing these integrated systems in models and in interpretation could be described as a 'Glass Earth' approach to understanding the dynamics of activities and impacts in the basins.

This recommendation has not been met. The only new CSG project in New South Wales is proposed by Santos at Narrabri. Despite exploring for gas in the area for close to ten years, Santos has not presented adequate data to establish baseline conditions for the assessment of this project, nor has it proposed appropriate monitoring that could detect changes in a timely manner.

The Government has claimed that data collection is being addressed through the NSW Government's Water Monitoring Framework (WMF) and Water Monitoring Strategy for Coal Basins in NSW, but the EIS for the Narrabri CSG project demonstrates that "baseline conditions" are not established. Indeed, during the assessment process for the Narrabri gas project, Santos has flatly refused to commit to installing the additional groundwater monitoring bores requested by the Department of Industry Water.

The EPA is the lead regulator for coal seam gas in NSW and for two years has been asking Santos to provide information, analysis and commitments about its proposed Narrabri gasfield that the company has refused to provide. Other agencies such as the RFS, the Water division of the Department of Planning, Industry and Environment, the Office of Environment and Heritage and Narrabri Council have also made requests that Santos has refused.

The EPA and other agencies first asked for this information in mid-2017 in submissions to the company's original Environmental Impact Statement. Santos produced a response to submissions that did not fulfil these requests, so they asked again. Most recently, Santos has produced a "supplementary response to submissions" in May 2019 that flatly refuses to comply with several crucial requests for information and commitments.

In its supplementary response to submissions, Santos did not agree to calibrate its groundwater model as requested, nor has it responded to recommendations to undertake uncertainty analysis or worst-case scenario modelling. There appear to be only two Permian locations with water quality sampling and four with hydrographs informing the groundwater model for those formations. This is clearly grossly inadequate to assess the impact of dewatering across such a huge area. The impact of the gasfield dewatering on the water users of the Gunnedah Oxley Basin formations is being ignored and the model is not able to provide output at the scale and accuracy to assess the project's impacts against the Aquifer Interference Policy.

Santos has not addressed items 14-16 in the Aquifer Interference Assessment, considering the risk of worsened hydraulic connections, quantification of that risk, quantification of other uncertainties in the groundwater or surface water impact modelling and strategies for monitoring and accounting for actual take of water and reassessing predicted take.

From statements made by the Government and the Department, it seems likely that an assessment of the project is being prepared by the Department of Planning, Environment and Industry to refer the project to the Independent Planning Commission in the absence of this information. If that occurs, without the fulfilment of these recommendations from the Chief Scientist, a range of environmental harms and risks will remain inadequately quantified and mitigated.

On the broader question of developing and maintaining models, in addition to the NCRAT referred to in our comments on Recommendation 11, two projects have been undertaken that are relevant to the North West. Prior to the Chief Scientist's review, in August 2010, the NSW Government commissioned a Namoi Catchment Water Study into the potential effects of coal and gas development activities on catchment water resources. The Study was "to undertake a strategic assessment of the likelihood of potential impacts posed by coal and gas development in the catchment on the quantity and quality of surface and ground water resources in the catchment" and included the construction of a three-dimensional numerical model that can be used to develop scenarios of different mining and gas developments and predict their effects on water resources. The study was completed in 2012, but the model that was developed is not being used to inform environmental impact assessments of coal and CSG activities in the Namoi catchment.[2]

[2] For background and information, see Schlumberger July 2012. "Namoi Catchment Water Study Independent Expert Final Study Report"
https://archive.lls.nsw.gov.au/__data/assets/pdf_file/0006/526353/archive_NCWS_Phase-4-Final-report.pdf

Subsequently, Geosciences Australia and the CSIRO released the Bioregional Assessment of the Namoi subregion. That assessment notes that the Namoi Catchment Water Study model "did not have the stability required for the uncertainty analysis that is required in [Bioregional Assessment]."

It does not appear that either of these models are being used by the Government or Santos to assess and verify the risk or predicted impact of the Narrabri gas project on groundwater resources in the North West.

Recommendation 14: That Government ensure that all CSG industry personnel, including subcontractors working in operational roles, be subject to ongoing mandatory training and certification requirements. Similarly, public sector staff working in compliance, inspections and audits should be given suitable training and, where appropriate, accreditation.

The Government reported in 2015 that this has occurred.

Recommendation 15: Government develop a plan to manage legacy matters associated with CSG. This would need to cover abandoned wells, past incomplete compliance checking, and the collection of data that was not yet supplied as required under licences and regulations. There will also need to be a formal mechanism to transition existing projects to any new regulatory system.

As part of the Derelict mines project, there's a Petroleum Wells Investigation Project that completed a report on the status and potential issue of legacy petroleum wells across the State. No information from this project has been made public.

There is a new rehabilitation Code of Practice.

Recommendation 16: That Government consider whether there needs to be alignment of legislation and regulation governing extraction of methane as part of coal mining and the application of buffer zones for gas production other than CSG with the relevant legislation and regulation provisions governing CSG production.

In its October 2015 update the Government stated that it would "consider the application of buffer zones for gas production other than CSG as part of the second stage of work to develop a single onshore resources Act." No further news is available.

Any other relevant inquiry findings or other major reports

The terms of reference for this inquiry include "any other relevant inquiry findings or other major reports relating to unconventional gas in Australia or the east coast gas market published since the release of the Chief Scientists are relevant to the suitability or effectiveness of the Chief Scientists recommendations."

We have already referred to several relevant reports, including the Auditor General's report into rehabilitation securities.

The Concerned Physicians of New York publish a Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of Fracking, compiling up to date research and findings about the harms of unconventional gas extraction. The sixth edition of this compendium was released in June this year and includes references to the latest research on health harms, methane leakage, air pollution, water contamination and other major risks of unconventional gas.[3] Like the recent inquiries into shale gas fracking in WA and NT, not all of these findings are applicable to coal seam gas, but many are. We note that fugitive methane is one of the areas about which the NSW EPA has asked Santos for further information in its assessment of the proposed Narrabri gasfield, but this has not been provided.

Shortly after the Chief Scientist's final report the NSW Environmental Defenders Office produced a legal briefing paper, *A review of NSW Coal Seam Gas Regulation and International Best Practice*.[4]

On the need for coal seam gas, which was specifically referenced by the Chief Scientist in her recommendations, the New South Wales Government has not undertaken any independent analysis to interrogate claims that allowing CSG to proceed in the North West will reduce gas prices. The price of gas on the east coast has been irreversibly shifted upward by the opening of LNG exports from CSG in Queensland. Contemporaneous analysis indicates that this was a deliberate corporate strategy of Santos. Despite gas production on the east coast tripling in the last decade, local users are no longer able to obtain gas at prices they describe as sustainable, because gas prices have also tripled as a result of export parity pricing and a poorly regulated market with little competition.[5]

Higher gas prices are driving high electricity prices. Analysis conducted for the ACCC found that in the short term, a $1/GJ rise in gas prices would lead to a $3.60/MWh rise in wholesale electricity prices in NSW.[6] Wind and solar PV are cheaper forms of bulk energy than combined cycle gas turbines, and in some cases, the cost of newly built renewable energy and storage is cheaper than generating electricity at existing gas power stations. AGL itself has made the argument that the price of gas has "resulted in gas-fired generation being largely withdrawn from the market" and that "the energy transition we have all been anticipating will skip 'big baseload gas' as a major component of the NEM's base-load generation and instead largely be a case of moving from 'big coal' to 'big renewables'" on the grounds that renewable energy firmed with storage is cheaper.[7]

Recent economic analysis of the proposed Narrabri gasfield has found that it will not be able to reduce gas prices, since the expected cost of gas production in the area is significantly higher than the current average cost of production in the Eastern Gas Region.[8]

---

[3] Available here: https://concernedhealthny.org/wp-content/uploads/2019/06/Fracking-Science-Compendium_6.pdf

[4] Environmental Defenders Office. November 2014 https://d3n8a8pro7vhmx.cloudfront.net/edonsw/pages/1831/attachments/original/1418007825/141118_CSG_Regulatory_analysis_-_Briefing_Paper.pdf?1418007825

[5] See for example the latest ACCC report which indicates that gas prices are now $10-12/GJ which is three to four times historical prices.

[6] Forrest, Morrison and Kemp. May 2018. "Impact of gas powered generation on wholesale market outcomes." Available here: https://www.accc.gov.au/system/files/Appendix%208%20-%20HoustonKemp%20-%20Impact%20of%20gas%20powered%20generation%20on%20wholesale....pdf

[7] "A future of storable renewable energy" Brett Redman, CFO, AGL Energy Limited. Presentation to Macquarie Securities conference. 2 May 2017

[8] Dr Alistair Davey, Pegasus Economics. *Report on the Narrabri Gas Project*. October 2019. Available here: https://www.csgfreenorthwest.org.au/too_high_a_price_to_pay