Coal Seam Gas and Water Regulation in New South Wales and Queensland

Discussion Paper
1. Introduction

1.1 The Australian Water Association is the national peak water organisation, delivering information, expertise and collaboration for sustainable water management. Its membership is broadly-based and multi-disciplinary, covering the entire water cycle. AWA provides the platform for water experts, practitioners and businesses to share information, grow expertise and collaborate effectively.

1.2 The Australian Water Association has prepared this Discussion Paper with the assistance of Norton Rose Fulbright and the input of its members to present to the Queensland, NSW and Australian Governments. The purpose of AWA’s engagement with these governments is to promote further reform and harmonisation of coal seam gas (CSG) regulation around Australia, with a particular focus on the relationship between the CSG industry and Australia’s water resources. In pursuing harmonisation, protection of our resources can be ensured Australia wide with by the implementation of consistent standards.

2. Executive summary

2.1 Based on an extensive program of consultation within the water industry, findings with respect to CSG and water regulation in NSW and Queensland are:

(1) Political, public relations and community issues are more significant in NSW – While this discussion paper highlights a number of significant regulatory issues in NSW there are significant political and community issues. It is essential therefore that any regulatory change is accompanied and informed by clear stakeholder engagement from both governments and CSG proponents.

(2) Essentially similar regulatory regimes – CSG projects in Queensland and NSW exist under essentially the same framework – regulation through petroleum legislation of the tenement, environmental licensing of the tenement and activities, and specific water-related legislation. So the scope for regulatory harmonisation is great.

(3) Consistent water-related concerns are raised – The community concerns that the industry and governments must respond to with respect to water resources are similar in each jurisdiction, regardless of the extent of CSG development, or the risk of those issues occurring, namely:

(a) Depletion of local groundwater resources and resulting impacts on the environment and other water users;
(b) Contamination and interaction of groundwater resources;
(c) The use of chemicals, and particularly contamination from fracking fluids;
(d) Cumulative impacts from multiple CSG developments; and
(e) The treatment, disposal or use of CSG water.

(4) Significant projects are underway in both states to address concerns – The creation of institutional arrangements, monitoring programs and groundwater policies is now being further enhanced by state and federal assessments of water resources and the impacts of the CSG industry on those resources. Currently, it is commonly the case that the CSG industry monitors and reports on water-related issues, beyond the regulatory requirements.

2.2 On the basis of these findings and noting the relative maturity of the industries in each state, this paper makes the following recommendations for discussion:

(1) Focus attention on potential improvements in NSW – Considering the comparative maturity of the industry and its regulation in Queensland, and contrasting that with the NSW Government’s stated intention to continue to review regulation of the CSG industry in NSW, it is more likely that any changes (streamlining, harmonisation, etc.) will be possible earlier in NSW. Indeed it is opportune timing for input into the regulation of the NSW CSG industry. Improvements could be made in the following areas including: reporting obligations, management of fracking fluids, beneficial reuse and aquifer interference.

(2) Use the ‘Queensland experience’ to NSW’s advantage – Again considering the differing stages of development of the industries between states, there are a number of ‘lessons learned’ from Queensland, including management of fracking fluids and beneficial reuse, that NSW could adopt to ensure the protection of, and certainty of regulation with respect to water resources.

(3) There will be a significant opportunity for changes in both states if ‘common resources legislation’ is implemented – The regulation of the industries in both states could be re-opened, if common resources legislation is implemented, noting that the Queensland Government is part-way through implementing a legislative reform program called ‘Modernising Queensland’s Resource Acts Program’.

(4) Where science supports CSG operations, CSG water can be an important resource – Just as Queensland eventually developed beneficial use policies to benefit landholders, town water supplies and broader agricultural supplies, NSW could realise the same opportunities from the utilisation of CSG water.

3. Scope of discussion paper limited to water regulation

3.1 The CSG industry in NSW and Queensland is subject to regulation that considers a range of significant issues, many of which have attracted intense community and legislative consideration.

3.2 This discussion paper is limited however to the overlap of CSG and water regulation and therefore does not consider issues such as: land access, exploration licensing (particularly in NSW), fugitive emissions from CSG wells, broader environmental impacts of the CSG industry and the role of CSG in Australia’s energy, renewables or climate change policies.

3.3 The information in this discussion paper is accurate as at 1 November 2015 but it is important to note that there is currently intense regulatory activity in this area, so this information is subject to on-going change. Notably the Draft - Water regulation and policy: application to mine and petroleum developments in NSW closed for public comment on September 7, and is currently under consideration before being finalised.

3.4 A glossary of acronyms and abbreviations is provided in Annexure A to this discussion paper, however legislation has not been abbreviated to avoid confusion between similar acts in different jurisdictions.
4. Context and background for the discussion paper

4.1 This discussion paper assumes an understanding of the processes involved in CSG exploration and production. For further information on CSG exploration and production, see the Water & CSG Water Journal Supplement to the April 2015 edition of the Water Journal.

4.2 However, we note the following important contextual issues for this discussion paper:

(1) **Contrasting scale and maturity of industries** – The first commercial production of CSG in Australia occurred in the Bowen Basin in Queensland in 1996 and since then, Queensland has been the main producer of CSG in Australia. In contrast to this large mature industry, NSW only has one production project – AGL’s Camden Project and this has been operating since 2001, and a number of controversial exploration projects – Santos’ Narrabri Gas Project’ and AGL’s ‘Glosschester Gas Project’ and ‘Hunter Gas Project’.

(2) **Contrasting geographical locations, competing land uses and timing of development** – Although some borefields in Queensland encroach upon the productive agricultural land of the Darling Downs, the majority of the CSG wells in Queensland are in less productive and less populated areas than the developments in NSW (in particular AGL’s Camden, Gloucester and proposed Hunter Projects are in close proximity to high value and high profile viticulture, equestrian and residential land uses). Furthermore, much of the upstream development in Queensland commenced during the Millennium Drought, when the agricultural sector was in financial hardship and revenues from CSG drilling were more significant than at the current time.

(3) **Not all CSG wells require hydraulic fracturing** – Despite the significant public attention that ‘fracking’ receives, typically only wells in deeper, lower permeability coal seams require this additional stimulation (CSIRO, 2012). The Queensland Department of Environment and Heritage Protection (DEHP) estimates that since 2000, around 8% of CSG wells in Queensland have been hydraulically fractured (DEHP, 2011). In NSW however, at the one commercial CSG production project in the state, AGL’s Camden Project, 1/3 of the 144 gas wells have been stimulated using hydraulic fracturing.

(4) **Settled regime in Queensland with minor amendments expected** – As Queensland’s CSG has expanded over the past decade, particularly with the expansion into the export of Liquified Natural Gas (LNG), the legislative framework has matured and settled. Against this background, in January 2014 the Queensland Competition Authority (QCA) published its review of CSG regulation in Queensland entitled ‘Coal Seam Gas Review’ (QCA Report). The review was requested by the Queensland Government and identified a range of potential reforms to ‘reduce duplication, eliminate unnecessary prescriptive regulation and simplify the overlapping regulatory responsibilities of government agencies’ (QCA, 2014). At the time of writing, various recommendations from the QCA’s previous draft report had been implemented, so the current arrangements may be subject to change.

(5) **Less settled regime in NSW with significant amendments expected** – As NSW has a much less mature CSG industry, the application of regulation and industry’s adoption of that regulation is far less settled. The industry has also been the subject of intense community and political scrutiny and therefore has been the subject of significant recent review. Importantly, in November 2014 the New South Wales Government released its NSW Gas Plan (Gas Plan), which formally accepted all of the recommendations of:

- (a) The Chief Scientist and Engineer’s report titled ‘Final Report of the Independent Review of Coal Seam Gas Activities in NSW’ dated September 2014 (Chief Scientist’s Report); and
- (b) Mr Bret Walker SC’s report Examination of the Land Access Arbitration Framework, dated 20 June 2014, which was an independent review for the NSW Government of the land access arbitration processes in NSW.

Furthermore, on 1 July 2015, the Improved Management of Exploration Regulation (IMER) commenced with the publication of a number of new codes of practice, guidelines and industry guides. Further IMER documentation and reforms are anticipated later in 2015. Therefore, the regulatory arrangements in NSW are likely to change significantly in the next 12 months as the NSW Government implements the Gas Plan.

5. Regulation of CSG

5.1 The current regulatory regimes for onshore petroleum in Australia are mostly state-based rather than Federal. Considering the rapid expansion of the CSG industry in the past decade, legislative responses have only been recently developed and in many jurisdictions they are still in their infancy. Accordingly, the stronger and more specific legislative responses have occurred in Queensland and NSW where the current CSG operations are based.

5.2 Table 1 provides a brief comparison of the two regimes.

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<thead>
<tr>
<th>Issue</th>
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<th>New South Wales</th>
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<tr>
<td>Petroleum legislation</td>
<td>Petroleum and Gas (Production and Safety) Act 2004 (Gld) and Petroleum and Gas (Production and Safety) Regulation 2004 (Gld)</td>
<td>Petroleum (Onshore) Act 1991 (NSW) and Petroleum (Onshore) Regulation 2007 (NSW)</td>
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<tr>
<td>Regulate CSG exploration and production tenure, as well as the workplace health and safety aspects of CSG activities</td>
<td></td>
<td>Certain CSG activities are also regulated under the Mining Act 1992 (NSW) which permits the holder of a mining lease under that Act to apply for petroleum (including CSG) to be included in the lease, in certain circumstances</td>
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<tr>
<td>Petroleum tenure</td>
<td>Petroleum tenure - authorities to prospect and petroleum leases are collectively referred to as a petroleum tenure under section 18(3) of the Petroleum and Gas (Production and Safety) Act 2004 (Gld).</td>
<td>A petroleum title is an exploration licence, assessment lease, production lease or special prospecting authority in force under the Petroleum (Onshore) Act 1991 (NSW) (Section 3 of the Petroleum (Onshore) Act 1991 (NSW)).</td>
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<tr>
<td>Environmental legislation</td>
<td>Applications for major CSG production may be subject to an environmental impact statement (EIS) process under either the: 1. State Development and Public Works Organisation Act 1977 (Gld) and Environmental Protection Act 1994 (Gld), where the EIS process for coordinated projects is overseen by Queensland’s Coordinator-General in consultation with other relevant state government departments; or 2. Environmental Protection Act 1994 (Gld) and Environmental Protection Regulation 2008 (Gld), where the EIS process is administered by DEHP. The EIS process is based upon an environmental management plan, which typically includes a separate CSG water management plan. In relation to CSG projects, the usual duties to notify DEHP of serious or material environmental harm are expressly extended to include negative impacts on aquifer water quality and/or an event causing two aquifers to connect to each other (s320A Environmental Protection Act 1994 (Qld)).</td>
<td>Environmental assessment of CSG production projects and exploration activities is required under the Environmental Planning and Assessment Act 1979 (NSW) and Environmental Planning and Assessment Regulation 2000 (NSW).</td>
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Coal Seam Gas and Water Regulation in New South Wales and Queensland

Australian Water Association Discussion Paper
Table 1 – Summary of Queensland and NSW regulatory regimes continued

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<tr>
<th>Issue</th>
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<tr>
<td><strong>Environmental licence</strong></td>
<td>Environmental authority (EA) under the Environmental Protection Act 1994 (QLD). As part of an EA application, CSG operators must demonstrate how their water will be managed in accordance with the Coal Seam Gas Water Management Policy 2012. Applications for site-specific EAs for CSG activities must also include detailed information regarding expected CSG water volumes, flow rates, quality, proposed management solutions, and management criteria against which the applicant will assess the effectiveness of management solutions. CSG operators are also required to submit an annual evaluation of how effective and appropriate management of CSG water has been. EA conditions are monitored and enforced with a compliance program.</td>
<td>Environment protection licence under the Protection of the Environment Operations Act 1997 (NSW) and Protection of the Environment Operations (General) Regulation 2009 (NSW). An environment protection licence is required to authorise the carrying out of scheduled activities at any premises.</td>
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<tr>
<td><strong>Water licence</strong></td>
<td>Water Act 2000 (QLD) and Water Regulation 2002 (QLD) deal with the impacts of water extraction by petroleum tenures and seeks to manage the cumulative impacts resulting from the extraction of CSG water through the designation of Cumulative Management Areas (CMAs) and requirements for the preparation of an Underground Water Impact Report (UWIR) for all petroleum tenures. Section 126(1)(e) of the Environmental Protection Act 1994 (QLD) requires CSG proponents to develop measurable criteria to monitor and assess the effectiveness of the management of all CSG water and saline waste associated with the activity.</td>
<td>Water Management Act 2000 (NSW) where a water sharing plan is in place, or otherwise under the Water Act 1912 (NSW).</td>
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<tr>
<td><strong>Water legislation</strong></td>
<td>A water licence is not required for petroleum projects. Under Part 4 of the Petroleum and Gas (Production and Safety) Act 2004 (QLD), holders of a petroleum tenures have broad underground water rights, which are subject to a number of limitations.</td>
<td>Water taken as a result of CSG production requires a water licence. A water access licence will generally be required under the Water Management Act 2000 (NSW) on the basis of the large volumes of water involved.</td>
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<tr>
<td><strong>Planning and land use legislation</strong></td>
<td>A regional interests development approval may also be required under the Regional Planning Interests Act 2014 (QLD) and issued through the Department of State Development Infrastructure and Planning (DSDIP), where a CSG activity is proposed in an area of regional interest.</td>
<td>State Environmental Planning Policy (State and Regional Development) 2011 (NSW) State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 (NSW) Prohibitions on CSG development in certain areas plus buffer zones CSG developments on ‘biophysical strategic agricultural land’ or ‘critical industry cluster land’ to be assessed by the Mining and Petroleum Gateway Panel, to obtain gateway certificate prior to lodging a DA, (a separate assessment by an independent panel of scientific experts before a development application can be lodged)</td>
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</table>
6. Regulation of CSG by the Australian Government

6.1 The regulation of CSG occurs primarily at a State or Territory Government level. However, key pieces of relevant legislation exist at a Federal level, which are applicable to both Queensland and NSW. The application of Commonwealth legislation is consistent across both states, however there are opportunities for improvement in the efficiency of this process also.

Environment Protection and Biodiversity Conservation Act and the ‘water trigger’

6.2 The Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) provides a legislative framework for the protection of various environmental values (including amongst other things) nationally and internationally important flora, fauna, ecological communities and heritage places which are referred to as matters of national environmental significance. CSG projects that will have (may have or are likely to have) a significant impact on a matter of national environmental significance are required to be referred to the Federal Environment Minister for a decision about whether the project requires assessment and approval under the EPBC Act. A referred project that requires approval is a ‘controlled action’.

6.3 In June 2013, the EPBC Act was amended to include water resources as a matter of national environmental significance in their own right, such that the impacts of proposed CSG activities on them will require assessment at a national level. It is likely that there will now be an increase in the number of CSG activities that will be referred to the Federal Environment Minister to decide whether a project constitutes a controlled action.

6.4 The Australian Government Department of the Environment has released the significant impact guidelines to assist proponents determine whether an action (such as a CSG project) is a controlled action under the EPBC Act, which relevantly include the Significant Impact Guidelines 1.3 – Coal seam gas and large coal mining developments – impacts on water resources (DOE, 2013).

6.5 The requirements of the EPBC Act apply in addition to the respective state and territory legislation that may apply to a CSG project. Therefore, there is potential for environmental impact assessment processes to be required under Commonwealth and State or Territory law. The Australian Government and the various state and territory governments (including Queensland and NSW) are currently in the process of streamlining assessment and approval processes under the EPBC Act. On 14 May 2014, the Environment Protection and Biodiversity Conservation Amendment (Bilateral Agreement Implementation) Bill 2014 (Cth) was introduced into Parliament that would allow the Minister to accredit state and territory approvals decisions on large coal mining and coal seam gas developments that are likely to have a significant impact on a water resource (commonly known as the ‘water trigger’). The progress of the bilateral agreements may be found online. As of 19 June 2015, no approval bilateral agreements are in place with respect to NSW and Qld. However, draft bilateral agreements are available.

6.6 In addition to individual projects, the EPBC Act also allows for strategic assessments of a series of new proposals or developments over a regional scale. In this case, approval is required from the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC) – see further below, rather than the Federal Minister.

6.7 The National Partnership Agreement on Coal Seam Gas and Large Coal Mining Development and the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development came into force on 14 February 2012 and expired on 30 June 2014. However, it is intended that all signatories will implement legislative and regulatory arrangements to ensure that the objectives of the National Partnership Agreement continue to be met.

6.8 The agreement between the Commonwealth, Queensland, New South Wales, Victoria and South Australia sought to improve the scientific basis and independent advice involved in CSG and coal mining decisions. Relevantly, one key outcome that the agreement seeks is “increased evidence to support strategic and regional scale management of CSG and large coal mining developments and the potential impact on water” (CDG, 2012). The agreement sought to achieve this and other outcomes through the establishment of the IESC.

6.9 On 27 November 2012 the IESC was established to advise the Federal Government on the water impacts of CSG and large mining projects. The objective of the IESC is to provide “advice on coal seam gas or large coal mining development proposals” as well as “advise on the scope and method of the bioregional assessments to be undertaken in areas where coal seam gas and/or large coal mining developments are underway or planned” to “assess the potential risks to water resources as a result of developments” (IESC website).

6.10 The IESC’s role has been reflected in the EPBC Act such that when the Federal Environment Minister forms the view that a CSG project is a controlled action and is likely to have a significant impact on water resources, he or she must obtain and consider the committee’s advice before making a decision on the proposal. In addition, at the state level, the Queensland, New South Wales, South Australian and Victorian Governments have all agreed to seek the IESC’s advice on CSG developments that are likely to have a significant impact on water resources. To formalise this process, each of the State Governments have produced protocols that detail the criteria for projects on which they will seek the IESC’s advice.

6.11 One of the major tasks of the IESC is to undertake bioregional assessments of the following areas: Clarence-Moreton, Gippsland Basin, Lake Eyre Basin, Northern Inland Catchments, Northern Sydney Basin, and Southern Sydney Basin.

6.12 In November 2013, the Commonwealth Department of the Environment announced funding for the assessments through a partnership agreement with the Bureau of Meteorology, Geoscience Australia and the CSIRO. The assessments are to be completed by 30 June 2016 and will provide a scientific analysis, and baseline information of the ecology, hydrology, geology and hydrogeology of these six regions with the primary focus being on the assessment of the potential direct, indirect and cumulative impacts of CSG and coal mining development on water resources.

6.13 As at 30 April 2015, the Bioregional Assessments Programme had published the following data registers to assist in assessing the impacts of coal seam gas (CSG) activity on water resources:

(1) Data register for the Central West subregion on 10 November 2014;
(2) Data register for the Clarence-Moreton bioregion on 13 November 2014;
(3) Data register for the Galilee subregion on 1 December 2014; and
(4) Data register for the Gwydir subregion on 11 November 2014.

6.14 Recently, on 24 April 2015, the Bioregional Assessments Programme published the ‘Context statement for the Hunter subregion in NSW’.

National Harmonised Regulatory Framework for Coal Seam Gas


6.16 The SCER is comprised of Commonwealth, State and Territory Energy and Resources Ministers and it developed the Framework as a guidance and reference tool for Australian federal, state and territory government regulators of the CSG industry. The Framework identifies 18 leading practices across the four core areas, to mitigate the potential impacts associated with CSG development.

6.17 The SCER expects that there will be variations between jurisdictions on how each element is treated. Furthermore, the Framework is not intended to lower existing jurisdictional standards and practices but rather build on and enhance work already underway by State and Territory Governments (SCER, 2011). Landholders’ Right to Refuse (Gas and Coal) Bill 2015

6.18 The Bill provides that Australian landholders have the right to refuse the undertakiing of gas and coal mining activities on their land without prior written authorisation; sets out the requirements of a prior written authorisation; provides for relief which a court may grant a land owner when prior written authorisation is not provided; prohibits hydraulic fracturing for coal seam gas, shale gas and tight gas by corporations; and provides for civil penalties.
7. Comparison of Queensland and New South Wales regimes and discussion

7.1 Table 2 provides the key areas for further discussion on the basis of:

1. the different regulatory approaches to CSG water issues in each state; and
2. consultation on this draft discussion paper:

Table 2 – Areas for further discussion continued

<table>
<thead>
<tr>
<th>Issue</th>
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<th>Comments</th>
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</thead>
<tbody>
<tr>
<td>Monitoring obligations</td>
<td>EA requirements</td>
<td>NSW Water Monitoring Framework including the NSW Groundwater Baseline Project</td>
<td>NSW requirements are more significant than Queensland. What is the optimal amount of monitoring to ensure adequate protection of water resources and public health? Can this standard apply consistently across jurisdictions?</td>
</tr>
<tr>
<td>Reporting obligations</td>
<td>Responsible tenure holders must provide the OGIA with a WMS Network Implementation Report every six months</td>
<td>Comparable but more extensive NSW provisions</td>
<td>Should there be national consistency of reporting obligations?</td>
</tr>
<tr>
<td>Fracking fluids</td>
<td>Standards apply to operations as a condition of their EA</td>
<td>The reuse, recycling or disposal of returned fracking fluids is required to be done in accordance with a fracture stimulation management plan approved under the Petroleum (Onshore) Act 1991 (NSW) by the Division of Resources and Energy in NSW Trade &amp; Investment</td>
<td>Should there be a nationally consistent fracking fluid regime?</td>
</tr>
<tr>
<td>BTEX chemicals</td>
<td>Standards apply to operations as a condition of their EA</td>
<td>Testing a NATA-certified laboratory and demonstrated to meet Australian Drinking Water Health Guideline values in 2011 the NSW Government banned the use of BTEX chemicals in CSG fracking fluids</td>
<td>Consider whether Queensland regulation of BTEX should be consistent with NSW.</td>
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</table>

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<tr>
<td>Right to extract water</td>
<td>A water licence is not required for the taking of water under the underground water rights for a petroleum tenure - the underground water rights are defined in section 185 of the Petroleum and Gas (Production and Safety) Act 2004 (Qld). There is no limit to the volume of water that may be taken under the underground water rights (section 185(3) of the Petroleum and Gas (Production and Safety) Act 2004 (Qld)). The tenure holder may use associated water for any purpose and within or outside the area of the tenure (section 185(5) of the Petroleum and Gas (Production and Safety) Act 2004 (Qld)). This statutory right described above is subject to a number of limitations</td>
<td>Water licensing requirements apply to both water taken for consumptive use and water taken incidentally in the course of an activity, which is the case with most CSG activities. Water taken as a result of CSG production requires a water licence (where greater than 3 ML extracted in a year)</td>
<td>Should a water licence be required in Queensland for the taking of water? Where risks are low is water licensing the best mechanism or are there other mechanisms that are more appropriate? Is the 3 ML limit appropriate for the risk involved? Note: Current licensing water extraction in NSW is consistent with the National Water Initiative and is accepted as a sound water management policy.</td>
</tr>
<tr>
<td>Groundwater management</td>
<td>Chapter 3 of the Water Act 2000 (Qld) governs underground water management and provides a regulatory framework requiring petroleum tenure holders to monitor and assess the impact of the exercise of their underground water rights</td>
<td>The NSW Aquifer Interference Policy and Produced Water Management Guideline</td>
<td>Seek confirmation from the NSW Government on the operation of Aquifer Interference Approvals. Important to finalise and implement the national policy framework for groundwater. Need to ensure there is national oversight of the implementation of this Framework across jurisdictions.</td>
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</table>

Note: Current licensing water extraction in NSW is consistent with the National Water Initiative and is accepted as a sound water management policy.
Table 2 – Areas for further discussion continued

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<tr>
<td>CSG water management / beneficial use</td>
<td>Coal Seam Gas Water Management Policy 2012 provides a prioritisation hierarchy for managing and using CSG water.</td>
<td>The reuse, recycling or disposal of CSG produced water is managed by an approval issued under the Petroleum (Onshore) Act 1991 by the Division of Resources and Energy in NSW Trade &amp; Investment. CSG activities are assessed under the Environmental Planning and Assessment Act 1979.</td>
<td>Could the legislation be simplified in Queensland with respect to the conversion of wells to water bores? Could similar legislation be introduced in NSW? Further support for beneficial reuse in NSW could stimulate water sector investment and innovation.</td>
</tr>
<tr>
<td></td>
<td>Priority 1 – CSG water is used for a purpose that is beneficial to one or more of the following: the environment, existing or new water users, and existing or new water-dependent industries.</td>
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<td></td>
<td>Priority 2 – After feasible beneficial use options have been considered, treating and disposing CSG water in a way that firstly avoids, and then minimises and mitigates, impacts on environmental values. Prioritisation hierarchy for managing saline waste:</td>
<td>Approved methods for disposal of CSG produced water may include beneficial reuse (for example for dust suppression at a coal mine), reinjection into an aquifer or treatment (for example by reverse osmosis), and reuse. The use of evaporation basins for the disposal of CSG produced water has been prohibited by the NSW Government.</td>
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<td>Priority 1 – Brine or salt residues are treated to create usable products wherever feasible.</td>
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<td></td>
<td>Priority 2 – After assessing the feasibility of treating the brine or solid salt residues to create usable products, disposing of the brine and salt residues in accordance with strict standards that protect the environment. Environmental Protection (Waste Management) Regulation 2000 (Qld) General Beneficial Use Approval - Irrigation of Associated Water (including coal seam gas water), April 2014 General Beneficial Use Approval - Associated Water (including coal seam gas water), May 2014</td>
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</tbody>
</table>

References

(1) Australian Government Department of the Environment (DOE) (2013) Significant impact guidelines 1.3: Coal seam gas and large coal mining developments – impacts on water resources, Canberra
(3) Council of Australian Governments (COAG) (2012) National Partnership Agreement on Coal Seam Gas and Large Coal Mining Development. Canberra

Annexure A – Glossary

(2) CMA – Cumulative Management Areas (Qld)
(3) DEHP – Department of Environment and Heritage Protection (Qld)
(4) DSDIP – Department of State Development Infrastructure and Planning
(5) EA – environmental authority (Qld)
(6) EIS – environmental impact statement (NSW and Qld)
(7) IESC – Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development
(8) IMER – Improved Management of Exploration Regulation (NSW)
(9) LNG – Liquefied Natural Gas
(10) OCSG - Office of Coal Seam Gas (NSW)
(11) OGIA - Office of Groundwater Impact Assessment (Qld)
(12) QCA – Queensland Competition Authority (Qld)
(13) QCA Report - “Coal Seam Gas Review” by the QCA
(14) UWIR – Underground Water Impact Report (Qld)