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Coal seam gas in the context of global energy and climate change scenarios

– *Rosemary Lyster*

Coal seam gas (CSG) and other unconventional gases, such as shale gas, have been touted as delivering substantially fewer greenhouse gas emissions than coal. Further, the International Energy Agency has suggested that we may be entering “a golden age of gas” in which global use of gas rises by more than 50% from 2010 levels and accounts for more than a quarter of global energy demand by 2035. The assumption is then that CSG development is desirable from the perspective of global climate change as well as energy security. This may well prove to be the case but it is nevertheless important to reflect on some of the serious concerns that have arisen both domestically and in the United States with regard to unconventional gases. Consequently, various levels of government and agencies both in Australia and the United States are currently finding ways of responding to, and dealing with, some of the impacts of these gases. 91

Coal seam gas production – friend or foe of Queensland’s water resources?

– *Laura Letts*

The emerging coal seam gas (CSG) industry in Australia is promoted as providing unparalleled opportunities for Australia’s economic and regional development, as well as delivering numerous employment opportunities. However, the CSG industry is also strongly opposed by some people, who cite possible risks to the environment and water resources and health impacts as grounds for prohibiting CSG extraction. This article considers whether, in the context of CSG production in Queensland, the 2010 amendments to the Water Act 2000 (Qld) are sufficient to ensure water resources are used and regulated in such a way that protects both the short and long-term quality and availability of Queensland’s water resources. The Queensland regulatory regime is considered against the National Water Commission’s 2010 position statement on CSG. 101

Strategic Regional Land Use Plans: Presenting the future for coal seam gas projects in New South Wales? – *Katherine Owens*

In New South Wales, as elsewhere in Australia, there has been little attempt to plan for the spatial distribution of coal seam gas (CSG) projects at a strategic level, and regulatory frameworks are not considered to be sufficiently robust to manage the cumulative environmental effects of CSG activities on aquifer integrity. The New South Wales State government has pledged to resolve some of the problems associated with CSG mining through its Strategic Regional Land Use Policy, in which Strategic Regional Land Use Plans are to play a key coordinating role. However, a “spatial fix” of this nature is likely to constitute a dangerous shortcut in planning regulation in the particular context of CSG development, which may do very little to resolve the concerns expressed by environmental, farming and community groups, or the concerns of the CSG industry itself in resolving the emerging land-use conflicts. It is argued here that strategic planning can only provide an enduring solution to the land-use conflicts at play if the New South Wales government and stakeholders commit to a more integrated and reflexive process, which involves an explicit acknowledgement of, and provision for, doubt. 113

Coal seam gas exploration and production in New South Wales: The case for better strategic planning and more stringent regulation – *Tim Poisel*

In May 2011, the NSW government implemented a 60 day moratorium on new CSG exploration licences, designed to address concerns about land-use conflicts between mining and other uses. However, at the end of this period, these concerns remained unresolved and yet, CSG activities went back to business as usual. Given the potential long-term devastating impacts of CSG operations on water, soil and air, it is the author’s view that the precautionary approach requires a further moratorium on CSG operations be imposed until such time as the findings and recommendations of the inquiries being undertaken by the Federal and NSW State Governments are known and implemented. 129

Coal seam gas – Toward a risk management framework for a novel intervention – *Alan Randall*

CSG extraction is a recent development in Australia and is projected to make a substantial contribution to the nation’s domestic and export energy supplies for the next several decades. CSG is a spatially dispersed industry with a much greater footprint on land and environment than the more modest surface area devoted to well-heads would suggest. Its potential impacts – massive demands for water, contaminated waste water, disruption of aquifers, disturbance/contamination of geosystems, atmospheric pollution, degradation of landscape aesthetics, and stress on infrastructure and sense of community – raise important issues of human and ecosystem health. Regulation and management of these impacts is a major concern, and raises explicit issues of risk management. For novel interventions, risk management should balance the benefits of innovation and the need for protection from serious threats of harm. I introduce an integrated risk management framework for proposed innovations that includes a structured program of screening, pre-release testing and post-release surveillance. Application to CSG is more problematic, because there is less scope for secure testing at pilot scale – much that is novel and risky about CSG relates to the cumulative impacts of rapid expansion. Integrated risk management starts with a comprehensive assessment of the cumulative impacts and risks of planned CSG development to guide go/no-go decisions and design of an adequate regulatory structure; but it should also be attentive to the costs of impeding beneficial innovation. 152

Regulating coal seam gas in Queensland: Lessons in an adaptive environmental management approach? – *Dr Nicola Swayne*

The current regulatory approach to CSG projects in Queensland is based on the philosophy of adaptive environmental management. This method of “learning by doing” is implemented in Queensland primarily through the imposition of layered monitoring and reporting duties on the CSG operator alongside obligations to compensate and “make good” harm caused. The purpose of this article is to provide a critical review of the Queensland regulatory approach to the approval and minimisation of adverse impacts from CSG activities. Following an overview of the hallmarks of an effective adaptive management approach, this article begins by addressing the mosaic of approval processes and impact assessment regimes that may apply to CSG projects, including recent Strategic Cropping Land reforms. It then considers the preconditions for land access in Queensland and the emerging issues for landholders relating to the negotiation of access and compensation agreements; and undertakes a critical review of the environmental duties imposed on CSG operators relating to hydraulic fracturing, well head leaks, groundwater management and the disposal and beneficial use of produced water. Conclusions are drawn regarding the overall effectiveness of the Queensland framework and the lessons that may be drawn from Queensland’s adaptive environmental management approach. 163