



Australian Government  
Department of Industry and Science



## Domestic Gas Strategy

*Australian Government Policy and Actions*

2015

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**Cover image:** Tharlane property in the Fairymeadow district near Miles. Courtesy of QGC.



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## Objective

*To ensure the responsible development of coal seam, shale and tight gas resources for the benefit of Australians and position Australia to remain an energy superpower. This strategy articulates the Australian Government's role, and expectations of State and Territory governments (the States) and industry, in developing unconventional gas.*

## Key points

- It is in Australia's national interest to maintain a secure and sustainable energy supply and to facilitate competitive and productive industry sectors. Science and innovation are critical for meeting this requirement and are at the centre of the Government's industry policy – particularly when it comes to developing new sources of energy such as unconventional gas.
- There is a vast amount of research, technical and practical work that has already been done, or is underway, to help us understand our unconventional gas resources, our technical capacity to develop it, and the costs and benefits (including social) that come from its development.
- While Australia has significant gas resources capable of meeting the needs of domestic and international consumers, the eastern Australian gas market is undergoing significant change driven by the development of coal seam gas (CSG) and the commencement of a liquefied natural gas (LNG) export industry which will see a tripling of supply by 2020 to meet growing global demand for natural gas.
- Domestic gas prices are rising due to: export price linkage; the decline of low-cost conventional gas reserves; the development of higher cost unconventional gas resources; and regulatory uncertainty regarding unconventional gas development.
- Enabling supply to flexibly respond to changing market conditions is key to ensuring supply security and efficiency in a dynamic market.
- The States are primarily responsible for the regulation of onshore gas resources in their jurisdictions, and the Australian Government expects the States to support the development of the unconventional gas industry using strong scientific evidence to underpin any decision.
- The benefits of developing a stronger unconventional gas sector should be balanced with managing impacts upon communities, other industries, and the environment and be supported by an evidence-based understanding of risks (for example, impacts on water quality, or trade-offs for land usage).
- The Australian Government also expects industry to secure its own future by engaging meaningfully and proactively with the community to explain and share benefits, and by supporting appropriate action to understand and mitigate any environmental impacts of its activities.
- The Australian Government will play an important leadership role through maximising public access to the Australian Government's research infrastructure and resources. This includes our significant natural environment research capabilities, understanding of potential national economic gains and local impacts of unconventional gas development. This information will complement

the research efforts of the States and increase confidence across the community and industry, as well as providing the scientific research to underpin regulation and the policy debate.

- As the Chair of the Council of Australian Governments (COAG) Energy Council, the Australian Government will work with the States to harness the existing bank of knowledge, build on this base and maximise the usefulness of such knowledge for the community, industry and regulators.
- Shale and tight gas resources are expected to be the next focus for onshore unconventional gas development and will also need to be underpinned by scientific research. They require different production techniques to CSG with different potential impacts on the environment and communities. The Australian Government is conducting research into these unconventional gas types.

The Australian Government believes it can significantly contribute to the development of unconventional gas resources by:

1. Improving gas markets to enable better access and price discovery for all market participants including customers;
2. Understanding and responding to potential social impacts to build confidence that community needs and expectations will be properly considered;
3. Understanding and communicating the science to build confidence in the community that risks and environmental impacts can be managed;
4. Attracting investment and encouraging steady and predictable supply through better regulation;
5. Tailoring production technologies for Australia to ensure we are making the most of our resources;
6. Establishing an Oil, Gas and Energy Resources Industry Growth Centre to accelerate advancements within the industry;
7. Improving access to geo-scientific precompetitive data to understand our resources and attract investment;
8. Demonstrating the macroeconomic benefits to build community confidence; and,
9. Learning from mistakes and successes of other jurisdictions through sharing knowledge.

These activities provide a strategic framework for the Australian Government to build on its role in leading a discussion on and promoting the responsible development of an unconventional gas industry.

The Minister for Industry and Science will report annually to the COAG Energy Council on the progress of implementation and continue to encourage jurisdictions to work together to facilitate the responsible development of coal seam, shale and tight gas resources for the benefit of Australians.

## 1. Improving gas markets to enable better access and price discovery for all market participants including customers

Domestic gas prices are rising due to: export price linkage; the decline of conventional gas reserves; the development of higher cost unconventional gas resources; and regulatory uncertainty regarding unconventional gas development. Further, during its transition to LNG exports the eastern Australian gas market is facing uncertainty around the nature, sources and the rate at which new gas reserves can be developed and brought into production.

There have been calls for domestic reservation of gas to address higher prices. The Australian Government does not support domestic reservation policies as they will not address the challenges and will defer future investment.

Instead, additional supply is needed. Governments need to ensure that regulatory frameworks address environmental and community concerns whilst supporting the development of new gas supply. Eastern Australia has significant gas resources and enabling supply that flexibly responds to changing market conditions will be key to ensuring supply security and an efficient market. However, New South Wales (NSW), Victoria and Tasmania have moratoria that effectively block the development of new supply. The Australian Government welcomes NSW's Gas Plan, if it is used to provide industry certainty and open up supply.

In response to concerns about the dynamics of the eastern Australian gas market, the Department of Industry and Bureau of Resources and Energy Economics produced the joint Eastern Australian Domestic Gas Market Study (the Study). The dominant issue the Study examined was the transition of the eastern gas market from being solely domestic to one that is linked to the LNG export market. The Study found the scale and duration of this transition will have a profound impact on market participants and these effects will be exacerbated if impediments to supply or other constraints are imposed on the market's ability to respond to future market conditions.

Identifying and addressing market barriers can help ensure competitive gas markets and security of supply to users. The Study outlines a number of supply and price pressures currently being faced in the market and highlights the need to improve transparency, competitiveness and informed decision making within the market. Part of increasing competitiveness is increasing competition within the upstream gas sector.

The Australian Government will continue to work with the States through the COAG Energy Council to deliver the Gas Market Vision agreed in December 2014 this includes undertaking the following actions in the COAG Energy Council's Australian Gas Market Development Plan<sup>1</sup>:

- Pursuing cooperation on the development of a gas supply strategy which informs communities, facilitates the responsible development of gas resources and enables supply to respond flexibly to market conditions;

<sup>1</sup> <http://www.scer.gov.au/workstreams/energy-market-reform/gas-market-development/>

- Removing unnecessary regulatory impediments and streamlining regulation across governments, including pursuing continuous improvement under the National Harmonised Regulatory Framework on Natural Gas from Coal Seams<sup>2</sup>;
- Investigating opportunities to improve availability and accessibility of robust, science-based information to enable local communities to be engaged and have a high level of confidence in regulatory approaches related to coal seam, shale and tight gas; and
- Enhancing market transparency and price discovery to help inform market decisions and facilitate important infrastructure developments.

### Key action:

- Continue to work with the States through the COAG Energy Council to bring on new supply and improve market transparency and competition, making it easier for all market participants, including customers, to access supply and make more informed decisions about their gas needs.

## 2. Understanding and responding to potential social impacts to build confidence that community needs and expectations will be properly considered

The development of unconventional gas gives rise to a number of socioeconomic challenges. These include: use and protection of water resources; fair distribution of economic costs and benefits across urban, rural and local communities and industries; housing shortage and affordability; land access and native title; impact on regional infrastructure; preservation of rural life style; effects on the cost of living; and employment complexities such as wage increases, job spill overs, and non-resident workforce. These issues are explored in a number of publicly available reports<sup>3</sup>.

The agriculture sector is one example where the Australian Government has expressed the need to balance the interests of the unconventional gas sector and other industries. The Australian Government's three principles for the development of coal seam gas are: first, that access to agricultural land should only be done with the farmer's agreement and farmers should be fairly compensated; second, that there must be no long-term damage to water resources used for agriculture and local communities; and third, that prime agricultural land and quality water resources must not be compromised for future generations.

Engaging early with communities that are likely to be impacted is of significant importance. One lesson that can be learnt from the experiences on the east coast and from the mining industry is the need for early engagement with Indigenous groups given that native title interests exist in at least 60 per cent of the Australian land mass and nearly half of the Northern Territory is Aboriginal land.

<sup>2</sup> <http://www.scer.gov.au/workstreams/land-access/coal-seam-gas/>

<sup>3</sup> CSIRO, <http://www.csiro.au/Outcomes/Energy/Energy-from-oil-and-gas/UnconventionalGas/Learn-more.aspx>  
IESC, <http://iesc.environment.gov.au/research>  
Gas Industry Social and Environmental Research Alliance, <http://www.gisera.org.au/index.html>  
NSW Chief Scientist and Engineer, <http://www.chiefscientist.nsw.gov.au/reports>  
QLD Gasfields Commission <http://www.gasfieldscommissionqld.org.au/gasfields/science-and-research.html>

There are also numerous media articles, reports published by and public submissions lodged with governments from universities, industry, associations and other stakeholders.

Community engagement is the responsibility of industry, but the Australian Government can assist by providing information. For example, the Gas Industry Social and Environmental Research Alliance (GISERA), is an alliance between CSIRO, Australia Pacific Liquefied Natural Gas (APLNG) and QGC which conducts independent research in Queensland through its autonomous stakeholder dominated governance structure.

GISERA conducts socio-economic research to provide information that will enable communities to benefit as much as possible from CSG developments. The Department of Industry and Science is also undertaking a review of the economic impacts of the CSG industry in Queensland and the effects of the various stages of the CSG value chain on communities.

Further research being undertaken by the Australian Government to understand and share knowledge about real risks and trade-offs of unconventional gas development, such as land and water impacts, are outlined in the sections below.

### **Key actions:**

- Finalise and release the Department of Industry and Science review of the economic impacts of the CSG industry in Queensland to inform the community, using real examples, of the economic benefits that can flow from the development of gas.
- Continue, through the Department of Industry and Science, to work with CSIRO to disseminate the outcomes of GISERA's Queensland CSG studies on agricultural land management, social impacts and opportunities for CSG development so there is ongoing and up to date understanding as the industry develops.
- Utilise and expand GISERA's scope and reach as a way to disseminate trusted information to communities.
- Continue to support farmers' rights through the Agricultural Competitiveness White Paper so that co-existence remains a fundamental aspect of gas development.

## **3. Understanding and communicating the science to build confidence in the community that risks and environmental impacts can be managed**

The Australian Government is committed to building and maintaining community and industry confidence that the regulation of CSG projects, particularly relating to the potential impacts on water resources, is underpinned by the best available science.

The Australian Government is strengthening the science on the potential impacts of CSG development by:

- Retaining and strengthening the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC) which provides expert scientific advice on development projects so that regulatory decisions can be informed by the best available science, including making its advice publically available;

- Conducting and publishing bioregional assessments – these are regional scale assessments of the direct, indirect and cumulative impacts on water resources across bioregions that will provide baseline information. They are being delivered through a collaboration between the Department of the Environment, the Bureau of Meteorology, CSIRO, and Geoscience Australia, with input from the States, natural resource management bodies, industry and academia;
- Commissioning, developing and delivering other research projects into the water-related impacts of CSG development. This includes critical areas such as subsidence, bore integrity, hydraulic fracturing, aquifer connectivity, and a risk assessment of the chemicals used in coal seam gas operations being undertaken by the Department of the Environment, the National Industrial Chemicals Notification and Assessment Scheme (NICNAS), CSIRO and, in an advisory role, Geoscience Australia; and
- Promoting the outcomes of CSIRO studies on fugitive emissions from CSG industries and the GISERA studies on surface and groundwater, greenhouse gas footprint and terrestrial biodiversity.

The outcomes of studies will continue to be disseminated as they are released by the Department of Industry and Science (for example, through the unconventional gas webpages), the Department of the Environment, the IESC, and the Bioregional Assessment website.

Shale and tight gas will be the next wave of unconventional gas resources to be developed. It will be important for the Australian Government to improve our understanding of these resources. CSIRO has activities and capabilities in the field that the organisation will continue to develop and share<sup>4</sup>.

### **Key actions:**

- Support the replication of the GISERA model to States across Australia to enable research to extend into emerging areas, including tight and shale gas.
- Strengthen links between the Forum of Australian Chief Scientists and the COAG Energy Council's Exploration Investment and Geoscience Working Group to get a broader exchange of ideas and expectations.
- Improve knowledge of the environmental impacts of shale and tight gas development.

<sup>4</sup> <http://www.csiro.au/Organisation-Structure/Divisions/Earth-Science-Resource-Engineering/Shale-gas-research-program/CSIRO-activities-and-capabilities-in-shale-gas.aspx>

## 4. Attracting investment and encouraging steady and predictable supply through better regulation

Efficient, consistent and effective regulation improves environmental outcomes and community confidence, lowers costs to business and enhances the international competitiveness of Australia's unconventional gas industry.

The Australian Government is committed to delivering a One-Stop Shop for environmental approvals that will accredit state planning systems under national environmental law, to create a single environmental assessment and approval process for nationally protected matters. This will simplify the approvals process for businesses, lead to swifter decisions and improve Australia's investment climate, while maintaining high environmental standards.

To ensure that the One-Stop Shop has as broad a scope as possible, the Environment Protection and Biodiversity Conservation Amendment (Bilateral Agreement Implementation) Bill 2014 would allow the Minister for the Environment to accredit the States to make approval decisions, including those involving the 'water trigger'. Like any other matter under the Environment Protection and Biodiversity Conservation Act 1999, this can only occur where the States will maintain high environmental standards. Under the One-Stop Shop for environment approvals, the IESC will continue to provide advice to Australian and state government regulators when they make decisions in relation to the 'water trigger'.

The reforms will require the States to seek and take into account scientific advice from the IESC and ensure the States access the best scientific information when making decisions for these projects. The IESC will also be able to provide advice to the Environment Minister about the operation of bilateral agreements, including the extent to which a state or territory has considered the Committee's scientific advice on individual projects.

To further ensure that regulatory decisions are informed by the best available science, the Australian Government is funding the Bioregional Assessments Programme and other research (see section 3 above). The Australian Government will work with industry to actively facilitate key unconventional gas projects to ensure that we are not blocking increased supply.

CSIRO is also partnering with the Lloyds Register Foundation (UK) to develop international best practice industry standards for unconventional gas exploration and production. These standards will be developed from Lloyds Register's considerable international engagement and experience with the unconventional gas sector worldwide and will utilise CSIRO's scientific expertise to synthesise an independent, third-party baseline of standards for Australian conditions against which industry practice and government regulation can be compared.

### **Key actions:**

- Continue to support the IESC and undertake the Bioregional Assessments Programme and other research and analysis in order to provide robust advice and scientific information to better inform regulators.
- Publish environmental, information, data and analysis in accessible forms and improve access to baseline and monitoring data with respect to unconventional gas development through programmes such as the Department of the Environment's Bioregional Assessments Programme.
- Cut green tape, including through the One-Stop Shop for environmental approvals.
- Support CSIRO's partnership with the Lloyds Register Foundation (UK) to develop international best practice industry standards for unconventional gas exploration and production.

## 5. Tailoring production technologies for Australia to ensure we are making the most of our resources

Production technologies that work in other countries may need research and development and modification before being suitable to Australian geological and hydrological conditions.

Bilateral work is being undertaken by CSIRO, universities and other organisations on a commercial basis, developing Australian institutions' expertise to provide better service to industry. As knowledge and understanding about Australian geology and hydrology increases, technologies can be adapted to make efficient use of gas resources.

The development of a national strategic research initiative for onshore gas between CSIRO, universities and industry is a priority. The initiative will promote coordinated and industry aligned research on onshore gas exploration and production aimed at maximising economic benefits with respect to the particular issues each region faces and the types of gas found there (coal seam, shale or tight gas). The research agenda will look at ways of reducing costs and increasing industry productivity, such as improving reservoir characterisation, enhancing drilling and hydraulic fracturing technology, and optimising reservoir engineering. It will also aim to understand and address the environmental impact of technologies.

### **Key action:**

- Support high impact and strategically focused research and development through the development of a 'National Strategic Research Initiative for Onshore Gas' between CSIRO, universities and industry.

## 6. Establishing an Oil, Gas and Energy Resources Industry Growth Centre to accelerate advancements within the industry

The Industry Growth Centres Initiative (the Initiative), announced as part of the Industry Innovation and Competitiveness Agenda, is the centrepiece of the government's new industry policy direction to boost Australia's productivity and competitiveness. The Initiative will identify opportunities to reduce regulatory burden, increase collaboration and commercialisation, improve capabilities to engage with international markets and global supply chains and enhance management and workforce skills.

Initially, five Industry Growth Centres (Growth Centres) will be established to deliver the Initiative in high growth sectors including an Oil, Gas and Energy Resources Growth Centre. Each Growth Centre will be a not-for-profit company, led by eminent industry chairs with an industry-led Board. The Board will outline a strategic vision to lift the competitiveness and productivity of the sector, and will be responsible for the development and implementation of activities against this vision.

Growth Centre Chairs, supported by a facilitator, will lead the facilitation and engagement process with their respective sectors to develop a Growth Centre proposal for the Government's consideration. This proposal, amongst other things, will outline proposed activities focused on lifting the productivity and competitiveness of the sector based on industry needs.

### **Key action:**

- Establish the Oil, Gas and Energy Resources Industry Growth Centre.

## 7. Improving access to geo-scientific precompetitive data to understand our resources and attract investment

Australia's mineral and energy resources are an important component of the nation's wealth, both economically and socially. Understanding the available resources is a prerequisite for formulating sound policies on the management of our resources.

While there are opportunities for significant commercial resource discovery in Australia, there is also fierce global competition to attract investment. Precompetitive geoscience information of our underexplored regions, and access to our national data sets, enhances the attractiveness of Australia as an exploration and investment destination by reducing the risk of exploration.

There is already a considerable amount of work that can be drawn upon by governments, industry and the community to better understand Australia's unconventional gas resources. However, this can be improved by developing tools that integrate information on coal seam, shale and tight gas resources from Geoscience Australia, the States and Northern Territory geological survey organisations.

### **Key actions:**

- Continue to enhance and promote Geoscience Australia's capability to acquire, analyse and deliver precompetitive data and information in collaboration with the states and Northern Territory geological survey organisations, to increase understanding of coal seam, shale and tight gas resources.
- Support the enhancement of Geoscience Australia's decision support tools for governments to assist in transport and storage development planning activities such as pipelines for new coal seam, shale and tight gas.

## 8. Demonstrating the macroeconomic benefits to build community confidence

LNG project investment has been a key driver of investment and growth in Australia's economy over the past few years. From 2010-11 to 2016-17 LNG investment is expected to exceed \$200 billion. In 2013-14, when it is expected to have peaked, LNG investment is expected to contribute to around a sixth of nominal GDP growth in 2013-14.

As the LNG projects near completion and move from construction to production phase, the slowdown in investment is expected to detract from GDP growth. However, investment in production capacity will contribute to Australia's economy for many years through increased LNG exports.

The macroeconomic benefits of unconventional gas development can be maximised by ensuring that governments' policy settings – including industry policies – do not restrict resources, such as labour and capital, from flowing to high growth areas of the economy such as the unconventional gas sector.

Policy settings that support productivity, employment and economic growth are needed. Income growth over the past two decades can be largely attributed to previous economic reforms that increased the economy's flexibility, opened up access to overseas markets and capital, and helped businesses become more competitive. It is estimated that unconventional gas investment will make a considerable contribution to employment, gross regional product and to national income figures<sup>5</sup>. Large private investment injections will increase revenue from royalty returns and are expected to have a positive flow-on effect for other industries such as manufacturing and services. A broad understanding of the macroeconomic benefits should also be balanced with broader public understanding of real risks and trade-offs where relevant.

### **Key action:**

- The Department of Industry and Science, in consultation with The Treasury, will continue to undertake work to quantify and demonstrate the broader macroeconomic benefits to Australia from unconventional gas development.

<sup>5</sup> Williams, J., Stubbs T. & Milligan A. (2012) An analysis of coal seam gas production and natural resource management in Australia. A report prepared for the Australian Council of Environmental Deans and Directors by John Williams Scientific Services Pty Ltd, Canberra, Australia.

## 9. Learning from mistakes and successes of other jurisdictions through sharing knowledge

Increased knowledge sharing will maximise the value of research and minimise duplication, better equipping all jurisdictions to improve regulatory regimes across Australia.

The Australian Government and the States have been undertaking a great deal of work to better understand and regulate unconventional gas in their jurisdictions<sup>6</sup>. Gathering knowledge and lessons from other countries which are experiencing unconventional gas development, such as the USA, Canada and UK, will also help identify risks, build expertise and broaden Australia's understanding of the issues faced in other countries.

Geoscience Australia has prepared its second annual report to the COAG Energy Council on Unconventional Reserves, Resources, Production, Forecasts and Drilling Rates<sup>7</sup>. This report provides a standardised national approach to combining jurisdictionally based unconventional gas reserves/resources and production data. The Australian Government will continue to work with the States and industry to provide up to date information on the development of the industry.

The International Energy Agency (IEA) also holds a wealth of information on international approaches to unconventional gas which is discussed and shared at the IEA's Unconventional Gas Forum.

The Academy of Technological Sciences and Engineering (ATSE) will organise an International Conference on Unconventional Gas to consider collective international findings and shared learnings in Australia in 2015.

### **Key actions:**

- Work through relevant COAG Energy Council working groups and other relevant fora to facilitate a national approach to accessing regulatory and scientific information.
- Work with the States and industry to improve transparency through the Unconventional Reserves, Resources, Production, Forecasts and Drilling Rates reports.
- Encourage information sharing between the States about measuring and monitoring impacts on baseline data and appropriate transparency levels.
- Work to record relevant learning outcomes from international developments with publically available information and regularly publish outcomes on the Department of Industry and Science's website.
- Consider collective findings and shared learnings from the ATSE International Conference on Unconventional Gas.
- Work, through the Department of Industry and Science, with the International Energy Agency's Unconventional Gas Forum to broaden Australia's understanding of the issues faced in other countries developing unconventional gas.

## Summary and the way forward

The development of the unconventional gas sector can benefit Australians locally and nationally. The States have primary responsibility for how their unconventional gas resources are regulated and developed. The Australian Government has expert capabilities to help the community, States and industry to better understand the benefits and impacts of unconventional gas development.

The Australian Government will implement the actions outlined above through a cross-portfolio steering committee and will also work with the States on relevant key actions. Implementation of the key actions will focus on dissemination of Australia Government's specialist research outputs and expertise.

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<sup>6</sup> The South Australian Government was early to recognise the potential for unconventional gas in their state and in 2012 published its Roadmap for Unconventional Gas Projects in SA. The NSW Chief Scientist and Engineer released the Independent Review of Coal Seam Gas (CSG) Activities in NSW – Final Report in September 2014. The NSW Government released its response to this report on 13 November 2014 along with a comprehensive NSW Gas Plan that provides a strategic framework for regulation and development of gas supplies. Parliamentary inquiries into CSG development and/or hydraulic fracturing have also been conducted by the Australian, NSW, WA and NT governments. The Queensland Gas Fields Commission and NSW Office of Water have also developed educational tools that seek to develop community understanding of unconventional gas and related issues in the context of both economic (including energy supply) and social (including health and environmental) policy objectives.

<sup>7</sup> <http://www.scer.gov.au/workstreams/upstream-petroleum-and-offshore-minerals/unconventional-gas-reserves/>



