



Queensland gas supply and demand action plan

Discussion paper | November 2016



Photographs courtesy of Arrow Energy, Origin Energy, APLNG, QGC, Santos GLING and Glencore.

This publication has been compiled by Policy Program and Support, Department of Natural Resources and Mines, and with the assistance of the departments of Energy and Water Supply, and State Development.

© State of Queensland, 2016

The Queensland Government supports and encourages the dissemination and exchange of its information. The copyright in this publication is licensed under a Creative Commons Attribution 3.0 Australia (CC BY) licence.

Under this licence you are free, without having to seek our permission, to use this publication in accordance with the licence terms.



You must keep intact the copyright notice and attribute the State of Queensland as the source of the publication.

Note: Some content in this publication may have different licence terms as indicated.

For more information on this licence, visit <http://creativecommons.org/licenses/by/3.0/au/deed.en>

The information contained herein is subject to change without notice. The Queensland Government shall not be liable for technical or other errors or omissions contained herein. The reader/user accepts all risks and responsibility for losses, damages, costs and other consequences resulting directly or indirectly from using this information.

Foreword

The Queensland gas sector has made an enormous contribution to Queensland's economy and quality of life through the creation of jobs, generation of revenue and revitalisation of gas supporting local communities. Global demand for gas is increasing and Queensland is well placed to provide a strong foundation for sustained production of gas for the next 30 years.

The demand opportunities for all forms of Queensland's natural gas—domestic and export—will remain strong if Queensland gas exploration and production can be made more productive and globally competitive.

However, gas stakeholders are currently facing significant challenges. These challenges include dramatically changed market conditions (gas prices are linked to oil prices and the recent collapse in oil prices has flowed on to lower gas prices), less affordable and available gas for Australian businesses and households, and improving coexistence with competing land uses, landholders and their communities following the rapid expansion of gas over a short period of time.

Queensland needs a strategic gas action plan to pull the threads of these complex economic and societal challenges together into an action-orientated plan aimed at maximising the gas sector's potential, supplying gas to households and business users in sufficient quantities at affordable prices and being internationally competitive, while balancing the needs of landholders, local communities and traditional owners and maintaining environmental safeguards.

This discussion paper includes 29 reform ideas aimed at addressing community concerns and industry challenges relating to social licence and gas supply. Feedback on these and suggestions for others will inform the development of the final Queensland gas supply and demand action plan, which will set an overarching strategy for maximising the benefits of the responsible expansion of the gas sector in Queensland.

The benefits of getting the strategic approach right include maintaining and creating jobs, generating revenue for all Queenslanders, creating growth and diversity in the economy, reinvigorating rural communities located near gas areas and supporting hubs, providing a secure energy supply for Queensland householders and businesses, building a skilled and capable workforce, and, importantly, providing a framework to build improved landholder and community acceptance and support for the industry.

The Hon. Dr Anthony Lynham MP

Minister for State Development and
Minister for Natural Resources and Mines

The Hon. Mark Bailey MP

Minister for Main Roads, Road Safety and Ports and
Minister for Energy, Biofuels and Water Supply



Contents

Foreword	i
Contents	iii
Figures	iv
Tables	v
Summary	1
Background	6
1. Vision and objectives	10
2. Reform ideas	15
3. Potential benefits of the reform ideas	34
4. Strengths, weaknesses, opportunities and threats	40
Have your say	43
Glossary	44

Figures

Figure 1: Gas supply and demand action plan development process	6
Figure 2: The four sections addressed in this paper	7
Figure 3: Attitudes towards natural gas in the Western Downs (2014)	34
Figure 4: Queensland consumption of natural gas, by group (2018 forecast)	36
Figure 5: Industrial users consumption of natural gas, by jurisdiction (2018 forecast)	36
Figure 6: Large industrial customer gas price trend (2015)	37
Figure 7: Annual consumption forecast segments (including LNG) for Queensland (2010–2030)	38

Tables

Table 1: Queensland gas sector's strengths, weaknesses, opportunities and threats	41
---	----

Summary

The approach

On 8 July 2015, the Minister for State Development and Minister for Natural Resources and Mines publically announced the development of a Queensland gas supply and demand action plan (gas action plan) and released the terms of reference. This announcement came in response to a number of emerging challenges and the desire to develop an action-orientated plan aimed at maximising the gas sector's potential, while balancing the needs of landholders, local communities and traditional owners and maintaining environmental safeguards.

Following this announcement, extensive research and analysis into the gas sector was jointly undertaken by the departments of Natural Resources and Mines, Energy and Water Supply, and State Development. Consistent with the terms of reference, this analysis sought to provide a clearer understanding of the state's gas prospectivity and level of investment attractiveness; the issues and challenges facing landholders, traditional owners, communities located near gas areas and other stakeholders; the barriers to supplying gas (exploration and production); whether gas and pipeline trading markets are evolving to the benefit of the community; and the full range of opportunities that gas presents.

The analysis revealed that the Queensland gas sector has a number of strengths, opportunities, weaknesses and threats (refer Section 4 of this paper). In response, the Queensland Government has developed a number of reform ideas for broad stakeholder consultation. Following consultation feedback, the government plans to release the final gas action plan in mid-2017.

The reforms seek to achieve two core objectives:

1. improve the sector's social licence to operate
2. decrease the barriers to supply.

The gas sector has revitalised nearby communities, but some concerns remain

Gas operates within a rich, varied and complex stakeholder landscape. This includes landholders on site, traditional owners, neighbouring landholders, residents of local communities and broader interest from people living in urban centres. In some instances, state government agencies and local governments have a dual role as a public landholder and a regulator.

The gas sector has grown rapidly in Queensland over the last six years and relationships with local communities are improving and continue to evolve. The transition from primary production to mixed production (i.e. agricultural production and gas) has been more challenging for some communities than others. For example, the influx of a large number of workers during the construction phase may have stimulated local business activity, but it also inflated rental housing costs in the short term.

Landholders generally believe they have received adequate compensation for the loss of productive land; however, they may continue to be concerned about the potential impact of the industry on farm values, water, the health of their families, the environment generally and long-term rehabilitation.

Providing accurate, evidence-based information to the community and key stakeholders will help build the trust needed to support future industry development. A key aspect of this may be to create an independent 'single source of truth' that gathers information, reports on industry performance and translates information into an easy-to-understand and easy-to-use format.

Gas stakeholders are currently facing significant challenges

These challenges include dramatically changed market conditions (gas prices are linked to oil prices and the recent collapse in oil prices has flowed on to lower gas prices), less affordable and available gas for Australian businesses and households, and improving coexistence with competing land uses, landholders and their communities following the rapid expansion of gas over a short period of time.

In order to sustain the Curtis Island liquefied natural gas (LNG) facilities at peak production and service existing and future demand from Queensland households and businesses, annual gas supply will need to increase far above historic levels. This will necessitate a large and ongoing commitment to gas exploration and production.

High gas exploration and production costs and other factors have led to an almost doubling of domestic gas prices over the past five years. The Curtis Island facilities create a link between our domestic gas price and the global oil price. This is due to LNG sales contract prices being indexed to the global oil price. The implication for Queensland LNG producers and the state is that, in order to sustain the gas sector, the cost of our gas must be globally competitive.

As observed in the Western Australian gas market, an increase in the amount of gas available for domestic use can moderate prices. While there is no guarantee this will occur in Queensland (as the east coast gas market still needs new sources of gas supply to meet current demand), there remains a strong imperative to increase gas exploration and production.

While the Queensland Government has to date rejected a policy of reserving gas within existing licenced areas for domestic purposes, the *Petroleum and Gas (Production and Safety) Act 2004* makes provision for the creation of a Prospective Gas Production Land Reserve (PGPLR). This would be created by conditioning future petroleum exploration tenure releases over certain areas to require that any gas produced from subsequent production tenure over these areas may only be supplied for consumption within the Australian market.

The contribution gas makes to the economy will remain strong if Queensland gas exploration and production can be made more productive and globally competitive

The Queensland gas sector makes an invaluable contribution to the state. Queensland's gas provides reliable and affordable energy to many households and businesses, and feedstock to some of our largest industries—fuel refineries, fertiliser producers and alumina, aluminium, refined metals and ammonium nitrate manufacturers to name a few. These products are sold both domestically and abroad. Gas is also used to make complex petrochemicals, plastics and chemicals, and transport fuels such as compressed natural gas. These are potential growth industries for Queensland.

Reliable and affordable energy and a diversified and strong industrial sector are cornerstones of a healthy and vibrant economy—helping to revitalise rural and regional communities, create jobs and increase standards of living. Queensland gas producers also pay to the state a 10% royalty on the well head value of the gas. This revenue is then invested in essential services such as schools, hospitals and roads to benefit Queenslanders and visitors to the state.

LNG can provide cleaner, more affordable and more reliable energy if replacing coal. Depending on the carbon policies adopted, respected bodies such as the International Energy Agency (IEA) forecast that in a carbon constrained world, gas demand could remain steady or increase substantially. Under aggressive carbon policies that limit global warming to no more than two degrees, the IEA predicts that global gas demand to the year 2040 will remain steady. Under a scenario where countries adopt the pledges taken to the COP21 Paris climate negotiations (2015 Paris Climate Conference), gas demand to 2040 remains strong and indeed increases more strongly than any other energy fuel source. This scenario presents a number of further opportunities for Queensland to increase its LNG exports.

Building on the strengths and opportunities, and addressing the weaknesses and threats

Queensland has many competitive and comparative advantages in gas exploration and production, including at least 10 gas basins that are highly prospective. Other positives include a maturing sector; established gas production, processing, transmission and storage infrastructure; and a skilled workforce with potential for re-skilling and/or upskilling.

On the downside, finding and developing new gas supply is currently difficult for explorers and producers for a number of reasons. Global market conditions and competition from the United States have reduced global oil and gas prices. This has reduced the profitability of gas exploration and development, and made it more difficult to get investment capital. High exploration and production costs, increased community scrutiny of gas developments, pockets of inefficient regulation, difficult and complex geology, and the remoteness of a number of our gas basins has added to the challenges. These impacts, and the broadly held view that oil and gas prices are likely to be 'lower for longer', have led to some significant and painful adjustments within the gas sector, both domestically and internationally.

Domestic gas market issues are also under focus. These are being examined at a national level, through the Council of Australian Governments (COAG) Energy Council, to ensure the domestic market is operating as effectively as it can to respond to emerging challenges, including constrained domestic supply.

For example, at the request of the COAG Energy Council, a voluntary gas supply hub has been established by the Australian Energy Market Operator at Wallumbilla in Queensland to provide the gas industry with greater opportunity to buy and sell gas.

The gas supply hub provides for the wholesale trading of natural gas. Participants place anonymous offers (to sell) or bids (to buy) a specified quantity at a specified price, which are automatically matched on the exchange to form transactions.

This initiative improves transparency and reliability of gas supply by creating a voluntary market that offers a low-cost, flexible method to buy and sell gas at interconnecting transmission pipelines, and supports more flexible upstream transactions between parties.

It is also possible that demand for gas in the domestic energy sectors may be mitigated by an increasing supply of lower cost renewable energy. As this occurs, with the production cost of renewables decreasing, the price for renewable energy may reach parity with, or become more affordable than, gas as a generation source.

The COAG Energy Council is also in the process of responding to two key reports—the Australian Energy Market Commission’s East Coast Wholesale Gas Market and Pipelines Framework Review and the Australian Competition and Consumer Commission inquiry in the East Coast Gas Market—with responses to form the basis of a new reform package.

Queensland is playing an integral role in the development of the COAG Energy Council reform package, which will aim to promote greater liquidity, transparency, competition and supply, to create a more effective gas market for Australia. Feedback received in respect of this discussion paper will also be incorporated into the national reform process where appropriate.

Proposed objectives and reform ideas

The Queensland Government has developed a number of objectives and reform ideas. The objectives outline the ambitions of government to advance the sector and give direction to the reform ideas. Importantly, these reforms are complementary and build on the range of state and federal government activities that are already in place.

Please note that these are reform ideas only. They are not government policy and would be subject to a rigorous cost–benefit analysis and prioritisation process prior to inclusion in the final gas action plan.

The reforms seek to achieve two core objectives—improve the sector’s social licence to operate and decrease the barriers to supply (exploration and production). In developing these reforms, government acknowledges that the task of improving the economic, social and environmental performance of the gas sector will be a shared effort between government, industry and the community.

In relation to social licence, the reform ideas concentrate on improving community trust generally and specifically improving:

- » how community expectations are met
- » community understanding of the risks and management frameworks associated with gas exploration and development
- » the collection of complaints, compliance and reporting of performance data
- » landholder relationships, including land releases
- » knowledge of potential skills gaps in local workers and specialists
- » procurement practices.

In relation to removing the barriers to gas supply, the reforms concentrate on improving:

- » the efficiency and effectiveness of regulation without diminishing environmental and social protections and safeguards
- » land release strategies
- » geoscientific data
- » investment attraction
- » technological innovation
- » access to gas and gas infrastructure.

The reform ideas acknowledge and accept both the current difficult market conditions and, given the 10-year lead times to develop gas, the need to plan now to stimulate long-term supply. All ideas are intended to assist the gas sector withstand the current downturn and put into place the necessary changes to ensure Queensland continues to maximise its gas endowment in the decades to come. The reform ideas will be subject to broad public consultation and their eventual implementation will be influenced by the expected benefits and the availability of resources.

Background

Why do we need a gas action plan?

COAG is responsive to the need to increase gas supply and improve the sector's social licence to operate through initiatives of the COAG *Gas market development plan*¹ and, more recently, the Australian Government's *Domestic gas strategy*.² There is a need to put these and other state and federal high-level frameworks into a focused action plan for the state.

The process

The Queensland Government is seeking your feedback about how to best achieve the effective and responsible development of the state's gas resources in line with our commitment to long-term resource planning to boost the state's economy, while ensuring a sustainable and safe industry.

Led by the Department of Natural Resources and Mines (DNRM) and the Department of Energy and Water Supply, and with the assistance of the Department of State Development, this discussion paper will inform the development of the Queensland gas action plan (see Figure 1: Gas supply and demand action plan development process).

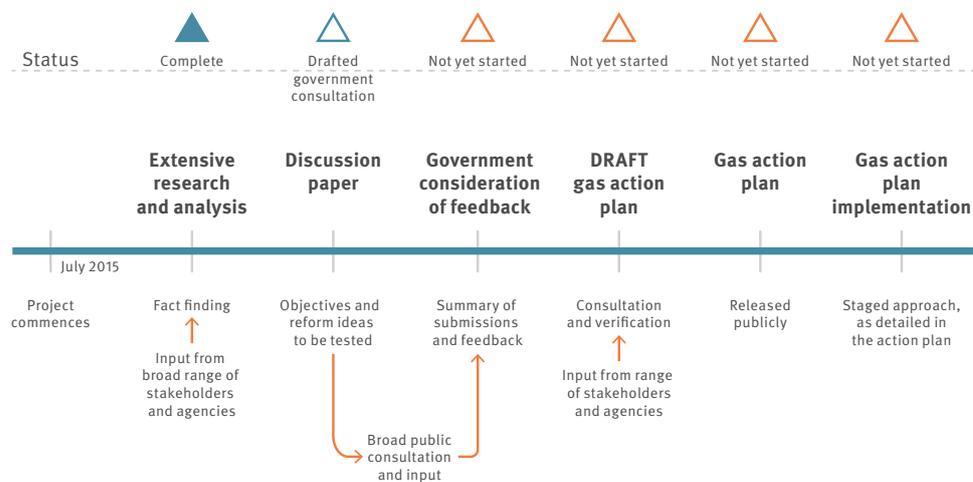


Figure 1: Gas supply and demand action plan development process

¹ *Gas market development plan—summary as at July 2015*, <<https://scer.govspace.gov.au/files/2015/07/Australian-Gas-Market-Development-Plan-July-2015.pdf>>.

² Department of Industry and Science 2015, *Domestic gas strategy: Australian Government policy and actions*, Australian Government, <<http://industry.gov.au/energy/energymarkets/documents/domestic-gas-strategy.pdf>>.

How to use this document

The discussion paper has been designed to provide a summary of the government's expectations, gaps in information and a road map for going forward. The government is seeking to stimulate discussion and your input is encouraged.

Figure 2 illustrates the four sections addressed in this discussion paper.



Figure 2: The four sections addressed in this paper

Key dates

- » Terms of reference³ released at the Energy Stakeholder Forum: 7 July 2015
- » Discussion paper released: Sunday 6 November 2016
- » Submissions close: 5 pm, Monday 19 December 2016
- » Gas action plan release date: mid-2017

³ Department of Natural Resources and Mines 2015, 'Gas Supply and Demand Action Plan', <www.dnrm.qld.gov.au/our-department/policies-initiatives/mining-resources/gas-supply-demand-action-plan>.

Who should make a submission?

Submissions are invited from anyone with an interest in the issues raised in this paper.

Primary targets include:

- » community groups
- » energy, economic development, business and other peak industry bodies
- » unions
- » resources companies
- » industry organisations that support market interventions (suppliers and users)
- » junior explorers
- » local governments and their peak bodies
- » conservation and environmental groups
- » peak agricultural bodies and landowner representatives
- » tertiary institutions and research organisations
- » government agencies.

How to make a submission

Visit the DNRM website at www.dnrm.qld.gov.au

You can also provide a written submission by email or post.

Email: gasactionplan@dnrm.qld.gov.au

Post: Queensland gas supply and demand discussion paper
Department of Natural Resources and Mines
PO Box 15216
City East Qld 4002

Submissions close at 5 pm, Monday 19 December 2016

For more information, visit www.dnrm.qld.gov.au or call 13 QGOV (13 74 68).

Privacy statement

DNRM is collecting the information provided in submissions to identify issues to be addressed in the Queensland gas supply and demand action plan.

This consultation is a public process. Any comments you provide (excluding contact details) may be published (including online) and may be transmitted outside of Australia. You may wish to bear this in mind when providing your comments.

If you do not wish your submission to be published, you can request confidentiality.

Some information may also be provided to other relevant Queensland Government departments, including the departments of Energy and Water Supply; State Development; Environment and Heritage Protection; Infrastructure, Local Government and Planning; Health; Treasury; Transport and Main Roads; and the Premier and Cabinet so that they may consider submissions and provide a response to DNRM.

Any personal information provided as part of your submission (including your contact details) will not be disclosed by DNRM to any other parties without your consent, unless authorised or required by law (e.g. under the *Right to Information Act 2009*).



1. Vision and objectives

Vision

The Queensland gas sector will maximise its potential and be internationally competitive, balancing the needs of landholders, local communities and traditional owners while ensuring environmental safeguards are maintained.

Aspirational goals

By 2025 the gas sector will be:

- » a well-established and consistent generator of employment and revenue
- » a best-practice leader in environmental and social performance, and an important contributor to local community wellbeing
- » operating effectively, efficiently and safely
- » highly attractive to domestic and foreign direct investment
- » typified by a high level of innovation and collaboration
- » actively exploring frontier/greenfield basins.

Links to government and other initiatives

The final gas action plan will provide overall direction. It will be implemented having regard to government obligations and commitments. Individual gas exploration and production activities remain subject to project environmental assessment and approval processes.

GasFields Commission Queensland review

The final gas action plan will be complementary to the findings of the review of the GasFields Commission Queensland that commenced on 23 March 2016 (public consultation closed on 22 April 2016). The GasFields Commission Queensland review findings and recommendations have been provided to the Minister for State Development and Minister for Natural Resources and Mines, and used to determine whether the current model works effectively or needs changing to manage disputes between resource companies and landholders, or if an alternative model (such as an independent resources ombudsman) is appropriate.

Advance Queensland

Advance Queensland is a transformational agenda designed to build a new economy and create jobs now and for the future. It aims to grow our knowledge-based industries, both new and existing, and harness the entrepreneurial potential of all Queenslanders to turn great ideas into new products and services.

Advance Queensland includes a variety of programs working to drive innovation, build on our natural advantages and help raise Queensland's profile as an attractive investment destination. The programs are open to all industry sectors, including gas production and exploration, and will offer this sector an opportunity to commercialise research, discover new investment channels and contribute to building Queensland's innovation ecosystem.

For more information on Advance Queensland programs, visit www.advance.qld.gov.au.

Jobs Queensland

Jobs Queensland was established as an independent statutory entity in January 2016 under the Jobs Queensland Act 2015.

Its formation is part of the government's Working Queensland jobs plan, with an ambit to give independent advice to government on priority and emerging skills demand, future workforce planning and development, and the apprenticeship and traineeship system in Queensland.

By providing independent advice, Jobs Queensland provides a voice for industry, the regions and the community on future skills requirements and workforce planning and development issues. Through this consultative approach, Jobs Queensland seeks to provide evidence-based advice to government on how to invest in skilling and training to match the evolving needs of industry, and in turn enhance people's readiness for skilled work.

Jobs Queensland is actively leading or contributing to a wide range of workforce planning and development, skills forecasting and apprenticeship and traineeship initiatives, including the development of strategic workforce plans for advanced manufacturing and aerospace under the Advance Queensland initiative.

Information on Jobs Queensland can be found at www.jobsqueensland.qld.gov.au.

Other initiatives

Visit www.dnrm.qld.gov.au for a list of other relevant initiatives.

Objectives

Building on and complementing supported national and state gas frameworks, this section outlines the policies that the Queensland Government is seeking feedback on to achieve the vision and aspirational goals.

The Queensland Government believes the following objectives may assist in achieving these goals.

Social licence to operate

- » The community is confident that there is effective, independent oversight of the gas sector that is responsive to community complaints and enquiries.
- » The independent oversight of the sector is underpinned by evidence, based on scientific research.
- » Government, industry and other stakeholders provide communities with accurate, accessible, easy-to-understand and useful information on the risks, benefits and costs of gas exploration and development. Independent scientific evidence is critical in this context.
- » Government and industry work collaboratively to provide regular information on the performance of the gas sector to build community trust and meet community expectations.
- » Industry is building greater community trust in the sector and meeting community expectations through voluntary approaches in lieu of introducing more regulation.
- » Landholders are well informed of their rights, these rights are respected and all parties work towards coexistence.

Regulation (including cost recovery)

- » A Queensland cross-government regulatory system that encourages industry development, improves compliance and reduces costs for both industry and government.
- » Any regulatory reforms will not result in a diminution of landholder rights or environmental outcomes.
- » Incentives and penalties under the regulatory framework are assessed on rigorous cost–benefit grounds, employing the most appropriate leading practice, risk-based approaches (be that legislation, education, self-regulation or codes of practice etc.).
- » A balanced combination of incentive-based and penalty-based strategies are used to influence and improve compliance. There is a strong focus on exception management and consistently poor performers as part of managing risk.
- » Market interventions such as reservation policies on existing tenures to improve domestic gas affordability and availability are not supported.
- » Timely market reform through COAG that encourages optimal availability of gas and use of gas infrastructure.
- » Regulations are methodically reviewed and reformed (i.e. if they are duplicative, unnecessarily onerous, do not have any commensurate environmental benefit or are not considered to be leading practice⁴). Where possible, standards are harmonised nationally.
- » Clear, timely and comprehensive communications are provided to resource companies so they are aware of and understand their compliance obligations, and have ready access to information and advice about requirements.
- » Effective and timely government programs and activities important to improving the regulated performance of the gas sector are in place or ongoing. These are partially or fully cost-recovered through highly accountable and transparent approaches that are subject to regular assessment and review.⁵ The fee or levy reflects the costs of the service provided.

Land access

- » The rights of all land users are recognised and their preferences acknowledged and respected.
- » Exploration and production approvals promote coexistence and ensure the social, economic, environmental and heritage values of land use are promoted and retained for current and future generations.
- » Clear and comprehensive communications fully inform both communities and explorers prior to land release, so that coexistence is promoted through both parties understanding their respective rights, responsibilities and how to best work together.
- » The processes to reach agreement on conduct and compensation matters are clear, efficient, comprehensive and predictable. Landholders and resource companies are fully informed so that they can easily understand the process. Independent and transparent dispute resolution processes are in place.

Land releases

- » Land releases in brownfield (relinquishments) and greenfield areas are responsive to market demand signals and the ability of the exploration sector to conduct an efficient and effective program of work.

⁴ That is, not considered to be effective, efficient, proportional (to the problem that they are seeking to address), transparent, consistent and predictable.

⁵ Consistent with the Queensland Government's *Principles for fees and charges*.

- » A clear rationale is provided by government for the size, location and form of the release. The best approach is at predefined periods, competitive in nature and, depending on attractiveness, 'cash bid' to promote economic efficiency and return for the state.
- » Land releases are signalled to the market as early as possible to allow the community, government and the gas sector to make the necessary marketing, engagement, budgeting and planning preparations.
- » High-quality, pre-competitive geoscientific data is generated by industry and through targeted Geological Survey of Queensland analysis. Data, specific to areas being released, is provided to all prospective tenderers to avoid duplicated activity and to improve the probability of exploration success, reducing the risk of investment decisions.
- » Priority is given to land releases in frontier basins, with strong incentives for exploration in these areas.
- » Local communities are fully informed when government prepares to release land for exploration.
- » Relinquished land is required to be as contiguous as possible to enable larger areas to be released in future tenders, increasing the chances of commercially viable gas developments.
- » Exploration and development activities are appropriate for the resource type, subsurface characteristics and geographic location.

Tenure management

- » Authority to prospect (ATP), petroleum lease (PL) and other tenure processes are clear, efficient, consistent, comprehensive and predictable to reduce investment uncertainty and company holding costs.
- » Clear, simple, comprehensive frameworks and associated communications fully inform resource companies so that they can easily understand tenure processes.
- » Robust mechanisms to appeal decisions are in place.
- » Exploration and development work program requirements are adaptable and flexible, and encourage and incentivise tenure holders to undertake activities aligned with current and future market opportunities.
- » There is an appropriate balance between land turnover and retention. Secure property rights are provided for a period of time that promote certainty and attract capital, but where tenure holders are not achieving agreed outcomes, land is subject to relinquishment to promote turnover and fresh approaches (land can only be released when it is available).
- » Relinquishments are flexible, with the objective of avoiding a 'patchwork' network of available land that could discourage economies of scale for commercial developments.
- » There are clear obligations and accountabilities on industry for decommissioning and rehabilitating gas wells, equipment and infrastructure.

Geoscientific data and programs

- » Geoscience data is a high-value, strategic public asset that enables mineral and energy companies to plan exploration, reduce exploration investment cost and risk, and attract investment. It is also used by researchers for productivity and technological innovation.
- » Quality data is captured and managed electronically, and is easy to access and use for the benefit of all.

- » Government programs promote collaboration between industry and government to stimulate greater activity in frontier areas.

Procurement and local content

- » Suppliers in proximity to operations are provided full, fair and reasonable access to procurement opportunities.
- » Local business opportunities are advertised through a range of communication channels so that local suppliers can easily find and bid for them, and deliver locally.
- » Barriers facing local suppliers are actively addressed through government and industry programs.

Capital attraction

- » Government—with the assistance of the Resource Investment Commissioner, Trade and Investment Queensland, industry and peak bodies—actively collaborates and integrates initiatives to market Queensland investment opportunities in gas.
- » Consistent with all state and federal government requirements, the inward flow of foreign direct capital to fund exploration and production activities is actively encouraged.
- » Communication material is tailored to the target audience and provides clear guidance on the broad qualities of the state's endowment and the best point of contact within government.

Technological innovation

- » Given the unique nature of Queensland's gas basin geology, there are tailored government programs and incentives to actively prioritise efficient and effective collaboration in the research, development and deployment of technology and innovation.

Skills

- » Regular assessments are made of the future skills needed to inform a long-term gas sector skills strategy and plan. Demand-driven school, vocational education and training, and university sector policies and programs are implemented.
- » Companies are encouraged to employ locally, whenever possible.
- » Companies and governments carefully assess how workers in the resource sector can be re-skilled and upskilled.

Growth opportunities

- » Continue to assess all significant domestic and export demand opportunities to further develop the state's gas endowment.

Fiscal settings

Fiscal settings, including royalty policy settings and rates, are outside the scope of the gas action plan. Also outside the scope of this paper is financial assurance, which is being addressed through another process.



2. Reform ideas

Consistent with the vision statement and objectives in Section 1, the government has developed 29 reform ideas—principally in the areas of improving the sector’s social licence to operate and decreasing barriers to supply.

While you are reading through the following detailed reform ideas, we would like your feedback on:

- » whether the objectives in each reform idea are appropriate and useful
- » whether the suggested reform ideas are the best way to achieve the identified objectives and benefits.

We would also welcome additional:

- » suggestions to achieve reform idea objectives
- » reform ideas
- » comments.

Please note that these are reform ideas only. They are not government policy and would be subject to a rigorous cost–benefit analysis and prioritisation process prior to inclusion in the final gas action plan. We welcome any additional reform ideas you may have.

Social licence to operate

1. Reporting system for sector-wide performance and regulatory compliance

Issue: Currently, there is no coordinated whole-of-government collection, collation, benchmarking and reporting of gas sector compliance data to critically assess and incentivise improved performance. A sector-wide reporting process would build community trust of both industry and government.



Objective: Better collection and communication of compliance data to build greater community understanding and to benchmark progress to achieving the objectives proposed in the vision statement.

This could be achieved through the publication of an annual, independent, sector-wide performance and compliance report. The report could provide unbiased evidence on performance in regards to compliance across a range of regulated activities—such as land, water, air and environmental regulation, and workplace health and safety.

More broadly, an annual report may also provide information regarding the economic contribution of the industry to communities, including direct and indirect employment impacts. In considering the merits of such annual reporting arrangements, it will also be important to consider the extra reporting costs that may be imposed on government and industry, and how these could be best managed. This could include a whole-of-government approach.

Benefit: Greater transparency and accountability for government and industry as a result of the consolidation of sector performance and compliance data, and builds greater community trust in, and acceptance of, the gas sector and improved social licence to operate. Greater sectoral growth will lead to more jobs.

2. Centralised end-to-end management of community enquiries and complaints

Issue: At present, multiple stakeholders receive and handle complaints from the community (including the CSG Compliance Unit in DNRM, the Department of Environment and Heritage Protection, the GasFields Commission Queensland and local governments). This can result in frustration amongst members of the community due to the lack of clarity regarding who to contact to ensure their concerns are addressed, as well as a dispersion of data regarding community interactions with government.

Objective: A simplified approach to receiving and acting upon community complaints.

Options for achieving this may include establishing a central body or a central point of contact. Further investigation would establish whether or not a more centralised approach would improve the government's ability to respond to complaints, and the likely costs versus benefits of implementation.

Benefit: Improved customer service leading to greater customer satisfaction.



3. Basin-wide approach to community messaging pre-land release

Issue: While the CSG Compliance Unit undertakes some consultation with communities near gas areas, this has largely been undertaken after authorities to prospect (ATPs) have been issued. While the legislation requires that the ATP proponent notify the landholder that the ATP has been granted, often this is the first time the landholder becomes aware that the land has been released by the state government for exploration. The extent and quality of pre-land release information and consultation with landholders could be significantly improved.

Objective: A proactive (rather than reactive), comprehensive and strategic approach to community engagement and education is undertaken prior to any land release. This engagement would occur for frontier basins, greenfield tenders and existing tenures.

Benefit: More comprehensive and effective community engagement that builds the social licence to operate. Improved industry growth will lead to more jobs.

4. Conduct and compensation agreements

Issue: Since the initial gas boom, land access negotiations and relationships have improved significantly. However, further examination of conduct and compensation agreement (CCA) arrangements may help to improve the process and create greater certainty for landholders and gas companies.

Objective: A fair, reasonable and easy-to-understand approach to CCA negotiations that supports the rights and responsibilities of both companies and landowners, but at the same time encourages and supports investment in exploration.

Benefit: An improved process for all parties, thereby reducing the costs of CCA negotiations. Greater certainty in negotiation processes and improved information will reduce emotional stress on landholders.



5. More research into community needs and concerns regarding the gas sector

Issue: The ability of government and industry to respond to community concerns is currently hampered by a lack of detailed understanding of community expectations and whether these expectations are being met.

Objective: A greater understanding of community confidence in the gas sector.

This could help inform the actions of government and industry to build community trust by meeting community expectations. This understanding could be obtained by commissioning continued research into the views, values and expectations of different Queensland communities, ranging from those communities located near gas sector activities to those in more urban areas.

Benefit: Improved understanding of community needs and concerns regarding the gas sector to help drive better decision-making.

6. Improve the provision and clarity of information regarding the gas sector to communities

Issue: Stakeholders receive information from a variety of sources on the impacts of gas exploration and production. Feedback from the community is that the information is either too complicated or difficult to interpret, or too simple without enough content.

Objective: Information provided to the community is in a tailored and balanced form.

This could take place through timely dissemination of independent, third-party, expert analysis and evaluation of the risks associated with gas exploration and production.

Benefit: Improved ease with which the community can develop an understanding of the risks and benefits associated with the gas sector. Sectoral growth will lead to more jobs.



7. Improved capability and capacity of local suppliers to the gas sector

Issue: Participation by capable and competitive local suppliers in major procurements can be a driver of improved productivity and competitiveness. It is also important for local communities.

Objective: Widespread implementation by the sector of a ‘full, fair and reasonable’ approach to procurement to help maximise local participation by capable firms in industry procurement.

Benefit: Greater access for local businesses to supply the gas sector, more jobs, a more skilled workforce and greater diversity of Queensland’s industrial base. This will lead to improved knowledge capital in rural centres.

8. Improved pre-qualification and induction requirements for local suppliers to successfully tender for gas work

Issue: Inductions for successful tenderers, and entry standards and pre-qualifications for tenderers are difficult for some suppliers to meet.

Tenderers face high standards, and often different standards, within and across buyer companies. This imposes additional costs and places additional risks on tenderers, which are passed onto the gas sector. It is difficult, however, to align requirements as the proponents have different risk and insurance profiles.

Objective: Wherever possible, inductions and procurement entry standards are consistent, transparent and reflect an appropriate level of risk management.

Benefit: Greater access for local businesses to supply the gas sector, more jobs, a more skilled workforce and greater diversity of Queensland’s industrial base. This will lead to improved knowledge capital in rural centres.



Increased gas supply

9. Negotiate an agency memorandum of understanding (state and federal) to provide a framework for collaboration and cooperation across all regulatory functions, systems and reform initiatives

Issue: Mineral and energy regulatory agencies predominately work independently, sometimes inhibiting an integrated, streamlined approach that would deliver optimal outcomes for the community, gas sector and government.

Objective: Mineral and energy regulatory agencies work cooperatively with integrated processes and shared data to simplify compliance, reduce regulatory burden and reduce costs for industry and government.

This could be achieved in a number of ways, including an agency memorandum of understanding. This model would require a consideration of all costs and benefits to determine whether this measure would create greater efficiencies.

Benefit: More efficient processes that reduce overlap and repetition, saving costs and time for government and industry.

10. Whole-of-government case/project management support for pre-exploration through to production with regular liaison

Issue: Apart from projects being assessed by the Coordinator-General during the environmental impact statement process, there is no overarching framework or specialised assistance within DNRM to provide support to individual proponents to navigate all government requirements.

For example, for both exploration and production licences, major approvals are required from 12 different agencies (including from state and federal governments) and approvals may also be required from other authorities. The lack of an overarching coordinating mechanism in DNRM results in additional uncertainty, complexity, time delays and costs for proponents.



Objective: A further enhanced coordinated approach to facilitating assessment.

One option for achieving greater coordination may be to enhance the case management approach for smaller projects that do not require an environmental impact statement through the entire government approvals process. For example, the model could be similar to the Coordinator-General's process that provides overarching facilitation and specialised assistance to help individual proponents navigate the state and federal government approval processes. This approach would help attract investment and create efficiencies for companies and government.

Benefit: For proponents, this would simplify compliance, increase certainty, lower compliance costs and expedite timeframes. This would result in increased investment attractiveness and industry growth.

11. Basin and sub-basin-wide approach to exploration approvals to reduce costs for the gas sector

Issue: Presently, the successful tenderer for an authority to prospect (ATP) needs to meet the requirements for the ATP to be approved and obtain an environmental authority, paying the required financial assurance. Depending on their work program and the location of the ATP, they may also be required to meet native title requirements, develop a cultural heritage management plan, pay a groundwater levy and other charges, and undertake safety and health requirements.

If all of these requirements need to be met, the estimated cost for an ATP of about 30 sub-blocks is approximately \$3.3 million over the first four years. This is required for all ATPs, even those that do not demonstrate commercial quantities of gas and do not progress to a petroleum lease.

Objective: Significant streamlining of regulatory approval processes.

This may be achieved by investigating the facilitation of a single process in which relevant regulatory approvals are acquired across an entire basin or sub-basin before exploration occurs. This option would require examination of models for cost recovery, including through the auction of ATPs over the basin or sub-basin, or higher fees.

Benefit: An improved understanding of the options available for streamlining regulatory assessment.



12. Removal of obstacles to the market achieving economies of scale and commercially viable field development

Issue: At forecast gas prices, there is likely to be an increasing need for developments to increase economies of scale to be commercially viable. The current approach to managing exploration tenures in Queensland has led to a patchwork of available blocks and challenges for companies in finding large field developments to be commercially viable.

Objective: Market participants able to increase economies of scale.

There are a number of options that can be explored, including:

- » the government tendering sufficiently large enough exploration tenure to support (success case) gas field developments above the economic resource size
- » exploration tenure holders and third parties undertaking large-scale seismic surveys, either as 'group' or 'multi-client' surveys, to achieve economies of scale
- » greater collaboration amongst neighbouring or proximal exploration and production tenure holders to share data, information, facilities and infrastructure
- » a flexible and responsive tenure framework that enables exploration and development activity to be undertaken where it can best deliver commercial outcomes.

Benefit: An improved understanding of the opportunities for greater collaboration with a view to improving the commerciality of gas developments. This will lead to improved knowledge capital for the state.



13. Streamlined authority to prospect (ATP) and petroleum lease (PL) application/approval processes and target timeframes for approval

Issue: Uncertain and delayed approval timeframes in regulatory processing create an administrative cost burden for the sector and impacts negatively on investment attractiveness. Reducing delays may generate significant commercial benefits for the sector.

Objective: Faster approval times for ATP and PL applications.

One option for achieving this may be to investigate the establishment of performance timeframes standards for DNRM once all pre-approvals have been obtained (e.g. environmental authorities, native title and cultural heritage)—or a stop-the-clock approach. Performance standards would need to be assessed in terms of both benefits and costs, including the resources required to achieve performance standards. Of note is that system changes would be required for DNRM to administer a stop-the-clock approach.

Benefit: Substantially reduced total project costs and improved commerciality of projects.

14. Continuous improvement of regulatory processes

Issue: Queensland has much stronger and more sophisticated regulatory controls than other Australian jurisdictions. For example, the Victorian Auditor-General⁶ found that Queensland has much better practice compliance mechanisms to manage industry operations such as well construction, management of produced water, emissions and abandoned wells.

Recently, the International Energy Agency⁷ found that, in general, Queensland embodies many features of regulatory best practice, including independent oversight bodies such as the Office of Groundwater Impact Assessment and the GasFields Commission Queensland. However, it is important to continuously improve to create an internationally competitive gas sector without diminution of regulatory controls.

Objective: To identify opportunities to improve the regulatory effectiveness and efficiency of regulatory requirements.

Benefit: Reduced costs and time saved for companies without reducing regulatory requirements, and improved investment attractiveness.

⁶ Victorian Auditor-General 2015, *Unconventional gas: managing risks and impacts*, Victorian Government Printer.

⁷ International Energy Agency, *World energy outlook 2015*, France.



15. Progressive move to more outcomes-based legislation (where appropriate)

Issue: In some cases, gas sector regulation tends to be overly prescriptive and sometimes disproportionate to risk, which creates an additional cost burden to government and industry. Specific areas include tenure management, gas-related health and safety and some operational areas.

Objective: A more outcomes-based (rather than prescriptive) approach to some legislative requirements, and regulatory requirements that gives proponents greater flexibility and discretion to achieving a predefined objective that meets community's expectations.

Benefit: Reduced costs, higher levels of compliance and greater efficiency and effectiveness.

16. Strategic exploration tenure release framework

Issue: In support of a long-term vision for the resource sector, the inaugural Annual Exploration Program for 2016–17 has been released to provide much needed strategic direction for exploration in Queensland. The program clearly identifies the government's priorities for the responsible development of the minerals, petroleum and gas, and coal resources.

Objective: Expand the strategic exploration tenure release outlook.

The publication of the inaugural Annual Exploration Program will help resource companies plan their exploration activities and provides another opportunity for promoting Queensland at a global scale. As part of preparing the program, DNRM has actively engaged relevant landowners, traditional owners, local governments and key community and industry groups.

The Annual Exploration Program could be expanded to include a five-year outlook—based upon transparent guiding principles and commodity and basin strategies—to enable government to communicate gas basin development priorities and, potentially, multi-year exploration tender releases. This would enable government, communities and companies to plan for future exploration and better align financial, social and environmental considerations. The program's annual publishing schedule also enables contemporary government policy positions to be factored and communicated into the program's proposed longer term outlook.



Benefit: There is significant benefit for industry, communities and governments if gas basin priorities and, potentially, multi-year exploration tender releases were developed and communicated through the Annual Exploration Program framework. The department's communication and engagement activities supporting the program will lead to developing better relationships between the community and the resource sector.

Additionally in brownfield basins, this may include development of new areas and the more efficient use of infrastructure and services. This would lead to more exploration, robust communities and greater industry growth. For greenfield basins, this would assist with promoting community acceptance associated with the development of new areas, more exploration and better geological information. The framework would give the gas sector, community and governments greater certainty for planning.

17. Providing a concession to petroleum explorers and producers to align with the Exploration Industry Expenditure Concession (EIEC)

Issue: The Queensland Government has recently introduced a policy to provide financial concessions to mineral and coal explorers called the Exploration Industry Expenditure Concession (EIEC). This policy allows for a 50% reduction of proposed expenditure on minerals exploration tenure due to the current market conditions. The policy allows for the reduction in minerals expenditure over 2016 and 2017. There has been no concession provided to the petroleum industry. The petroleum industry is exposed to similar challenging market conditions.

Objective: To establish whether the current challenging business environment is impacting on the capacity of the gas sector to explore.

If this is the case, one option is to test the suitability of extending the exploration minerals concession to gas exploration and how DNRM could modify work program requirements in response. A nominated time period would also need to be determined and legislative changes may be required.

Benefit: Provide assistance and concessions to the petroleum industry during the challenging market conditions that are currently being experienced. This has the potential to free up capital and operational expenditure so that companies can focus on business-critical funding.



18. Validating and publishing geoscience, resource and production data

Issue: The provision of geoscience data to DNRM, as prescribed under regulation or requested under policy, is:

- » not optimised in terms of data standards
- » inefficient and outdated in its reporting methodology (i.e. limited use of electronic submission of relevant datasets)
- » inconsistent between commodity groups (i.e. different requirements for similar data between coal and petroleum tenure holders)
- » insufficiently integrated to allow for subsequent analysis and value creation (e.g. gas exploration pilot production reported by tenure rather than by well)
- » lacking in adequately automated data validation capability, creating over-reliance on manual entry and checking of data, and creating processing backlogs.

Objective: Queensland's geoscience, resource and production data meets national or international quality standards and is suitable for analysis and interpretation, reducing exploration time, costs and risks.

Benefit: Increased exploration investment in Queensland.

19. Select and implement a new geoscience data management solution to transform collection, storage, publishing and trading

Issue: The quality of Queensland's geoscience database does not compare favourably with other jurisdictions. For example, and as a measure of investment disincentive, Queensland was ranked 79 out of 126 global jurisdictions for its geoscience database in the 2015 Fraser Institute Global Petroleum Survey, with Western Australia, South Australia, the Northern Territory and New South Wales all ranked considerably higher.

DNRM's geoscience data is currently under-utilised and not user-friendly. Industry and government data users suggest as much as 80% of the time spent on exploration desktop studies is consumed with finding, cleansing and integrating existing data.

Objective: High-quality, geoscience database systems that meet a range of national and international standards in terms of accessibility, reliability, functionality and data quality.

Rigorous cost–benefit analysis will be required to identify the most appropriate option and funding model to achieve the objective.

Benefit: Increased exploration investment in Queensland, industry growth and more jobs.



20. Develop a Queensland exploration strategy

Issue: In terms of the costs of exploration, the greater the uncertainty about gas potential of a coal formation, the harder it is to raise money to undertake exploration.

Given the government has an interest in ensuring the exploration takes place to discover more commodity reserves (i.e. so that more rent can be earned through royalties on production), there is an argument for the government to investigate further options to encourage exploration activity, particularly in areas where there is greater uncertainty about gas potential.

Objective: A strategy for promoting exploration.

Benefit: Increased exploration investment in Queensland.

21. Well head productivity data

Issue: The Queensland Government does not currently have access to sufficient data to form a detailed understanding of gas field productivity. While the Queensland Government currently receives production data from gas producers, this information does not provide government with an understanding of productivity that is granular enough to inform good policy making and resource management, especially in relation to the design of new exploration tenure in brownfield areas, the conduct of competitive tendering for new exploration areas, and investment attraction.

Objective: More granular information on gas production is available to government.

One option for this would be to provide individual well head production data. This data would help the government develop a more detailed understanding of gas field productivity. The information could also be aggregated for public presentation, in a similar fashion to that of the US Energy Information Agency, to demonstrate the productivity of individual basins. This could potentially aid investment attraction. Industry and government would need to work together to determine appropriate protocols for the provision of this information and its public presentation to ensure that commercial confidentiality is preserved.

Benefit: The government is able to manage gas resources more effectively due to having access to more granular data on gas field productivity.



22. Improved governance arrangements and coordination for the gas sector

Issue: Currently, there is no governance mechanism for bringing representatives from the various gas sector stakeholder groups together (suppliers, explorers, academia, producers etc.). Consequently, it is difficult to develop consensus on sector-wide problems and solutions.

Objective: A genuine partnership amongst key stakeholders in the Queensland gas sector.

One option for achieving this partnership may be to establish an overarching governing body that brings all parties together to develop strategies that address sector-wide concerns.

Benefit: Improved decision-making and a greater sense of partnership between government and industry.

23. Enhanced international marketing of the gas sector

Issue: Queensland is in a uniquely strong position in the Australian east coast gas market and needs to capitalise on the opportunities this situation brings. There is currently limited coordination and consistency in the marketing of the Queensland gas sector by government. To date, promotional efforts have been ad-hoc. Additionally, agency-specific material tends to be developed and targeted to technical audiences rather than investors.

Objective: A strategy for promoting the resources sector and securing investment capital.

Such a strategy may be best devised and implemented through close collaboration between DNRM and the Resources Investment Commissioner, Trade and Investment Queensland, and peak industry bodies. This strategy could focus on a number of key issues, including improving marketing to meet audience needs and lifting Queensland's representation at key international industry events.

Benefit: Increased investment in the Queensland gas sector generating additional royalties and employment for Queenslanders.



24. Introduction of an online regulation framework tool

Issue: For gas sector proponents, information on regulatory requirements can be hard to find—it is piecemeal, difficult to understand and often out of date. There is no integrated website that amalgamates all information from across agencies. Proponents also need to submit the same information more than once to different agencies. This information is provided to prospective tenderers for authorities to prospect through tender documents but needs to be made publically available to demystify the regulatory requirements of the state.

Objective: Make it easier for the gas sector to understand and navigate regulatory processes and track their applications online.

One option to deliver this is through an online regulatory framework tool.

Benefit: Improved company efficiency resulting from the ability to better understand and navigate regulatory processes.

25. Less prescriptive tenure work programs

Issue: Encouraging exploration underpins the long-term viability of the gas sector, with the flow-on benefits that come from the sector including growth of communities, businesses and industry. Currently, there is limited flexibility in a gas explorer's work program commitments.

Introducing results-based exploration reporting, rather than activity-based reporting, could create greater flexibility and optimise exploration activities. Currently, work programs are set by explorers on a four-yearly basis and may not stay attuned to market conditions over that time.

As the economic cycles change and/or the geological model changes, work programs need to be flexible to account for this, as opposed to having to report and lodge changes.

Objective: Changes to work programs to help explorers prove up resources in a cost-effective way according to market conditions.

Benefit: Explorers are able to optimise their work programs according to changing market conditions and in the context of geological uncertainty. This would, over time, lower the costs of exploration and increase resource discovery.



26. Technology road map developed with an alternative funding and delivery model

Issue: A key driver of long-term productivity in the Queensland gas sector will be innovation and technological development. Currently, however, there is no structured approach to how the sector develops, socialises, commercialises and implements research, development and technological innovation.

Additionally, there is no key ‘owner’ of this agenda and no incentive for different parties to collaborate on the facilitation of technological innovation. These circumstances are likely impeding the ability of the Queensland gas sector to pursue substantial research and development activities.

Objective: A long-term strategy for how the sector develops, socialises, commercialises and implements research, development and technological innovation.

The government could work with the tertiary education sector and industry to develop a strategy. A key task would be the identification of the owner and driver of this strategy (government, industry-supported body or tertiary institution, or a combination of all three) responsible for fostering collaboration and facilitation of technological innovation. Another key task would be the development of an appropriate funding and delivery model, with the Australian Coal Association Research Program (ACARP) providing a possible model.

Under the ACARP model, coal producers are levied five cents per tonne by the federal government. This revenue is aggregated, with the ACARP board tasked with determining research and development (R&D) priorities. A small secretariat exists to facilitate the R&D projects. The findings are shared amongst key stakeholder groups. There is a constant source of revenue for the fund, as it is not a discretionary contribution.

Benefit: R&D priorities are developed strategically, capital is utilised effectively and efficiently as there is minimal duplication of effort because results are broadly socialised, and there is increased social, environmental and economic performance productivity in the gas sector. This will lead to improved knowledge capital.



27. Exploration development incentive (EDI) extended to junior petroleum explorers (Australian Government–led initiative)

Issue: Of the approximately 30 active gas explorers and producers in the state, 15 have a market capitalisation of less than \$50 million, with single or small asset portfolios and little to no cash from production. This means that explorers cannot currently offset exploration expenses against income.

This reduces the amount of capital that is available for exploration and can create a commercial disadvantage. As a result, there is likely to be reduced exploration activity and less competition for Queensland’s cash-bid land release tenders. A novel solution to this issue is the Australian Government’s Exploration Development Incentive (EDI), which passes a portion of the value of these deductions to Australian resident shareholders in the form of tax credits. Currently, the EDI only applies to minerals greenfield exploration.

Objective: The EDI program is extended beyond greenfield minerals activities to greenfield petroleum activities.

This initiative would benefit the sector Australia-wide. Companies are not financially disadvantaged from asymmetric treatment of tax deductions in the *Income Tax Assessment Act 1997*.

Benefit: Increased investment attractiveness, more capital made available for explorers, increased exploration activity, more production and royalties, and greater competition for Queensland’s cash-bid land release tenders.

28. Reform pipeline trading arrangements

Issue: In the coming years, it is expected that LNG operations will be subject to supply outages and disruptions, and there will be opportunities to supply gas to the domestic market.

Currently, the capacity of the state’s gas pipelines is almost 100% contracted but can be underutilised and, as a result, shippers have little incentive to offer latent pipeline capacity to the market to ensure available gas can move to its highest value and most efficient use. The ability to maximise supply opportunities and rapidly divert gas when it is available to the domestic market is a win–win for producers and consumers.



Another challenge is that the domestic gas market is struggling to find a reference gas price to inform gas purchasing. Liquidity and transparency is needed to create a reference price to inform decision-making.

Objective: Latent pipeline capacity is made available to the market, and gas pipeline shippers that have previously secured the pipeline capacity are not disadvantaged.

This work is being undertaken nationally as part of the COAG Energy Council gas reform agenda. Queensland is represented by DNRM and the Department of Energy and Water Supply on the gas working groups.

Benefit: Supply opportunities maximised and available gas diverted to the domestic market, benefiting users and the economy.

29. Assessment of whether upstream skills requirements can be satisfied from the local labour force

Issue: The gas sector's focus will increasingly be on the skills required to pursue upstream gas exploration and production development to support the LNG facilities on Curtis Island. It is currently unclear as to whether this skills requirement will be met into the future, and whether there is an additional role for government to play in ensuring this skills demand is met beyond current policy settings.

Objective: As upstream activity increases and greater productivity gains are pursued, CSG–LNG companies are able to easily access labour with the appropriate skills.

The Queensland Government will continue to monitor vocational education and training policy settings, including funding priorities.

Benefit: Skills are available when needed in the future. This will lead to better knowledge capital.





3. Potential benefits of the reform ideas

The main benefits of the reform ideas are outlined below.

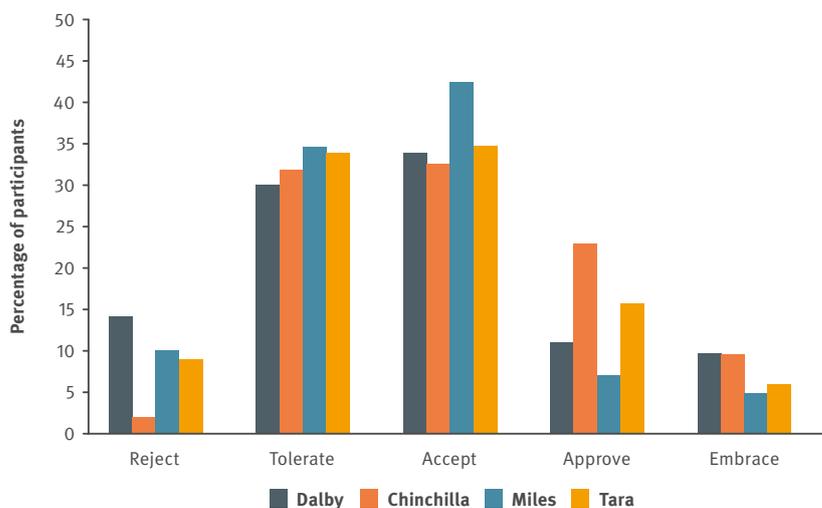
Improved social licence to operate

A social licence to operate exists where the broader Queensland community is informed and accepts gas operations and related activities within Queensland.

The presence of the social licence might be described as an equitable balance of societal interests that allows a specific activity to continue and thrive.

The social licence is sometimes referred to as a social contract. It is not, however, a physical licence or contract but a concept or perception. The licence is dynamic, and unless a company earns that licence and maintains it on the basis of good performance on the ground and community trust, there can be negative implications.

Figure 3 below shows the attitudes of four typical communities located near gas areas in the Western Downs. The fragile nature of the social licence to operate is demonstrated by the large middle group of people that tolerate or accept the natural gas industry, and the smaller number who either reject or embrace the industry.



Source: Walton, A et al. 2014, *CSIRO survey of community wellbeing and responding to change: Western Downs region in Queensland*, CSIRO, Australia.

Figure 3: Attitudes towards natural gas in the Western Downs (2014)

Some Queensland Government processes do address social licence to operate. For example, the Coordinator-General coordinates whole-of-government approvals for LNG projects (and the supporting social impact management plans that are in place for these projects). The social impact assessment for 'coordinated projects' includes community consultation, local workforce and industry participation, and community health and wellbeing.

The Queensland Government believes that more can be done to understand and address the concerns of communities. The reforms proposed in Section 2 are designed to help communities assess the risks and benefits associated with gas exploration and development, as well as improve the transparency of the sector's compliance with government regulations.

More efficient and effective regulation that reduces costs without diminishing performance

Analysis completed by consulting firm McDonnell-Phillips shows that the Queensland gas sector regulatory framework is complex and spans multiple agencies. After reviewing this analysis⁸, the government believes that there are grounds to remove overlap across government agencies and to make certain regulations less prescriptive and more efficient and outcomes-based, without diminishing community and environmental safeguards.

With reference to the hypothetical gas field development and reference case, the University of Queensland (UQ) Centre for Coal Seam Gas assisted government to calculate the benefits of applying more effective and efficient regulation that reduces delays and costs. These benefits are measured in changes of production costs and the net present value (NPV).

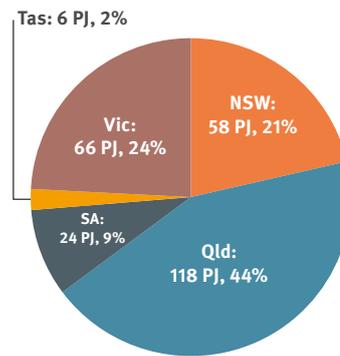
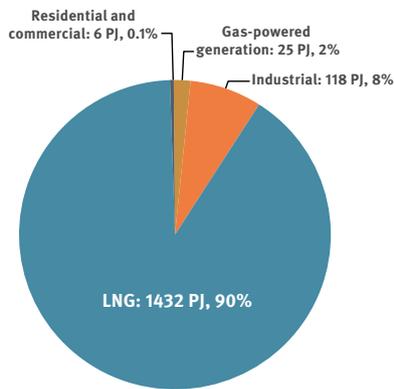
In relation to delays, the analysis demonstrates that for the hypothetical gas field development, a 12-month acceleration of the timeframes between commencing production and identification of exploration targets (e.g. from 12 to 11 years) can reduce the \$5.51/GJ (gigajoule) cost of producing gas by 2.2% or \$0.12/GJ. The value of the project in NPV terms would increase by \$11.4 million or 53% from a 12-month reduction in delays. Alternatively, a 12-month delay would increase the \$5.51/GJ cost of producing gas by 2.5% or \$0.14/GJ. The value of the project in NPV terms would decrease by \$11.5 million or 53%.

Increased gas supply and impact on prices

Gas is an essential input for many of the fundamental commercial and industrial businesses in Queensland. Ultimately, increased supply of gas should stimulate economic development in the state. Without secure gas supply, these businesses would face an enormous challenge. By growing the gas sector, government is ensuring continuity of supply to sustain these industries into the future.

⁸ McDonnell, D 2016, *Impact of full life cycle regulatory costs and time delays on the gas industry in Queensland*, McDonnell-Phillips Pty Ltd.

Figure 4 shows that when Queensland LNG facilities are at full production in 2017–18, the state’s industrial consumers will consume approximately 118 petajoules (PJ) of gas, representing approximately 8% of the state’s total demand for gas. Figure 5 shows that Queensland’s industrial consumers use the highest percentage (44%) of all gas consumed by industrial consumers nationally.



Source: Australian Energy Market Operator (AEMO) 2015, *National gas forecasting report: for eastern and south-eastern Australia*.

Figure 4: Queensland consumption of natural gas, by group (2018 forecast)

Figure 5: Industrial users consumption of natural gas, by jurisdiction (2018 forecast)

The largest industrial gas consumers in Queensland include Rio Tinto Alcan (Yarwun), Glencore (Mt Isa Mines), Incitec Pivot and Queensland Alumina Limited. They produce domestically consumed and exported products such as fuel, fertilisers, alumina, aluminium, refined metals and ammonium nitrates. Furthermore, a high proportion of these large industrial customers have gas supply agreements with gas producers and arrange their own gas transmission agreements.

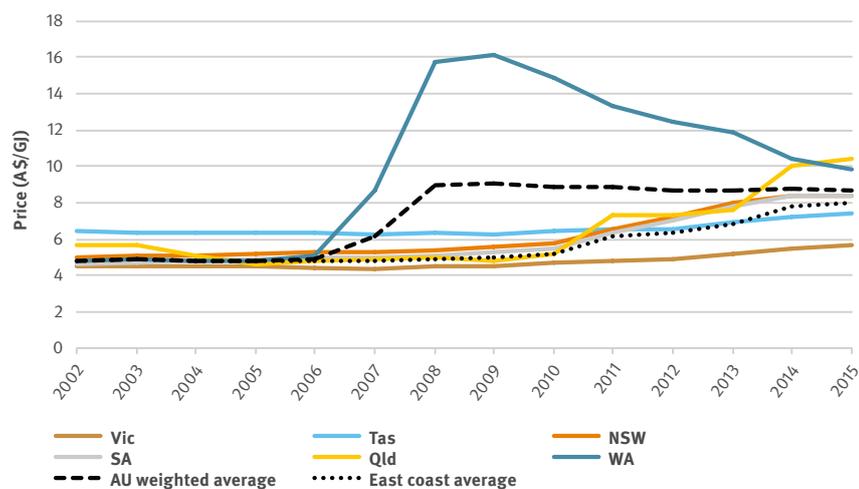
The large geographic spread of gas demand in Queensland has created three unique demand nodes in South East Queensland/Brisbane, Gladstone and north-western Queensland. Although there are consistent market conditions across Queensland, varying transportation and market structure issues have created different prices across these nodes.

Compared to other jurisdictions, Queensland's large industrial customer gas supply agreements are more likely to have much longer terms (10–15 years historically). However, longer term agreements are becoming increasingly difficult to secure given the current price environment and market uncertainty. The high percentage of long-term gas supply agreements makes new (large) domestic market transactions 'lumpy', and in some years there may be no market transactions.

Figure 6 shows that the state's industrial users also face amongst the highest gas prices compared to other Australian jurisdictions. In 2015, and on a volume-weighted average basis (45% South East Queensland/Brisbane, 34% Gladstone and 20% north-western Queensland), the average gas price delivered to Queensland's large industrial customers was \$10.44/GJ, of which \$9.43/GJ (90%) was the average wholesale gas cost and \$1.01/GJ (10%) was average pipeline transportation costs. This represents a doubling of gas prices over the past five years.

Analysis of industrial gas prices in other Australian jurisdictions shows that these markets are heavily influenced by supply and demand dynamics. For example, in Western Australia where oversupply now exists, the natural gas price has decreased from \$16/GJ in 2009 to \$9.81/GJ in 2015, of which \$7.94/GJ (81%) was the wholesale gas cost and \$1.87/GJ (19%) was pipeline transportation costs.

Increasing gas supply has the potential under some scenarios to moderate domestic gas prices.



Source: Oakley Greenwood 2015, *Gas price trends review*, Department of Industry, Innovation and Science, Canberra.

Figure 6: Large industrial customer gas price trend (2015)

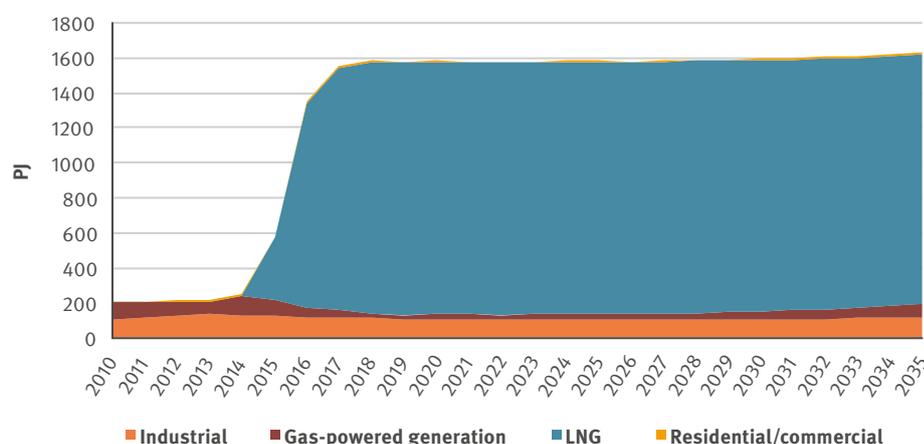
Consolidation and growth of the Queensland LNG industry

Over US\$60 billion⁹ has been invested in 'upstream' gas exploration and production (Surat and Bowen basins), transportation and 'midstream' LNG export capacity on Curtis Island within the space of six years. This has been the most substantial infrastructure investment in Queensland over several decades, and it is imperative

⁹ Office of the Chief Economist 2015, *Resources and energy major projects: October 2015*, Department of Industry, Innovation and Science, Canberra.

that there remains a cost-competitive supply to enable sustainable operations and an adequate return on this infrastructure. There will be a need for ongoing gas field development to meet existing contract obligations and sustain employment.

Figure 7 shows that by 2017–18, when the six Curtis Island LNG facilities are expected to have reached peak production, the liquefaction trains will require approximately 1400 PJ of gas per annum. Given the requirement to satisfy legacy domestic supply contracts, and the ramp and tail gas requirements of the LNG trains, it is estimated that the actual gas requirements of the LNG facilities are 140–150% of the contracted fixed-volume commitment. Hence, given that there are six LNG trains committed, these facilities may demand approximately 53 900 PJ of gas over the next two decades. Presently, the state has approximately 43 288 PJ of reported 2P gas reserves across all Queensland gas basins. As reserves are dependent upon commodity price, this figure may decrease as gas reserves are reclassified as contingent resources (given the recent fall in oil and gas prices).



Source: AEMO (2015).

Figure 7: Annual consumption forecast segments (including LNG) for Queensland (2010–2030)

Looking beyond the current contractual requirements, there is likely to be strong growth in global demand for gas, including LNG.

Latest economic forecasting provided by the International Energy Agency suggests that under various carbon abatement scenarios, there will continue to be global demand for gas.

A more diversified domestic industry base

While the present driver of Queensland gas development is current and future supply to the LNG export market, future domestic demand for gas is expected to come from power generation. There may also be opportunities to provide a feedstock for the manufacture of complex petrochemicals and as a substitute for current transport fuels.



4. Strengths, weaknesses, opportunities and threats

In June 2015, DNRM commissioned an expert consultant to conduct an analysis of the Queensland gas sector to help the government better understand:

- » prospectivity and endowment of the state's gas deposits
- » barriers to achieving least cost supply
- » efficiencies of gas and pipeline trading markets
- » further domestic and export demand opportunities.

The analysis identified a number of strengths, weaknesses, opportunities and threats to growing the gas sector (summarised in Table 1).

The reform ideas outlined in Section 2 are designed to address the weaknesses and threats and build on the strengths and opportunities.

Table 1: Queensland gas sector’s strengths, weaknesses, opportunities and threats

Strengths	Weaknesses
Large-scale and long-term potential for gas demand	High gas production costs (from challenging geology, lack of competitively priced inputs and regulatory obligations)
Capacity to develop enough gas reserves to meet significant additional domestic and export demand	Inherent geological risks with long development paybacks
Maturing sector with improved workplace health and safety, and environmental and social licence to operate systems and performance	Non-optimised tenure holdings (fragmented nature of exploration tenure holding)
Established gas production, processing, transmission and storage infrastructure connecting to established global markets	Concentrated control of the majority of reserves and resources in producing basins
Skilled workers and potential for re-skilling or upskilling workers from other resource sectors	Majority of authorities to prospect (ATPs) are held by small and private companies and mid-cap companies, which require substantial exploration funding
Sufficient short-term capacity in gas transmission pipelines	Fragile and transient social licence to operate
Emerging eastern Australia gas trading market	The public has limited awareness of the improved performance and socio-economic contribution of the sector
	Latent pipeline capacity due to contractual conditions can go unutilised
	Low level of domestically supplied competitive goods and services inputs, which adds to costs
	Sub-optimal collection, storage and publishing of geological data
	Overlapping and prescriptive regulation, resulting in lower productivity and higher costs to the gas sector and government
	Small and remote onshore exploration and production sector in global terms
	A changing skills requirement from the construction-to-operations phase
	Lack of a technology road map to address exploration and development, especially in frontier basins
	Highly reliant on cash-poor juniors for exploration, but sector has significant tax disadvantages

Opportunities	Threats
<p>Improve management of oil and gas industry exploration and production data</p>	<p>Global LNG market competition</p>
<p>Develop technology for gas production from deep and lower flow rate gas resources</p>	<p>Low oil (and gas) prices leading to a downgrading of gas reserves and scarcity of capital</p>
<p>Undertake long-term exploration programs in frontier basins with identified but not proven commercial gas resources</p>	<p>Failure to significantly reduce domestic costs of production</p>
<p>Improve community trust and confidence through transparent sharing of the true risks associated with activities, improved compliance reporting and development of a more effective government interface</p>	<p>Lack of coordination and collaboration of research and development</p>
<p>Achieve a more effective and efficient regulatory environment across all levels of government</p>	<p>Land access constraints—long lead times and community resistance to the gas sector</p>
<p>Greater employment and tax revenues to the benefit of all</p>	<p>Poor compliance/risk monitoring impact upon social licence to operate</p>
<p>Alternative and complementary source of income for regional communities</p>	<p>Failure to attract investment capital due to the inability to present high-potential opportunities</p>
<p>Upskill local workers and re-skill and incentivise workers to reside in communities located near gas areas</p>	<p>Deteriorating social licence to operate by failing to meet broader community expectations</p>
<p>Standardise terms and conditions for pipeline capacity contracts</p>	<p>Contractual congestion rather than physical congestion may inhibit the operation of short-term gas trading markets</p>
<p>Technological advancement may facilitate price competitiveness</p>	<p>Service company failures resulting from lack of finance and poor profitability leading to reduced competition and innovation</p>
<p>Service companies can build on their CSG experience into other gas exploration and production plays; opportunity to share innovation more broadly within industry</p>	<p>Import competition for gas products depending on domestic supply affordability and availability (e.g. fertilisers, synthetic diesel, petrochemicals)</p>
<p>Service companies can make technology advances in techniques and equipment manufacture</p>	

Have your say

The Queensland Government seeks your feedback on the ideas and concepts in this discussion paper and any additional comments that would assist the development of a gas action plan for Queensland.

- » Visit www.dnrm.qld.gov.au
- » Email your written submission to gasactionplan@dnrm.qld.gov.au
- » Post your written submission to:
Queensland gas supply and demand discussion paper
Department of Natural Resources and Mines
PO Box 15216
City East Qld 4002

Please indicate on your submission the reform idea you are addressing and which of the following categories best describes you:

- » landholder with gas infrastructure on your land
- » landholder in gas area (but no infrastructure on your property)
- » traditional owner or group representing the interests of traditional owners
- » resident from a community near a gas area
- » local business owner from a community near a gas area (but not supplying gas companies)
- » gas producing company or company supplying the gas industry
- » gas explorer or drilling company
- » peak bodies (please specify which industry)
- » federal, state or local government (please specify)
- » community group (please specify which group)
- » environmental group (please specify which group)
- » other (please specify).

This information will help identify trends from different stakeholder groups.

Submissions close **5 pm, Monday 19 December 2016**

For more information, visit www.dnrm.qld.gov.au or call 13 QGOV (13 74 68).

Glossary

2C resource	the best estimate of a contingent resource (non-commercial and unrecoverable gas)
2P gas reserve	a reserve that is proved and probable (the highest classification for dissolved gas)
authority to prospect (ATP)	an authority that allows the holder to explore for hydrocarbons (such as petroleum, oil, CSG and natural gas), test for hydrocarbon production, evaluate the feasibility of hydrocarbon production and evaluate or test natural underground reservoirs for storage of hydrocarbons or a prescribed storage gas
'belts and braces'	the use of two or more engineering techniques in order to be extra careful about something, although only one is really necessary
brownfield	the expansion or further development of an existing tenure, field or facility to extend the economic producing life of the field
coal seam gas (CSG)	natural gas contained in coal deposits
competitive tendering	a process (either cash or non-cash) for allocating exploration permits for coal and petroleum and gas
conduct and compensation agreement (CCA)	a document developed by the Queensland Government in consultation with landholder groups and groups representing resources explorers and producers, intended to represent a fair and balanced approach to land access and compensation issues
cultural heritage	the legacy of physical artifacts and intangible attributes of a group or society that are inherited from past generations, maintained in the present and bestowed for the benefit of future generations
environmental authority	an authority for particular activities of mining and exploration granted under the <i>Environmental Protection Act 1994</i> (required before a resource authority is granted)
environmental impact statement	a formal document that contains an assessment of likely environmental impacts of a development proposal and how to avoid or minimise any adverse impacts
exploration development incentive (EDI)	an incentive that encourages shareholder investment in small exploration companies undertaking greenfield mineral exploration in Australia
explorer	a company engaged in exploration activities
financial assurance	financial security provided to the Queensland Government by the holder of an environmental authority to cover any costs or expenses incurred in taking action to prevent or minimise environmental harm or rehabilitate or restore the environment
Fraser Institute Global Petroleum Survey	an annual survey of petroleum industry executives and managers undertaken by the Fraser Institute
frontier basin	a basin where exploration activities have not been carried out

gas supply agreement	an agreement between a provider of gas and a customer governing the provision of gas services
gas transmission agreement	an agreement between a customer of gas and a transport provider setting out the rates and terms of transporting the gas
gas well	a well that yields or has yielded natural gas
greenfield	not previously explored or developed
groundwater	water beneath the ground's surface that fills up the tiny spaces between particles of soil, sand, gravel or rock formations
land access	authority or permission to enter land for a specific purpose, such as for exploration activities
liquefied natural gas (LNG)	natural gas (methane) chilled to -161 degrees Celsius so that it becomes a liquid
LNG train	an LNG plant's liquefaction and purification facility (used to compress natural gas into LNG), typically consisting of a compression area, a propane condenser area and methane and ethane areas
'lower for longer'	a perception/forecast that the price of a commodity will be lower than the trend for a long period of time
midstream gas exploration and production	transportation (by pipeline, rail, barge, oil tanker or truck), storage and wholesale marketing of crude or refined petroleum products
native title	communal, group or individual rights and interests of Aboriginal peoples or Torres Strait Islander peoples in relation to land or waters, where: <ul style="list-style-type: none"> a. the rights and interests are possessed under the traditional laws acknowledged and the traditional customs observed by the Aboriginal peoples or Torres Strait Islander peoples b. the Aboriginal peoples or Torres Strait Islander peoples, by those laws and customs, have a connection with the land or waters c. the rights and interests are recognised by the common law of Australia
net present value (NPV)	the difference between the discounted present value of future benefits and the discounted present value of future costs
operational expenditure	the cost associated with operating a business at a desired level during a business cycle on an ongoing basis
petajoule (PJ)	one thousand million million joules (10 ¹⁵ joules)
petroleum	any naturally occurring hydrocarbon (including liquid, gaseous and solid hydrocarbons, such as oil, natural gas, gas condensate, ethane, propane, butane and pentane) found beneath the earth's surface
petroleum lease (PL)	a lease granted over an area of an ATP (and then excised from the ATP) giving the holder the right to explore for petroleum, test for petroleum production and produce petroleum

produced water	water initially trapped in coal seams but produced to the surface during the extraction of gas
proponent	a company or organisation that is developing and operating a gas project
prospectivity	potential or capacity to yield a commercial resource
reserve	estimated quantities of hydrocarbons that geological and engineering data demonstrate with reasonable certainty to be commercially recoverable under existing economic and operating conditions
royalty	the price (prescribed in legislation) charged by the Queensland Government for the transfer of the right to extract a mineral resource
social licence	support and acceptance for a petroleum proposal shown by the affected community, local residents and stakeholders
train	<i>see LNG train</i>
unconventional gas	natural gas is found in very low porosity sedimentary rocks, which is more difficult and more costly to extract than conventional gas
underground coal gasification	an industrial process that converts coal into product gas
upstream gas exploration and production	exploration for resources, drilling exploratory wells and drilling and operating the wells to bring crude oil and/or raw natural gas to the surface
well	<i>see gas well</i>

visit www.dhrm.qld.gov.au
call 13 QGOV (13 74 68)



Queensland
Government